On an example of a Post-formal education – on Social Sustainability

VOLUME I, II and III

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“We are still far from pondering the essence of action decisively enough. We view action only as causing an effect. The actuality of the effect is valued according to its utility. But the essence of action is accomplishment. To accomplish means to unfold something into the fullness of its essence, to lead it forth into this fullness—produere. Therefore only what already exists can really be accomplished. But what ‘is’ above all is Being. Thinking accomplishes the relation of Being to the essence of man. It does not make or cause the relation. Thinking brings this relation to Being solely as something handed over to it from Being.”

- Martin Heidegger

Letter on Humanism, 1967
I would like to thank the CS community in its whole; from the advisory board to the past and present staff and from guest lecturers to frequent workshop visitors, and most of all the magnificent CS students who have co-hosted me and us all in this mental home and belief haven for the past years.

I want to thank Aalto University and the programme for having the vision to give so much value to our inquiry, and having the flexibility that truly help us in the process. Thank you Tiina Laurila, Susu Nousala and Tatu Marttila—my academic sparring partner, for guiding me through this project.

Thanks to my colleagues at Big Plans Bakery, especially Markus.

Thank you friends and family, and hopefully—you'll all be proud of me, Johanna and Mai most importantly.

I think I've found my favourite medium of self-expression—life.
I'm just not sure about the format yet.

Janne J Salovaara
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Book Index:

Introduction to the inquiry p. 8

Abstract p. 13

Inquiry Background p. 15

Research Question p. 19

Volume I – The Empirical p. 20

Volume II – The Theoretical p. 117

Volume III – The Synthesis p. 262

Bibliography p. 290
1. Aalto University: Creative Sustainability – a Master’s Programme

1.1. Critical Overview of the Programme According to the Public Description

1.1.1. Future Challenges
1.1.2. Multidisciplinary Approach to Sustainability
1.1.3. The Competence Areas
1.1.4. The CS Value Proposition

1.2. In-depth Analysis of the Reflected Image of, and the Issues at CS

1.3. Program Content by Curriculum

1.4. Content of the Extracurricular Activities

2. Social Sustainability Projects

2.1. Design for Real Need

2.1.1. Project Pirkka
2.1.2. Mellunmäki Service Ring
2.1.3. City in Transition: Project Suna

2.2 Inquiry for the Methods

2.2.1. Whose Issues*
2.2.2. WDC Helsinki 2012 Pavilion
2.2.3. Talkoot Taxi!

2.3 In Search for Practical Outcomes

2.3.1. HOAS—Student Housing
2.3.2. Sitra Peloton Camps
2.3.3. Talkoot and Sweet Home Farm in Cape Town, South Africa

2.4 Exploring the Meta-Level

4.4.1. Aalto Camp for Societal Innovation
4.4.2. Mainio Social Co.—Uni-Camp 2013
4.4.3. Creative Sustainability—Creative Teamwork
1. Theoretical Framework and Background to Social Sustainability
   1.1. Formal, non-formal, and post-formal education
   1.2. PBL and LLL
   1.3. Social theory of Sustainability
   1.4. Sustainable by Design
   1.5. Philosophy of the Science of Sustainability
   1.6. Fore- and Future-casting
   1.7. Systems and Making Sense of Them

2. Methodological Background to Practice Sustainability
   2.1. Social or Societal Design
   2.2. Designing with an Aim for Inclusivity
   2.3. Empathic design—Being true to the nature of the issue
   2.4. Ethnography in Design and Design-Anthropology—What, Why and How?
   2.5. Social Change through a Mix of Principles and Methods
1. Conclusions and Recommendations for Sustainability Education
   3.1 Developing CS and the Recipe for the Mindset
   3.2 Recipe for CS Students
   3.3 Platform for CS development
   3.4 Educating Sustainability in the Future

2. Social as the Core of Sustainability

3. End Discussion
Introduction to the inquiry project

Assessment of the field, the program, and the outcome as seen from a plateau of theories, after having consumed a plate full of courses and been exposed to a plurality of views – The perspective of one student

I've had the idea for the content of this project since the beginning of my studies. I've always said that to be a designer is an exhausting task since you have to reinvent yourself every day. Adding the field of sustainability to the mix means that you have to not only reinvent yourself as a source of possible solutions but also re-assess, re-structure, re-hierarchise—in effect, almost reinvent the context in which you work and live every day, and that can be murder. As you continue seeking a target for your passion, the ground forming the basis of your beliefs and values shakes and begins to give way beneath you. This is only natural, however, as one has to re-experience everything as part of experiencing existence. But in the science of sustainability, the modes by which we further it, the tools we use to test it, and the future we must predict based on our actions are always in flux. Therefore, assessment becomes a major part of our trade. And this trade is a rare, unique one that demands, first, that we function at our highest level and, second, that we understand things that are constantly in flux and, in doing so, be able to move comfortably between holism—i.e., understanding the ‘big’ picture of the meta-level—and reductionism—i.e., understanding at the micro-level. In other words, stated succinctly, we have to cope with it all and do it all in order to solve it all, at least as I see it. This is my path as an example to take the platform that is the CS programme and look at it through the lense that feels the most meaningful to yourself—like to me, through the social one. The programme offers a perfect platform for one to exploit the meta-university that surrounds it to build ones own skillset through the offerings available, looked through the lense that makes sense. This way one can raise them selves to be the professional that emerges from the actually most important element of the programme, the multi-disciplinarity that in actuality turns into non-disciplinarity. Thought this way, the programme is a perfect coming together of the new kind of education where supply tries to meet the demand—which then again stems from a social need. The basics of a post-formal and passion based education.
The set of research questions that constitute the core of my inquiry are naturally a set of questions I've had, and still have, to ask myself on a daily basis. To put it simply, what are we doing, and to whom and with whom, and to get where? As in the philosophy of science, this way of thinking about research—as only a set of questions that lead to more questions of the same kind—is ultimately the reason why we have science and is the criterion that makes any question a question of science, that is, not to explain why something is but to guide us to the next questions concerning the same phenomena.

During my studies as a CS major at Aalto University beginning in 2010, I've had a chance to flirt with a lot of issues surrounding the principle of sustainability. For me, sustainability is, even now, an attempt every day to find an action—an expression in action to it, a principle more than anything. It's comparable to a philosophy of prosperity in a plural sense; it is comparable to a religion in the sense of rules and goals to create benefits extending beyond our own lifespans; it is a profession and a trade in the sense that a global trend is emerging where green business leads to better profit; it is flattering to one's expertise in the sense that understanding sustainability can be perceived as a self-claimed notion; but by its origins sustainability is a principle. As a principle, its aims are hard to express even for us, because the community of academics and pioneers in the science cannot even now agree on common terms, a common hierarchy, or even common tradeoffs. Even if we understand the aims, can quote the seven generations principle to explain it, or characterize it by an Einsteinian problem setting, and through not just one question but a set of questions we are capable of comprehending the task at hand—have we then actually understood the principle or just its aims? In my view the aims are unendatable, in the sense that the consequences of neglect are unbearable, but the modes of accomplishing them are still new and even premature. It's commonly said that psychology is a young science, and it precedes sustainability by 100 years. And whether mature or not, we nonetheless have to make choices based on it that will affect generations to come, and all we have to go by is this moment and predictions based on inevitably subjective views formulated in the limited capacity to which we're bound, as, according to Terrence McKenna, mere monkeys on mushrooms, a species on the verge
of extinction or on the verge of realising the very outcome as the monkeys, i.e., evolution.

But before going on the critical rampage sure to follow, I wanted to revisit the roots and elements of sustainability as an overarching principle and by that, the roots of the Aalto Creative Sustainability program itself. For the foundation, I selected a set of keywords often repeated in the materials and topics on the official curriculum of CS studies to which I added a few terms of my own describing my own experience. With these keywords in mind, I searched the major article databases (f.ex Taylor Francis Online, ScienceDirect, JSTOR and such) and adopted a set of the most recent and relevant articles as the basis of the theoretical and academic knowledge of the field. The keywords I used, that to me well describe my studies in Creative Sustainability, were as follows: cognition, education, and learning—as these concepts are the foundation of understanding most of what we need to know. To describe being able to know, I chose the following search terms: design, interaction, and participation, which describe the methods we tend to use when planning things both sustainable and social. To capture the notion of complexity, I reviewed articles on the topics of post-normal and post-formal, of sustainability of course, of systems thinking, and of the philosophy of science. To understand the scope and dimension of time in the scientific field we work in, I sought out articles on fore- and futurecasting as a part of my base paradigm of knowledge. All this no doubt sounds extensive as background research, but for me to be able, with integrity, to talk about sustainability in a critical way, I needed to source the current state-of-the-art to the point of knowledge creation. These approximately 150 articles was read as the inquiry progresses and, to repeat, even if a bit extensive they were there for a reason. Sustainability is not a trade of one, but a collection of many fields of science as it is not just a principle but the mode of human function.

On the first volume of this inquiry, I reflected on the theories and base-principles provided by the Aalto Creative Sustainability program. The courses I took for my CS studies provided the core but the program’s current offerings, which have altered a bit in three years, also contributed. My experience in the program is somewhat of an anomaly in contrast to that of the typical student, but, based on the idea that the true heart of the
program is in passion-based learning, flexibility with respect to curriculum is permitted. Nonetheless, the curriculum led me to the keywords describing the program, and so, anomaly or not, both possible study paths are used as analogues and analysed according to course content—official curriculum or a more self-directed route. The courses I had the privilege of taking can be viewed in a more detailed scope, where not only the topics and learning aims are considered but also the lesson-to-lesson content. The point of presenting on a detailed level the CS course offerings is to align them with the base theories accumulated from the literature review. Still another point is to assess the applicability of the CS offerings to a practical approach to sustainability through CS, its ultimate goal, as the program is practical more than theoretical. This set is the content of the first volume – which is the empirical, the personal view and path to my own take of the issue of social sustainability, through the meta-university around the Creative Sustainability programme.

The second section of this volume concerns socio-cultural sustainability in practice based on a selected group of projects I’ve managed or have been a part of during my past three and a half years as a CS student. Projects, interventions and campaigns, camps and workshops, sites of pilot-studies in the theories this inquiry concerns. Again the cases presented in the fourth section exhibit a division between official curriculum and self-steered study. The projects in Tanzania can be viewed as part of the official curriculum, because the project is more established, organized, and managed, whereas the pilot project I’ll run in Mexico can be viewed as self-steered and self-sourced. The Mexico Lab project provides me the opportunity to test some of the synthesis formulated in the earlier parts of this work, i.e., the effectiveness of the combined official and unofficial curriculum and the applicability of the accepted theories to practice in real-world cases.

As the conclusions of this volume, I propose a list of recommended CS actions as a developing program. These are overall recommendations, based on the findings and the feedback—both self-reflected and obtained from others (through several years of informal discussions on the topic of how we the students think the programme should
develop), will be given to the CS program on the general level, where the main aspects of value proposition, future prospects, communication of the program, and so on are considered. The recommendations will be put in practical terms in the form of a suggested course or study module exemplifying the findings of the project.

The second volume of the work, delves deeper into the study of the subject, not from the perspective of content but of theories and modes. A good part of the initial courses in CS concern mindset, the approach to learning the subject—through the theory of passion-based learning and of how to learn to learn—in the sense of critical and post-formal thinking. The new education towards sustainability science and especially towards practice is closely related to the notion of life-long learning. These different theories of learning and thinking are an important part of the CS program’s assessment, as many pedagogical methods stem from these theories. And the best mode with which to assess progress in educating oneself about sustainability is as a science looking for its paradigm. That it is a process of life-long learning is an essential part of the theory. The methodological part of the inquiry synthesises two common sets of theories and methods: design and social change. The basic idea behind this synthesis is to put humanity at the center of design in planning for sustainability. Design for others, as in user- or problem-centered design and empathy towards the end user, are the basic forms of design and employ a cross-scientific notion of design combining anthropology and using ethnography and ethnomethodology as the basic knowledge-accumulation method in the design process. These emerging practices of design are reflected in each other: first social theories and practices based on these as seen through the lens of the design process and of design thinking and then the design theories and practices as seen through the lens of social change. The concluding chapter of the third part concerns a synthesis of principles and methods previously selected to possibly provide a common ground of both theories in order to enable design for social change for the purpose of sustainability. Conclusions of this volume consists of my views on the overall findings of the social element of sustainability.
Abstract

This inquiry is about three things in general, and what ever felt right to fall under those main topics of educating sustainability, that kind of education as a whole and that whole as a take on social sustainability. The inquiry is constructed to parts of Creative Sustainability (CS) programme and its content and value proposition, my personal study analog with the programme and the time spent at and around the university, the theoretical part that contains theories of education, sociology, systems thinking and so on, the methodological section that tries to bridge the theory to practice, case examples of projects and other acts and actions I've experienced which are reflected to the methods and to the theories behind, and finally the outcome which are the recommendations to the programme and perhaps even generally to all the main topics above; educating sustainability, that kind of education as a whole and that whole as a take on social sustainability.

The purpose of this inquiry was to firstly look at CS as a education of sustainability, secondly to synthesise what is the relation of social sustainability as a part, or as it is claimed in this work—the core, of sustainability, and thirdly to open up the very long path what has been the highly productive and illuminating path from a designer to a sustainability planner and with it, hopefully generalise and educate the educators of sustainability to replicate the process. As the scope of the work ranges from very personal observations, to general discussions and from old core theories of being to contemporary theories of thinking it is only fair to say that almost unwillingly I took upon the task here to prove a point that any professional can, and in some cases should be turned into a sustainability generalist. And I say generalist in the most positive meaning. Meaning that a generalist by their unbiased abilities are the best to be the specialists of a field that undertakes almost all other fields—when looked through the lense of sustainability. The synthetisation of what is, or more likely how should we think about social sustainability—surprisingly novelty tries to emerge the fields of sociology and sustainability. It has been innate to me, to look at sustainability as an outcome of a social process. Sustainability is, and can ever only be a social phenomena which to me
stands that much true that it was surprising to see the little amount of efforts there has been to combine the two. And finally, the overarching essence and vocabulary of this work, sustainability and the, and any education of it—which are vitally parts of each other. Sustainability is yet at the core of the global society, though hopefully it is at the verge of being there. Though before we claim onboard with it, it is necessary to reflect why the majority of the globe is either slow or reluctant in the change—and perhaps one of the reasons is the somewhat mystified conceptualisation of the principle of sustainability. Though everyone can understand the call for responsibility embedded to it, it seems to be a hard task to ripple the concept to any encountering principle, and even more disturbingly seems to contradict itself much too easily in practice, even in thinking of it logically. Which is why a part of this work is a new model for the principle of sustainability—leaning on the old, but willingly replacing the typical definition.
Inquiry Background

- What, to Whom, in order to achieve?

I have now spent four years as a Creative Sustainability student. I was in the first ever batch of students to be accepted to the program, and the program still influences my daily routines, even though I’ve now spent almost a year and a half working outside the academy. During this time of, to use a metaphor, stretching the umbilical cord, I’ve done an internship at a Helsinki-based think-tank; I was a World Design Capital Helsinki producer in their main project; I started my own think/do-tank focusing on sustainability; and I’ve been a student member of the advisory board of the CS program. I’ve participated in a few different CS courses: I brought one of our company’s cases to a student team and most recently my company was the facilitating team at the first CS course for the new students in the program.

My applying to Aalto wasn’t at all just to look for one alternative among many—the moment I read the program description I felt that it was meant for me. It spoke to me in words I’d just used in my bachelor graduation project to earn a degree qualifying me as an Industrial Designer. My work concerned the societal responsibility and moral and ethical aspects of being a designer. During the process of writing this, I realised that few of my fellow designers felt the same burden the field inevitably places on society and the ecosphere and that led me to the conclusion that I was in the wrong field. Four years wasted on learning tools I could only use to do things I was unwilling to do, four years of building knowledge that was in opposition to my own beliefs. Until Aalto University created a program called Creative Sustainability, whose name didn’t fully convince me but whose people and curriculum did. Needless to say, I applied and made it my professional purpose to join the program, to make myself the best I could be, and, later on, to give back what I had learned. As I’ve progressed with my studies, I’ve gone through several, if not even hundreds, of realisations about not only the state of the world but, most forcefully, my own stake in the principle of sustainability.

As you’ll read later on, the most important research question to me was an internal one—
Does the Creative Sustainability program itself understand the issue of sustainability correctly—according to me, the actual product of the program—the pedigree of this specific education in this meta-university. This question is by no means meant to be critical towards the efforts of the Aalto Creative Sustainability program but rather to address the complex system of systems we have to gasp, address, and comprehend when we dare to talk about sustainability as a meta-level principle. Of course, one could see that sustainability in CS is no more than the parts and the sum that comes from combining these, but I'm positive that Aalto did assume the principle to be treated as a whole and not just by the resources it possessed to have a “go at it.” The reason I wanted to ask this question and direct the owner of the question to both me and my own alma mater was that, I have a sense that I myself have gained, thorough the programme enough insight to able to ask and aswer this very question – so the question became an inquiry to itself. I can still leave some leeway for this research to extend to the overall notion of sustainability and its triple bottom line—its socio-cultural, economical, and ecological balance that is the recipe for sustainability. This I did solely because I think, as young as the science still is, there should always be room for critical thinking. After all, the issues we’re working with deserve all the respect, integrity, and tenaciousness we can give them.

Completing the set of research questions in my inquiry was the following set of sub-questions. 1. How much of this utilitarian knowledge is part of an official curriculum, and how much arises from the student’s own proactivity? And if self- and passion-driven, extra-official curriculum knowledge plays a key role, then how could university play a critical role in enhancing those extracurricular learning moments to better tackle real-life problems? This came from the notion already mentioned before, that even though I’ve gone partly to the same set of courses as my fellow students, after the initial courses and dipping my head deeper into the principle of sustainability, I came to the conclusion that more or less it’s a human issue, which led me to take the socio-cultural approach to all things sustainability. But then again it is worth noting how much of the curriculum I used as it was meant to be used and how much I adapted to fit my own purposes, and, on the other end, as I took a slightly altered route to complete my CS studies— how did
it affect my progress and was that the key element in my studies that made me a somewhat successful Creative Sustainability major student? This notion then, again, deserves consideration—if I could even be considered an eligible candidate for a successful student. As I continue to map my study analogue throughout this work, the aim is to recognize key moments in my studies, to assess the effectiveness of some personal choices in my curriculum, and by that hopefully to give recommendations, from my unique perspective, as to whether and how these moments could be supported and promoted. This sub-question also allows me to define what I've termed meta-university, by which I mean university as a social, life-embracing sphere in which the university is not seen as so much as a place but as a time and the living throbbing network one can create and even trace through the connective actions performed during one's studies.

Although a sub-question, one of the main questions that threads through my research is the following: if there is a value proposition to Creative Sustainability studies and, if so, how well is that promise then fulfilled. This question goes back to a coherent understanding of the main principle, that is, whether Aalto has managed to harness the potential from within to have a significant impact on the issues, and, most of all, whether CS does manage to function as a sounding board in tackling the issues we're passionate about. If so, then is it providing the needed information, education, and even a set of tools useful enough to do what we all hopefully want it to. Admittedly this sub-question concerns the critic; I can justify anyone in my position with my background and involvement in the program to pose it. One's experience might not be the same as another's, even though on paper it would appear so. I will talk about this largely based on my own experience, but I also interviewed fellow students while going through a real-life project. Being at the initial stages of my professional career as a CS professional but still having one foot planted firmly on the university grounds, I think it is reasonable for me to ascertain whether I had my plate full of needed ingredients or was missing something, as I struggled my way to make studies based on passion be a profession based on activism.

There's also much reflection on the question: As I graduate as a CS master, am I
competent to be a professional of sustainability—do I understand it wholly enough to claim to capture the whole field? This question is a practical outcome and is the sum of all the previous ones. It takes the passive role of one passionate student in the CS program, and, even though it leans heavily on the internal view of the field, does try to assess if CS is needed as such—as a general, critical, whole, and coherent approach to the science of sustainability. Moreover, if it is needed, then by whom? Even at this point, to further this dialogue, I’ll answer yes, the issues that need to be tackled are concrete and dire but are also basically not considered critical so that if someone does not put them on his or her agenda, then no one will. This is to say that, instead of the CS program educating and shaping intelligent individuals to be activists with respect to issues not commonly addressed in the surrounding society, the program should, by its very raison d’être, educate us in a John-Adams-built society to fulfill a spot as productive members of society, where activism becomes professionalism. In other words, the program exists for and to its own choir, but who is the audience and what is its commitment, ability, understanding, and degree of willingness to collaborate and use CS professionals as the know-hows and -whys of sustainability.

As I’ve learned during my CS studies, although not in the classroom but rather during a conversation I had with a fellow CS student, the simplest best way to assess one’s development project is to complete a series of clauses: what..., to whom..., and in order to achieve.... If you can manage to do so, and by doing so state clear target aims and benefits, you might just have yourself a project worth doing. So to explain to you and to myself why am I doing this research project and to determine if it is worth doing, I’ll use myself as an example and describe this research as: a research on Aalto education in the principle of sustainability and an analysis of the triple bottom-line approach to sustainability adopted by creative sustainability programs in order to assess the comprehension, effectiveness, and competence of the program and the views motivating it.
Research Question

The core research question of this work goes as follows: Where and how does social sustainability appear as its own appointed element in the general education of sustainability at Creative Sustainability programme? And does this education of sustainability under observation have its views on coherent sustainability initially set aligned according to its own outcome—an education of sustainability?

To move the project towards a more coherent whole, a set of research sub-questions are proposed: How much of this utilitarian knowledge is part of an official curriculum and how much arises from a student’s own proactivity? If self- and passion-driven, non-official curriculum knowledge plays a key role, then how could university play a critical role in enhancing those extracurricular learning moments to better address real-life problems? Is there a value proposition to Creative Sustainability studies and, if so, how well is that promise then fulfilled? And finally, as we graduate as CS masters, are we eligible to be professional sustainability planners, designers, or managers, and if we are, who’s going to or should hire us?
Aalto Creative Sustainability

- An example of a Post-formal education on Social Sustainability

VOLUME I – The Empirical
1. Aalto University: Creative Sustainability – a Master’s Programme

The Aalto Creative Sustainability program was started in 2010, when the three large and separate universities of Fine Arts, Technology, and Economics joined forces to form Aalto. Creative Sustainability had been offered as a minor program for few years but was reformed and combined to serve the three schools and four departments in a new multidisciplinary and very international way with degrees in Creative Sustainability (henceforth CS) and International Design Business Management (IDBM)

“The international Master’s Degree Programme in Creative Sustainability (CS) is a joint master’s degree programme at School of Arts, Design and Architecture, School of Business and School of Engineering. The Creative Sustainability programme is a multidisciplinary learning platform in the fields of architecture, business, design, landscape planning, real estate, and urban planning.”

More specifically CS is offered, under the respective departments, as a degree leaning heavily on the disciplines of Design—whether it be industrial, graphie, media, or interior; Architecture; Real Estate; and Economics with a heavy emphasis on Corporate (Social) Responsibility.

I was among the first group to be accepted into the program, in my case, through the school of Arts. I did my bachelor’s degree at the Lahti Institute of Design in the Department of Industrial Design. After finishing my studies in Industrial Design, I wanted almost nothing to do with the field, the reason being that I did my bachelor’s graduation project on the topic of “Designer’s Utopia” the subject of which was Social Responsibility, Ethics, and Morality of a designer. Back then, in late 2009 when I was writing it, responsible, ethical, and sustainable design was in no way mainstream, at least in Finland. As a part of my project, I interviewed a group of young professionals as well as my soon-to-graduate classmates. From these interviews and looking at the outside world from the comfort of my own writing desk, I seemed quite alone with my

ideologies and ideas, which rendered me less than enthusiastic to join the industrial design forces of the world. So, needless to say, when I saw a university, located almost next door to me to offer, offer a programme that spoke to me using almost the same words that I had just used in my Utopia, I applied.

In that sense, my studies in CS, and this work also, are all logical parts of my quest to find my place in the world and see how I can matter and have an impact on it in this time. And, I hope, it'll only continue with the same passion, towards new challenges.
1.1. Critical Overview of the Programme According to the Public Description

- Challenges, Approach, and Competence—Is there a Value Proposition?

As CS is a programme that spans equally the four different departments encompassing the program—Design, Architecture, Real Estate, and Economics—its description has been written accordingly. Each department has its own description, either stated in the school's strategy or just as a spoken organic philosophy that flows through people and time unwritten. Interestingly, its programme structure, unlike that of the typical school–department–program, is coordinated from the School of Design but has no assigned professors or researchers, even though some staff have sustainability as their core competency. None, however, have Sustainability itself as their research topic or profession, thus treating it more as added value to some other discipline. One might question how much practical experience could be found from such position, to which I would reply, “plenty and more as is in the parts,” but I’ll return to this as the inquiry progress.

This chapter is divided into four subtopics, three according to the CS website and one added as one of the inquiry’s research questions.

1.1.1. Future Challenges

- In the Sustainability of the World

Aalto Creative Sustainability defines itself on the official website as follows. The definition was formed by the programme board: “The most significant development challenges of sustainability are associated with climate change, global poverty, social and economic(al) inequality, population growth as well as demographic changes and adaptation to rapid global economic changes. Global and local challenges and the complexity of future scenarios require strengthening the multidisciplinary approach and the inter-linkage of environmental, economic, socio-cultural aspects in education. This
raises the role of higher education and research as an essential element of sustainable development in society.”

Future challenges is a hard topic with which to agree or disagree, or, as is often said within the CS community, “whoever claims to know the future is probably going to be wrong at the end.” This description of the challenges that the program faces and its quest combines future predictions, actual current events, and the history that led us to our current stage. The statement begins with “development challenges,” indicating that we're talking about future challenges, although crisis management appears to constitute much of these at present. I've often considered Sustainability as occurring in actuality in the present and in the past and future theoretically. Also it must be noted that a description of future challenges will vary, depending on who drafted it (in this case, a Finnish University describing its master’s program in 2013); such a description by a multinational oil company, a self-educated kindergarten teacher, or an inventor from southeast Asia would most likely be very different. This version, however, correctly incorporates the need for plurality, for multiple perspectives, and for a multi-minded understanding of Sustainability, inherent in a multidisciplinary approach. To assess this definition of Sustainability Challenges, I will address each notion separately.

That the climate is changing is undeniable. More important than pointing fingers, however, is understanding what we can do to help the climate—by burdening it less and thus helping it achieve stability, on which the principle of Sustainability is based. I attended a lecture by IPCC (International Panel on Climate Change) Vice-Chair Jean-Pascal van Ypersele in 2011 in which he explained the effort and painstaking accuracy involved in drafting and publishing the IPCC's Assessment Report, which is published every four years due to the review process involved in drafting it. Every chapter of the fourth Assessment Report, which was published in 2007 when climate change wasn't as mainstream as today, had several different authors—two coordinating lead authors, ten to fifteen “lead authors,” and a large number of “contributing authors.” After the initial writing process, every chapter is reviewed again and again so that, by about the fourth

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report, around 3720 people from 130 different countries have worked on the report and spent six years doing so.\(^3\) Although, in any science, we never have the absolute truth but only the best possible version of it at that moment,\(^4\) the IPCC report is one of the most peer-reviewed pieces of literature in the history of the humankind, and so I tend to trust it to be the truth at the moment and therefore to be actionable. Climate change is now occurring because of human actions and will only worsen if not acted upon and perhaps even then. As Ypersele said in the presentation, when it comes to climate change we can only "mitigate, adapt or suffer\(^5\)—the choice is up to all of us. Why climate change is something that we need to prevent and assume responsibility for is another issue, one worth spending six years with 4000 colleagues to ponder. The environment is worthy of respect, and this saving it, is a major challenge, if this is even possible now. This is to say, that though climate change, per say, is undeniably happening much is to do still to figure out what are the extreme outcomes of that change.

Global poverty and social and economic inequality are also burdens caused by historical bad decision making, i.e., by unequal distribution of economic wealth leading to well-being combined with lack of global responsibility and of empathy. Global poverty too has an interesting history. As sometimes presented, it came about only in comparison with and was first addressed by western societies, as when former US president Harry S. Truman described the other side of the world as underdeveloped.\(^6\) No matter the history of the concept, wealth is undeniably unequally distributed on a global scale, or was the southern hemisphere just late in joining the economic game, due to neo-colonialism perhaps? The notion of “underdeveloped” or “developing” or whatever politically correct term is current implies that the markets and the economic system are not as developed as the utopian image of our Western system. The description depends on the observer’s beliefs and so is subjective. How many Americans have you heard refer to the United States as the land of the free with equal opportunity for all? Why, then, are half of the people there now living on, or very near, the poverty line, which is relative to

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the time, as of the summer of 2013? This brings me to another topic which I feel is worthy of few lines—symbolism. As with this and any of the notions in the Future Challenge statement, there is no absolute truth, only versions of it which vary with the moment and also, as with all things communicated, there are at least six very different ways it is understood in the same moment it is communicated—what was meant by the term's initiator, how she/he sees it to be in actuality, how it is in actuality, how it is heard by the receiver, and how it correlates with her/his definition of the same concept.

In this societal climate, equality is the way to a happier nation. The market economy has been one of the powers behind the development and progress of the human race, but at the same time its flaw is the finite nature of equality. With respect to inequality, no matter how much we struggle to find a balance, the balance can only be found in inclusivity and in true compromise. Inequality has been the fuel of development, as we have become more aware, more educated, and more connected, but at the same time locally and now even globally more unequal. Equality is, like 'environmentally friendly' and many other notions connected with sustainability, one that should be included in global ethics; in other words, we should be united globally to support the idea, but in actuality we're not. A world based on equality wouldn't mean that some gained while others lost. In actuality, we are more equal in some things that we'd like to see at the moment, just not economically nor with things affected by economic well-being. Unless the meaning behind the words 'Global poverty' means what it literally should—a whole globe in poverty—the other notions following it, 'global social equality' and 'economic equality,' are just oxymorons. Unless we are all equally as poor, or as rich, we will never have true equality. Equality is often thought to be the synonym for 'equal' and 'equity'—which it is rarely not in actuality, but instead 'equality' is closer to 'universalism,' i.e., 'same to all' would probably be equivalent to 'equal' in some utilitarian sense, but 'equality' as 'equity' should be the actual aim. Poverty is embedded in the structure of the economic system because that's the only way to achieve progress. This isn't meant as criticism toward the system but rather to the way we treat it and where we think the

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leverage points exist. Poverty is not the beginning point of any economic growth, and it’s not the blank page that we get to scribble on to create a better version of the same system; rather it’s the end result of an economic model that bases its power not on equality but on growth.

Population growth is also worth debating and can be viewed from two different perspectives. Certainly the human race, judged at this moment not based on good intentions but rather on concrete actions, should not be larger in numbers. To the contrary, more people would mean more of the same undesirable environmental impact, but then if one believes that we are the source and the solution of the problems we have, shouldn’t more of us mean a better future? We multiply like bacteria, and in that sense we are no different from any other living organism, even those of us fighting for an appropriate balance in this system we are all subsystems of. It’s natural and organic, but our current careless actions, coupled with our dumb beliefs that we will evolve and solve the problems we have created, have distorted the balance. Our view is that we are entitled to judge what is happening at the moment, even though our observations are inherently biased. The human race creates boundaries of systems and then tries to comprehend and govern these self-created systems. I’m not taking sides in this matter, and I have no authority to do so. I will never know if more or less people will be better, and the ironic thing of it is, that no one else will either. Teologically, we’ll never have anything but the ‘right’ present, which can only then be followed by the ‘right’ future. Teleology, I know, isn’t perhaps the exact science one might use to argue a point concerning population growth, but neither is the scientific fact that too many of us means too many mouths to feed. Exceeding the bearing capacity of the finite world will result in, as listed by Albert Bartlett, wars, diseases, natural disasters, and so on. But then if the future is viewed as sustainable, then no matter how many mouths we need to feed, we will adapt. We will adapt or suffer. Population growth, and we can even leave the prediction ‘growth’ out and just say ‘population,’ is unsustainable, not because of numbers but because of actions. So unless the point is to continue with the status quo

with respect to action, no matter whether we are more or, probably, even less (unless it’s dramatically less), the current population is unsustainable.

‘Rapid global economic changes’ in the Future Challenges statement is not even worth mentioning. The true negative aspect of this notion lies in economic and, thus inevitably, societal inequality. Global economic changes lead inexorably to economic volatility. Change creates societal unrest, and change and inequality fuel over-usage of natural resources—irresponsible actions with respect to self-claimed governance of the finite environment. Let’s start with the issue of finiteness, which is an abstraction. For instance, the supply of crude oil seems to be finite; energy, however, as in harnessing new sources of it, is as finite as the universe we live in. No more than we seem to be worried about the prediction that the solar system’s sun might switch off at some point do we seem worried about anything finite—unless it is tied to the comfortable status quo we have created as part of the infrastructure. We know how to produce solar energy, wind power, and wave power, pure water from air, oil from plastic, and plastic from oil and so on. That there is a natural disturbance in the stream of these finite sources and that the transition phase exceeds the length of one human life gives us the freedom to not look the issue straight on and enables us not to worry about it. Transition to a new system is uncomfortable only if the latter proves to be ineffective and the old one better, but better to whom and ineffective in which way? Rapid economic change causes uneasiness only because most of our power-ratio relations are built based on the current economic model. And it’s not even the fiat-currency that promotes debt as never ending growth. It’s not the fact that we gave up gold or silver reserves or that nations are agreeing on global debt gaps; those are all just prevention mechanisms that permit us to live like there is no tomorrow. It traces back to trade, and the profit element in it, and the impossible-to-balance equality of prosperity. Rapid economic changes should be treated with the same urgency as the fact that it might rain in the middle of the summer as well—unless the whole globe, as one economic system, would have so much invested in it, not invested in the resources we had to excavate to turn into currency but invested as in it has become the only ruling factor on our societies that we somehow can trust. We can trust in its behaviour. Money is something that we do something for and receive
something in return from. But in the end, it all goes back to trade. This being said, I'm not convinced that economic volatility is an issue we should prevent or promote, but rather we should treat it with the non-respect it deserves. Sustainability brings prosperity now and more so in the future, and only in this sense does volatility bring balance piece by piece. At the same time, the global economic fiat-system is a Ponzi scheme; the modest 'n honest turtle in this race is the base of the economic triangle who has the least to lose as the system fluctuates. The global economy built on currency and based on trade.

The rest of the statement I'll address in clauses. 'Global and local challenges' are symptoms of the same systems behaving in unwanted way; they just reflect each other on different scales. 'Complexity of future scenarios' sounds to me like an attempt to promote systemic thinking, which I am all for, but the reason doesn't lie in the belief that the capability of thinking stochastically enables us to prevent horrendous events from happening but more likely the humility to approach the issues, once again, in co-creation all together. As the clause continues to state, the complexity of (not only the) future scenarios (but the global issues at hand), whether economic, ecological, or socio-cultural, are interconnected and somewhat interdependent to the level that treating any of the issues requires careful handling with respect to the others, especially if we're seeking sustainability through these three pillars existing in harmony. I will also address this issue in the latter part of the work. But at the end, the whole sentence is about multidisciplinary education being the only right way to treat issues that affect almost all the fields of our existence. With this, we talk about co-evolving in the complex world and co-creation of the future world. Why is this so important? Not only because bringing in people from different fields adds to the knowledge and skill pool with which we're trying to solve issues by way of plans and designs but also to evoke the feeling of ownership as things progress. With 'co-evolving,' we are talking about symbiosis of some sort and, with 'co-creation,' we are talking about preventing unwanted future outcomes of our plans by gaining first-hand knowledge from the field the plan inevitably touches and by the feeling of ownership from sharing responsibility for the plan. One thing we, as educated people willing to attempt to plan to solve something for someone now and in
the future, should know by now is that, in every plan, there are faults. However, failure of the plan provides feedback, and the originators of the plan are able to notice the failure because they know how it was meant to work. If a plan fails, there are two choices: try to fix it or live with the consequences. Co-creation is a beautiful thing and should be taken into the core of sustainability, but taken with a grain of salt too, and it's well worth its own chapter in the Methods part of the inquiry. If all this only points to education and research have the sole responsibility of raising the issue of people working together, then something has been lost in translating the principle of sustainability into practice. Education can function as a leverage point to promote the change our actions cause in the world, but education can be viewed not as a human trait needed to develop oneself but as a societal action in this Smithian world too impartial to bear any other humanistic aim than to fulfill the needs of the business world. It's not always like this, but as educational institutions are in the end also responsible for educating students to transition from school to the real world, they have to balance both the needs of outside parties and those of the students and maintain their own position central to some needed functions and so maintain their worth. That's why that grain of salt. Chicken or egg—at the moment, from the position of a soon-to-graduate student of CS who has taken the generalist approach to the principle, it is hard to say whether it should have been the society outside the university or the university within who decided to serve an upcoming need or require a fulfilment to a need.

1.1.2. Multidisciplinary Approach to Sustainability

—as Aalto CS program offers it

Again from the CS webpage: “The Master’s Degree Programme in Creative Sustainability brings together students from different fields to study in multidisciplinary teams that increases understanding of different disciplines and enables adapting a holistic approach. This activates students to create new sustainable solutions for human, urban, industrial and business environments. The pedagogical approach is based on integrating teaching and research, problem-based learning, blended learning and strong
connection to practical outcomes. Creative Sustainability studies prepare students to work as sustainability experts in organizations that have a strategic view on transformation towards sustainability. These include the private and public sectors as well as a wide range of NGO’s.”

Here the program actually delivers more than it promises: the backgrounds of the students often vary with respect to their bachelor’s or past master’s studies more so than with the subject areas (architecture, design, business or real estate). Thanks to the loose descriptions of these respective fields in theory, almost anyone with a past decree could apply and very multidisciplinary groups can be created within the programme. Of course, in reality it might be different depending on how comfortable each individual is in stepping out of his or her comfort zone, meaning that, even though all students have opportunities to work in mixed groups, they do not always do so. And while doing a minor at the University of Helsinki, mainly focusing in social studies, and an internship at a Helsinki-based think-tank, I soon realised that there is a huge difference in working with people from Aalto, no matter their discipline, compared to working with people from Helsinki University. The easy beginning that studying in CS gives to its students to work in mixed groups is a good and necessary start and provides a safe environment to discuss and disagree, iterate, and understand the multi-mindedness of many of the subjects at hand. The other aspect, oddly enough not mentioned here, that gives even more perspective to the groups is the notion that more than half of the CS majors are from origin other than Finnish. This mix of disciplines, cultures, social backgrounds, genders, ages, areas of interests, and so on is the true eye-opener the program offers. If the practice of working in multidisciplinary teams actually increases the understanding of different fields, by their content and through their expertise, the practice will help the partakers’ ability to understand and communicate better with people from other disciplines, and that is a challenge. A holistic approach is often present in multi-minded groups, but again this notion should be taken as a “best case scenario,” as the subject might not benefit from multiple perspectives in the group process; any group, no matter how mixed, can still get lost and be diverted from its aims, depending on the individual group dynamics and process. Either way, this indeed does allow students to create novel
ideas and beginnings of innovations for the world outside. I can see that the areas of creation have both been tied to the disciplines under CS and been broad enough to explain the variety of projects planned and executed in the program. Although some of the keywords used in the description are, if not fully contradictory, then at least repetitive in their meaning or are perhaps meant to showcase the connectivity among them: like 'human' and 'urban' or 'industrial' and 'business'; these are in the end the elements that build on each other and exist as the means or source to one another. And it might be an intended, or unintended, ironic touch to add environment as the last one, rendering it to be the background of all these things happening. Nature, as an ecologic stage to all these things happening, was probably excluded because of the lack of environmental studies in the program. However, it has the heaviest emphasis in most of the courses; as in 'sustainable product' and 'service design' and whether the main aim to do something is 'environmentally friendly,' nature provides an underlying principle of projects, i.e., if something can be done better, it should be done so. The human environment is deservedly the first on the list. I've come to the conclusion that, in the end, sustainability should be viewed from the human perspective, which, after all, is the main and only audience for sustainability and who it is worked for and obviously managed by. Whether the best approach to the principle of sustainability—looked at as an end goal of human development—is to seek balance between economic, ecological, and socio-cultural spheres or whether these three pillars should undergo further development or something else be added, how CS as a program was created at Aalto, both by the available resources to do so and of course by the clear need for such program, is understandable. These three pillars provide the framework in which CS offerings fit and in which the program functions. But should it be approached by saying that the aim is to create sustainable solutions to these areas or rather that these areas should be used to create sustainability? The point might sound only ontological in perspective, but it does actually also change the end audience of the plans, as well as the starting point of the process. If we use f.ex. economy to enhance sustainability, we take economic actions and reform them to have a unified goal: sustainability; otherwise we take sustainability as a goal and then figure out what economic functions we could perform while being true to the principle of sustainability. One sets the aim and the
other the mode of functions, and so there is a clear difference in my view. And I would rather see it to be the aim rather than just a mode. When it comes to the pedagogical approach being claimed to be based on integrating teaching and research, PBL (problem-based learning), blended learning (whatever that is and connecting the theoretical to practical), I can see the aim to be once again both multi-minded and moreover post-formal. PBL, whether it is meant as problem-, passion-, or project-based learning, are all forms of post-formal learning, or rather they can and in this case appear to be. PBL in fact, entails few of the specifically mentioned notions from the list. PBL should not only combine the theoretical and the practical but also have concrete outcomes and function in real-life contexts. Blended learning is a term unknown to me, but my educated guess would be that what is meant here is that learning is post-formal. Post-normal is not at all informal or abnormal, but instead a mix of methods and theories in both the pedagogical sense and by the content, that is, thought and the intended learning outcomes. The connection between research and learning in CS, by my observations, happens more at the back-end, meaning that rarely is it apparent in the usual way, but the mechanism of CS allows the two to have informal interactions and in actuality it works at least on these two levels: researchers are also educators, according to Aalto philosophy, and students are often made use of in different research projects. Strong connections to practical outcomes are a factor in any project and case—and a dubious promise to be given. Unless practical is differentiated from concrete—in that sense that, although the promise might be easier to keep, the requirements for a successful project might be lessened and the true reason for the project to exist in the first place somewhat mitigated. I guess practical in this context, isn’t necessarily hard-wired to concrete as it is a description of the level of details of plans, rather than an embedded promise to actualise the plans.
1.1.3. The Competence Areas
- by the programmes Structural Knowledge

The webpage, in continuing to discuss the competence areas, is unclear on whether the ones listed are to be added to the set of student competencies or are ones encompassed by the CS program through its staff, current students, and accumulated knowledge:

- "Multidisciplinary approach: developing capabilities in adapting knowledge, skills and new approaches to reach collaborative solutions based on ecological, economical, and socio-cultural sustainability.

- Systems approach: integrating analytic and systemic thinking in critical problem solving that creates new holistic understanding about complex situations in society. The emphasis is on global awareness within the context of local communities and simultaneous modification of different aspects of sustainability.

- Design thinking: enhancing creative problem solving capabilities that utilise the methods of the design process in defining the problem, generating ideas, and obtaining solutions.

- Project management: enhancing capabilities in multidisciplinary team leadership and communication in versatile industrial, urban, and business environments that promotes sustainability in various cultural contexts.

- Business management: developing new approaches and skills for creating sustainable business models and improvement of business ethics and corporate responsibility."

‘Multidisciplinary’ repeats its appearance as a method but the aim is explained in a different way; it now captures both the mode and the aim of the multidisciplinary study environment, but still sustainability is viewed as the intersection of the three different fields, not as an umbrella encompassing them. ‘Systemic approach’ is treated as a specific method here. Integrating analytic and systemic thinking in critical problem solving should, in all actuality, be mirrored; with respect to the relationship between critical and systemic thinking to analytic problem solving, critical thinking is one of the educational foundations of the CS program, whether it is specifically mentioned or not, and, in my
view, solutions can only be analytical by being planning through critical thinking, but solutions cannot be critical just by being the products of analytical thinking, as systemic plays no part in the philosophy of resolution processing; rather it works as a guide to the process. I state this based on the theories of critical and design thinking, which differ in the way they embed analytical thinking, critical thinking being analytical by its initial phase and design thinking being analytical throughout the completed process. Global awareness within a local-community context is worth noting, not only in this part, but I'll dedicate a whole chapter to it later on. Global awareness in a local context entails the dialogue we often lack but automatically assume to be present, it being that global problems as well as local problems are suffered in local contexts, and local problems augment and often, in this era of globalism, actually become global problems themselves. This notion works both ways, i.e., we can reflect the scale and the behaviour of a local problem globally and thus view our plans in a form that allows them to be scaled, or rather repeated in other locations, making the plan adaptable to a global scale—in local, piecemeal, proportion. Another important notion that can be easily lost is the simultaneous modification of different aspects of sustainability, which, to me, in other words, means that the principle of sustainability should be simultaneously approached by all the pillars and on different scales, if possible. Further explaining that a solution should not only take into account the three pillars but to function on local and global scales, if not simultaneously in time but simultaneously in thought, i.e., in aim and perspective. Whether this is always the case and present in all projects is beside the fact that in nature they often are, even unintentionally, as the world, in this era of globalism, homogenised enough to be generally unified, depending on the scale and level of abstraction. Design Thinking in this description fails to bring up the best and true aspect of it: iterative problem solving. In the end and truly stated by many design process theorists, Design Thinking is nothing more than another tool for problem solving, and is quite effective as such, because of the nature of the process, where problem context, rapid prototyping, and iterative knowledge accumulation are all equal parts of the same spiral model of the process. I've rarely thought of Design Thinking to be anything creative, in the typical sense of 'creative,' but rather analytical and tenacious, not necessarily traits of creativity. Design Thinking is experimental and that would fit
the description of it as creative. Design Thinking will discussed more thoroughly in upcoming chapters and especially in the one where Design Thinking and such human sciences as anthropology and ethnography are compared and reflected. Project management is a very true, necessary, and cross-cutting competence that cuts across many of the CS courses and projects, CS also being not only about development (e.g., sustainability, multidisciplinary), multi-minded (i.e., mixed and iterative), critical, and analytical. It is also a master’s level program in one of the top universities in Finland. So needless to say, there is a high level of independence within the studies and project management among the study cases. Project management continually appears in many of the Aalto disciplines. It appears as a specific expertise in the Business school curriculum and as content primarily in CS studies, as does business management.

1.1.4. The CS Value Proposition
- What are we to become?

Going through these descriptions and quickly reflecting on my image of the CS program should allow me to assess one of my research questions or at least formulate the basis of the question rather than trying to answer to it—what kind of a value proposition is the CS program? Internally we could consider the value proposition to be to the university itself in adding a highly topical program to its portfolio that fulfills many needs: CS is inherently multidisciplinary and multicultural, it’s a direct response to needs voiced by outside society, and it best serves the purpose of social responsibility. The value proposition to the outside society is as a direct response to a need, i.e., for a sustainable world which can be built by the power of science and the application of that science. It can, of course, be built from the grassroots up, empowering the activists, and this brings us to an important question addressed by the CS advisory board: Is the program producing educated activists or professionals? This question is seemingly about the customers, the students of the program, but can only be answered by reflecting on the competence-building capabilities of the program in a cross-section of all stakeholder sectors: the students, the society at large, and the university as a responsible
actor mediating between them, since only the combined assessment of those can validate the fulfilment of the value proposition. Thus, the question should be addressed by all these. CS, in my view, delivers what it promises—by purpose and sometimes in the only possible organic mode: unintentionally and by chance. Not by chance as an unexpected event, but organically by setting up the stage correctly and, as David Ing says, by “letting the greatness emerge.” So going back to the overall description of the program purpose, it does capture the state of the world quite well. The description varies between micro-, meso- and meta-levels and it does capture the fluctuation of timescales. The description has nothing challenging in it, but it heavily leans on the original definition of sustainable development of the Brundtland Commission: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” It also incorporates the 2005 World Summit on Social Development definition of the needed pillars: “environmental (ecological), social equity (socio-cultural) and economic demands.” Combining these two functions as the basic guideline to comprehend sustainability. What it succeeds in doing is to showcase the plurality of the principle and ensure the need to think systemically and on scales of time and proportion; what it lacks is action and the sense of the principle being a field of its own, not just a mode of function to the collection of the three respective pillars. As the sustainability science itself is still fairly young and the true competence of Aalto lies in the pillars and not on the meta-level of the field, it's only suitable that the principle has been adopted by the university almost directly, staying true to its origins. Another issue of the original principle, true and effective though it might be, is that it fails to identify both subjects and objects of the matter: environment is impersonal and objectified but it cannot function as a minded partner in finding the balance to creating sustainability. No communication of need or reaction can validate our efforts in the sphere; we will only receive a collection of observations by way of assessment. As horrendous as it might sound, nature doesn't have a problem with us; we have a problem with our actions that are symptomized in nature. When it comes to the economy, again it is an absent-minded creation of our actions—a sum of parts that we ought to manage separately but seem to

lack the means to manage on the macro- and even comprehend on the meta-level. Only we as human beings—making up the human race—can make the choices needed for ourselves. No one else has the will, means, or dire need to do so. In this sense, sourcing from the areas we have mastered or thought to have mastered—the environment in nature, architecture and real estate, socio-cultural existence through design, problem solving through design thinking, and last but not at all least the economy, which I'd like to abstract as well-being—it can be said that this collection, even if not complete, should be effective enough to further the field of sustainability. This being said, we should admit that the CS program does at least set up a noble value proposition: to better the world; to solve the problems of now and take part in prototyping ways to solve the problems of tomorrow, doing so with the known methods of systematic, critical, analytical, and multi-minded thinking and ensuring the plurality and ownership of the suggested resolutions. It offers the tools of Design Thinking and management for use to ensure the success of the process needed in the planning phase of the resolutions. And finally it works on practical fields to ensure a level of concretism of the plans so as to have an impact. Alas, it does all this in an objective way—lacking the subjectivity of responsibility to action and purpose of aim from it, to name few. And this notion may explain why we even need to question the end result of the program: are we educating activists or professionals—and as long as we lack subjectivity, in my view, the program will only manage to educate students in the state of the world, i.e., what should be corrected, and gives the students some of the tools that could benefit the process in the society at large. However, it won't position the students in the labour field to be professionals that can incorporate sustainability in their skillset from any other perspective than by relying on their respective fields, and this makes them professionals in some other field and activists according to their principles towards it. So as the program does indeed incorporate a set of areas in its core of inquiry, not as hard-core competencies but more as areas of interest, that are mostly made up of those things considered important by the original source of the principle of sustainability, the program does indeed educate with respect to the principle as it is right now. The description also promises to deliver a set of competencies—all vital to planning for sustainability—by the CS program and in this era. How it will develop is to be seen, but
analysing the way the program was initially developed, I would expect it to change as the science of sustainability or its methods develop, as long as the ongoing dialogue between the program and the outside context, the society, remains active. In this sense, the value proposition could perhaps be more about the top-level ideology of the science of sustainability, so that education has a mode of adaptability in it, that we know why it is, and keep further developing and re-learning the ‘what’ and ‘how’ of it. This hails not only from the fact that sustainability is alive and goes through loops of iteration all the time, meaning that to keep the skillset applicable we need to reinvent parts of it almost on a daily basis, but also that almost every field at the moment practiced outside or educated inside the university is taking sustainability into account to a greater extent. Thus, either CS is rendered obsolete as useless in few years, which by its basic philosophy it should actually seek to do, by the fact that every member of the society will have basic training in their stake in sustainability or the program elevates itself even more to the meta-level, becoming its own version of a critical, post-formal and normal, analytical approach to the principle, not the specific trades and disciplines under it. None of this thinking nor taking a position in the activist or professional dilemma is basically taken by the program itself, and so each individual student has to figure it out for him or herself. Why this is, is either caution towards being too self-critical or it is left open, trusting each individual to be or become self-critical during his or her studies at CS, to define his or her own path. At least to me, that is exactly what happened, and I would be very surprised if this way didn’t represent that of the majority of the students.
1.2. Program Content by Curriculum
- Capturing my CS Studies the Past Four Years

This chapter, a self-reflection, discusses the courses and projects that made up my CS studies. I term my education, and indeed the whole educational experience, as the meta-university sphere and view it as comparable to a state-of-mind which the University guides and in which it invites me to participate. I envision the program as a network of connections, some of which extend beyond the university itself, and I expect I am not alone in this perception. How could the university, or at least the CS program, enhance the meta-sphere experience? In order to help answer this question, I will describe my path through the program, including how I obtained my individual skill set. As I’ve commented earlier, part of my education was official and part unofficial, i.e., extracurricular, and this latter played an important role. In addition, some CS coursework was mandatory for CS students, and some classes were for Design School students specifically.

Core Courses (2010)

The following courses are mandatory courses for all CS students:

- CS Introduction
- Creating the Mindset of Sustainable Societies
- Continuous Transformation
- Systems Thinking for Sustainable Communities
- Systems Thinking for Planners and Designers

CS Introduction, nowadays called Creative Teamwork, was a series of lectures on all fields making up sustainability and thus consisted of an introduction to the content of upcoming courses, including optional ones. Its end product was a learning diary in which we recorded our reactions to the various lectures. With its multitude of topics presented from different perspectives, this course provided a motivating, enthusiastic start to our studies, even though it was light in actual content. Though the course
content has somewhat changed, it still serves the same purpose as the showcase of the plurality of the issue and the programme built around it.

Creating the Mindset of Sustainable Societies was structured daily as follows: a short introductory lecture followed by time spent in small discussion groups. We were assigned articles at the end of the day to read and write short posts about outside of class. Course content ranged from the general to the ideological and from individual sustainability efforts to collective (i.e., government) ones.

I experienced a subtle shift in mindset, not from this course specifically but because of the entire program to that point, as evidenced by the following quote from an essay I wrote for the class. “I’ve been thinking about the fact, that to change the big picture and to make things that could actually matter seems way too complex and hard and sort of even impossible. And then again the things, smaller everyday actions, we need to also do seem too basic and small in the big picture.”

Concepts introduced in the course included multi-mindedness, the lack of global morals, the dilemma associated with current actions, and planning for the future. I took from the course a sense of urgency with respect to sustainability, akin to being in a burning house, as evidenced by this conclusion written in 2010: “While others are trying to simplify the whole sustainability issue to human size action plans others are blaming them for not doing enough and accusing them of settling for piecemeal solutions. And while others are trying to think sustainability in a holistic way and changing the big picture and the whole system, others can blame them for not achieving any or many concrete results—not yet at least. These both poles should realize that they are in fact poles of the same planet and working towards the same sustainable world. Others in my perspective representing the pole of sustainability now and other the pole of sustainability in the future.” No matter the course content, its learning outcome and realisations like these are necessary for CS students.

Continuous Transformation introduced methods and ideologies, including: megatrends, forecasting (or future casting), teleology, and decision-making mechanisms and how to influence them. The course emphasized action with respect to multi-mindedness, including the active negotiation and dialogue that must happen between various stakeholders. As part of the course, I wrote an essay entitled “Nudging, Procrastinating and Mistaking—Sustainability Decision Making,” where I stated:

Our behavior is somewhat predictable but erratic—it’s guided by us and our beliefs when done on conscious and reflective level, but it’s guided more by our senses and surroundings when happening on unconscious and automatic level. Our decision making depends highly on the level and timing of gratification and is heavily guided by the feedback we receive or don’t receive. We think we know, unless we know we don’t know—but this scenario is rare. When we think we do know, we almost don’t care if we’re wrong or not—but if we think we are wrong we tend to be afraid of it. For the fear of it, we want to leave the decision to be done by someone else. We handle uncertainty badly, but if we think that someone else is making a mistake we rather give them a mitigated version of our perceived reality than try to let them understand ours. So we should speak our mind, admit our stupidity and know ourselves to be bad enough for finding the common ground to make decisions we need to make and listen to the feedback we receive from inside and outside. Change, whether it manifests itself externally, of course comes from within and as long as we either don’t understand our decision making process or don’t want to admit the absolute flaws or rules of it, we seem passive about it. Whether we know or we just think that we know, must be accepted as a part of the deal in decision making. But as previously stated, before when pondering upon even graver issues, we tend to accept that confidence is just as good as knowledge and this shouldn’t be. All these things shouldn’t make anyone less or more confident but lead the reader to make or not to make the decisions with a broader base of consideration.\(^1\)

As can be seen, the essay was somewhat provocative, but the main point of the course was to introduce action into sustainability and to influence others, a much needed skill in sustainability planning.

Like the two courses discussed previously, the two Systems Thinking courses covered

\(^1\) [http://jannejsalovaara.wordpress.com/csc003-continuous-transformation/](http://jannejsalovaara.wordpress.com/csc003-continuous-transformation/) (accessed 10/2013)
the general concept of sustainability and actions. **Systems Thinking for Sustainable Communities** was a crash course covering several different eras and ideas in systems thinking, theory, and philosophy. The class combined lecture, group activities, and, after class, blogging concerning the course content, and 10 smaller essays concerned the 10 theories presented: collapse of a system, panarchy, teleology, holism to reductionism, self-organized learning and regulated systems, open systems to closed ones, forecasting, and cybernetics. Although it may have aimed too high, this class was a tremendous learning experience and the theories presented in it have stuck with me, even today.

Holism is as noble as sustainability. To draw the big lines with fat markers and believing, just telling yourself that this is the plan by this fat marker I’ll stick to it. And then again planning, or executing the plan that doesn’t have lines, is really not a plan at all. Planning an open system sounds like the best possible solution in sustainability-wise. But open system might be too vague of a plan to be executed by everyone.¹⁴

The second of the systems classes, **Systems Thinking from Planners and Designers**, explored systems thinking as applied within the student’s field. For instance, Design students came to understand iterative processes that fluctuated between reductionism and holism, the systemic character of products and their life-cycles, and so on. As the first systems course was about “what and why,” the second was about “how” to use systemic thinking to benefit sustainability in design and planning. At the conclusion of this course, I wrote an essay called “Collapse by Design” on deliberately designing a weak point into a system that would break and so save the rest of the system when the system is subjected to immense pressure. The idea arose from combining several of the theories taught in the course—panarchy, self-regulating and complex systems, and forecasting and transformation. From that essay, here are some of my final thoughts:

Whether simple society is more sustainable or resilient than a complex one or complexity helps or just automatically becomes more costly; one thing is apparent to me—complexity follows the need of the output and if the envelope gets pushed enough, complexity will multiply and turn against itself. System

doesn't fail on added complexity by its parts, but by the output requiring it or surroundings doing so, and that will make the system teeter. System itself doesn't regulate its complexity and if we would want to build a resilient system to be self-sustainable, the best way to do this would be limiting the complexity of it, not to push for the maximum benefit of it. A good indicator of this would be that when the parts, or the system of a system, stops to understand the necessity or the language of another, maximum complexity level has been reached. Alienated parts in system are the afterbirth of its uncontrolled breeding. When in societies internal parts stop to have common ground to build on, or other external societies stop to have common interface with it—complexity level has been reached and that should tell us where we are in history.\[15\]

Another essay I wrote following this class concerned collapsing societies and the scalability of systems.

There has been debate as to whether systems thinking should have courses of its own or whether the content of these classes should be integrated in other, more practical courses. In my view, either would work, although differently. Being an integrated part of other courses would make sense if applicability of the content isn't for some reason clear to students. And it's not always apparent on a detail level, but every good plan or design should be done coherently, and the systemic method is the natural and almost only way to do this. Being integrated in classes on other subjects would fail to give systems theories the attention they deserve. Applicability to the planning or design process isn't the only beneficiary of systems thinking; rather, the entire science of sustainability is as well, and systems thinking is extremely helpful in understanding internal workings of process. As the philosophy of science educates us as to how we create science, systems thinking educates us as to how things are and how we can make sense of them, i.e., how we define them to understand them. Further, it's only by understanding their behaviour that we can affect them.

In conclusion, I personally enjoyed the two systems courses, which I found impactful. They managed to combine heavy theory and concreteness. Their main thrust was the

complexity of sustainability issues and their interconnectedness and causality relationships.

**Design School Courses**

Two courses were in this category:

- Sustainable Product Design—Theory and Case
- Design Ethics

**Sustainable Product Design** educated us in every possible way through which product design can benefit the principle of sustainability if well planned and can impact sustainability negatively if neglected. The theory part was presented as a lecture course, with visiting lecturers and the Aalto Nodus research team members acting as staff. This theoretical part sourced information from both the academic and practical fields and incorporated a cross-section ranging from production techniques to assessment tools.

The course content nominally concerned design and manufacture of a physical product and how it is shipped to consumers. However, the course name was later changed to **Sustainable Product and Service Design**, and even in that first year we had the opportunity to design a service when, as a member of a two-man team, I attempted to design something intermediate between a physical product and a service. This was planning a reconstruction of an unused Aalto space to be a lab style collaboration space and designing the interior based on the use to which the space was to be put. What made this case interesting was that planning the reconstruction to meet an actual need created a sense of responsibility for the decision and so that the real-life context determined practical design boundaries. Since the space belonged to Aalto, Aalto staff were our clients, and we used them as sources of information to validate decisions. Although the theory course didn’t anticipate space to be viewed as a product—i.e., sustainable construction and land use weren’t well presented—we were able to quickly find the materials needed to support this process and, as designers, assumed some of the
role typically filled by architects.

By extending the focus of the course, I believe, we got more out of it than we would otherwise. The basic processes in product design (i.e., the impact of materials on the environment, product life-cycles, co-creation with respect to the product and sustainability, and systems thinking), as well as, sustainable construction processes, were still present but were supplemented. As I recollect, the other groups also extended their projects into their interest areas.

This realisation that, as specialists of nothing (especially in a construction project), we can fulfill the role of sustainability specialists in a planning process was a significant learning outcome of the course. This realisation concerning a designer's role in the process has stayed with me ever since. In my view, a good designer is a specialist of nothing specific, meaning that, although the designer isn't any of the following:

- the best graphic designer or three-dimensional modeler,
- the most knowledgeable about production techniques or how materials behave, or
- the best salesperson or graphic designers,

he or she is good at the following:

- problem solving,
- working in groups, and
- taking a lot of different things into account.

The designer is, in effect, a facilitator... of all the stakeholders, of all the things that need to be taken into account, and of all the elements that have to be considered. A designer can fill this function, because he or she lacks a special skill and so is very much balanced and unbiased. Hence specialists of nothing can be said to be specialists of sustainability, which ultimately should be about the unbiased and balanced view represented in the end result. "Designer tries to look at the whole and can only do that being unbiased. Often what causes the point of view to be biased is the fact that looking at some issue, person connects it to his or her background information almost no matter what has the source been, and tend to lean and rely on that fact. Again coming to an
issue with a fresh set of almost no background information on the issue itself leaves the field open to be looked from all or no point of view.”

Other useful learnings from the course were stakeholder and process mapping (where the process here was space), a benefits-and-barriers matrix, and material impact and decision-making assessments on primarily environmental levels of sustainability. Economic sustainability was also involved, however.

**Design Ethics** was reflective and reactive. No set of apparent background theories or methods was taught; rather the course emphasized peer and group-to-teacher interaction. The course content closely reflected my previous bachelor graduation project, which concerned the issue of designer ethics, morals, and social responsibility. Thus, I touched on some of the claims made in that project in my final essay, which was entitled “Push or Pull—A Narcissistic View on the Importance of a Designer,” but now with added knowledge and from the angle of sustainability. “When it comes down to it, what boils down literally is that a society looking at us might shout after responsibility from our side on basic design issues, designing things safe, environmentally acceptable, socially helpful and sustainably wonderful—but then again we easily duck the bullet by filling one of the shouted needs and turning our blind eye to others we feel we can’t effect. Is this what leads to us trying to direct the attention to bigger issues we might never be capable to matter in, and by then avoiding the blame of not doing even the basic thing well enough.”

The course provided a good recap and a nicely isolated learning experience where we had the time to linger on the specific topic. Much of the course content was sourced by the students.

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Other Design School Courses that I Took

Other courses for CS design school students, regardless of their background discipline and school of origin, that I took were the following:

- How to Change the World, Part 1—Theory
- How to Change the World, Part 2—Cases
- Sustainable Urban Design

The School of Economics or, more specifically, its Corporate Social Responsibility department offers a course called **How to Change the World, Part 1**, which concerns specific base-of-the-pyramid (BOP) market initiatives with emphasis on user-centered design. Although theoretical, the course did source materials having a practical slant, and I chose *The Power of Unreasonable People* by John Elkington and Pamela Hartigan, whose approach to social entrepreneurship was the same as that of the course, i.e., telling success stories. Small group tasks comprised the class as well.

The main criticism I had of the course, relating somewhat to its content as well its effectiveness, concerned not only the course’s epic name but also its learning aims. The basic aims, I thought, were to understand social entrepreneurship and to obtain the tools firstly to innovate around the issue of changing the world through transformative businesses and second to understand how to actualize those plans. One way to accomplish these aims is case studies on successful initiatives around the globe. However, as they were all successful, they all followed the same pattern, i.e., of being a new way of doing an old business. My criticism involved not hearing stories concerning mistakes and failures, which are often of more value than successes. Nonetheless, this course was a good introduction to BOP markets and a selection of well-known initiatives regarded as successful.

**How to Change the World, Part 2** emphasized practice and consisted of planning and executing a project with a client in a real-life setting. The project in which our three-person (initially four) team was part of a larger project in which Demos Helsinki was engaged for *The Student Housing Association of Helsinki* (HOAS), one of the largest
housing organisations in Finland and one of the largest constructors in the Helsinki metropolitan area. This project, “HOAS Laboratory,” consisted of renovating one specific building of HOAS. After the course ended, HOAS hired two of us to execute the plans. This has often been cited as a successful co-creation project, exemplifying desirable behavioral change achieved through small changes and having a large impact. The following excerpt from my portfolio describes the project:

Right from the beginning we wanted not to assume, but to find out ourselves. We had meetings along the project with HOAS, Demos and several chats with the tenants at the building that we decided to concentrate on. We wanted to combine the abstract with the physical and better the communications between the housing organization and its residents. Why we decided to concentrate on these few specific tasks was a result of intermediating the wants and needs of all the stakeholders of the building. Combining better communal feeling in the building, letting the residents have and carry more responsibilities, enabling them to live freely and simplifying the usage of the house and thus less burdening the organization with the maintenance and everyday misuse of the building. Amongst the things we pitched and later on did was a totally new common room / kitchen which transformed from uncomfortable rarely and unfreely used area to open, well facilitated Finnish kitchen with design furniture, wooden surfaces, all the kitchen equipment and top notch entertainment kit. From multiple cryptic signs to easy to read and follow user interface for the building. Instead of using a floor blueprint and follow the line printouts we came up with simple floor sticker before every turn, telling you which turn to take and how long to walk. From vandalizing the walls with smudging and smearing. We painted the lobbies from floor to ceiling as chalkboards, so instead of forbidding, to actually promoting to write on them. From saying no to saying please—even with smoking. Simply to make the place more personal and nicer we arranged a design walls competition, from which we chose two artists to decorate each building corridor. Corridor A got 8 floors of different Finnish plants in all 4 seasons and the corridor B got and “Gentle Giant” That smiles and embraces the residents throughout all 8 floors. For bettering the first impression of the whole lending and living experience we came up with a student housing version of a “mint on a pillow”. A cotton shopping bag with a Living with Hoas booklet that we collected the raw content from students and the client. In the bag was also provided everything necessary for the first night stay, some Finnish vegetarian food, toilet paper, toothbrush etc. Understanding how important social media was to the
residents, we wanted to give a voice for the customer in it too. So together with the client we constructed an open Facebook group for everyday communications, complaints and suggestions. For smarter and better living in the building, promoting sustainable values we placed signs giving tips on; smarter cooking—e.g. cook together, buy local, disposable is notable and cleaning is part of cooking; to smarter laundry—e.g. line dry and wash full loads; to smarter living—e.g. get to know your neighbours, 5-minute shower is enough, walk the stairs and separate and recycle. One of the funniest examples was, when the wall sized Helsinki map from the other lobby was partially torn. I really had to get deep, to understand what would be the best way to react: coming across too strong would feel like patronising, as just leaving the wall to be would have given a signal that no one cares. Instead—I printed and stickered the torn part with pandaid looking stickers that said “Please don’t hurt the building”. Two weeks later someone brought the piece back and even sent me a Facebook message apologizing for the incident. 18

Having a recurring course that, like this one, is based on real-world projects as part of the sustainability programme is absolutely necessary. It tests the competency of CS students and is highly educational. Its timing within the programme is crucial, however, as students must have achieved a certain level of knowledge.

**Sustainable Urban Design**, under the School of Engineering and the Departments of Architecture and of Real Estate, was a large studio course with both theoretical and practical sections. The theoretical part was presented via lectures and consisted of both case studies, mostly from the perspective of architecture companies presenting their portfolios, and lectures on, for example, urban networks, mobility, and urban ecology. From the course lectures we wrote a short learning diary to critically assess and elaborate on the content of the lecture.

The course’s approach to sustainable urban design was heavily architectural, concerning practices used to plan things sustainably, rather than being non-disciplinary and generalist. This dichotomy caused some uneasiness during the course, whose primary aims seemed to differ from group to group and teacher to student. The studio part of the

course was the most influential and provided the students the opportunity to learn new skills, since most of us weren't from either real estate or architecture. As a CS course, it was relevant since three out of five people in the world will soon live in an urban setting. The studio course involved completing several smaller individual tasks, one on megacities and another concerning the impact of social and urban trends in Helsinki and Finland, i.e., the effect of the ageing population on infrastructural needs and how emission treaties will affect availability of resources.

After these tasks, the whole class concentrated on a development plan for a small area in coastal Helsinki known as Viikki. We formulated an initial planning philosophy to provide the backbone of the plan and then translated this to a concrete and detailed level. The philosophy our team selected was based on *consilience*, which denotes unity of knowledge translated in this case to intradisciplinary or post-normal science. Our rationale stemmed from our view of urban planning as an extension of spatial planning and so combining social, economic, and environmental aspects to living, much like the principle of sustainability itself. The key element of our plan was the idea of community share, whose purchase would entail not only acquisition of a building lot from the city but also access to a support grid (i.e., the natural resources flow), socio-cultural activities, and education; a responsibility to exercise a communal vote; and primary access to local employment, local food production, and the transportation system. Another important inspirational idea for this project was Joseph A. Tainter’s *Collapse of Complex Societies*, which deals with the long-term effect of complexity in a system.

This course represented a defining point for me in the sense of realising my own path at CS as to whether I was adding the skill of sustainability to my old design skillset or was on my way to becoming a generalist. The project consisted of an intradisciplinary group of planners working on an urban planning project and so led to a better understanding of the two sides of CS; the discipline-true and the generalist approach.

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19 Primary meaning that residents have first access with any overstock shared outside the community.

Extracurricular Courses, Workshops, and Projects

Some of the courses, workshops, and projects could be considered part of my official studies and yet could be extracurricular in the sense that most were either one-off events or I was the only CS student, or one of only a few CS students, participating in the event: These are the following:

- Aalto Camp for Societal Innovation, 2011
- Empathic Design—TANGO workshop Nantes, France
- 4th Sustainable Summer School
- From Conflict Management to Creative Cooperation

Aalto Camp for Societal Innovation (ACSI) was an eight-day camp including academics and practitioners who worked together in small groups on cases aimed at societal innovation and social change. I first took part in ACSI in 2011 as a student member, thus making it a part of my student career. The experience itself, of a self-organizing high-performing group, was almost more educational than the subject matter, which addressed the issue of an ageing population in a case entitled Silver Potential, capturing how the ageing population is usually seen, as a burden rather than as a potential source of wisdom. Chris Dabbs of Unlimited Potential UK, a Shalford-based social enterprise which works on cases in the public service field, proposed finding the hidden potential in apparent problems, i.e., the City of London hiring homeless people to act as city guides since they know the streets,21 engaging children to design a children’s hospital, or, as in our case, treating the elderly not as a burden but as a source of wisdom and experience.

This ACSI was the first group work experiences I had in a multidisciplinary group where the power-ratio and hierarchy were self-created and not imposed from outside. Moreover, the group was quite dysfunctional and never seemed to reach a common consensus on methods. Even though multidisciplinary groups can share a vision and common aims, deciding on methods can cause friction and disagreement, perhaps

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because the shared vision is perceived from different scales of proportion and time. The
group work experience provided me valuable experience in coping with the passive-
aggressively expressed power ratio and the uncertainty of the group consensus in a
restricted time needed time. Subsequently, I became interested in group work dynamics
and group work facilitation, began to explore the power of weak signals in self-
referential systems, and found new access points to reflect the different scales of social
systems. I wrote the following in the course essay:

I would like to claim though that if the impact has already happened, no
ratification by state is needed—the innovation has already been formed and
implemented and is reaping and repeating its benefits. Legitimization though
will add to the effectiveness of the change in that the state supports the
movement, thus the system whole listens to its weak signal. But until they do
not judge or support the movement, state role is unnecessary, yet welcomed.
This in a scale of group as system would then again claim that system doesn’t
need to accept the information into the system for it to change in an internal
acceptance-rejection situation.  

Thus, the experience inspired me to better understand the extreme dimensions of
multidisciplinary group work and scales of change in self-referential, organic systems
and how a change in input can not only affect the outcome of the group but the group
process itself.

A Workshop on the topic “Empathic Design” (spring 2012) was a one-week part
of TANGO project, in Nantes, France, which was a collaboration between three
European schools: Aalto University, L’Ecole de design Nantes Atlantique, and
Politecnico di Milano. The workshop’s goal was to develop tools for special need, with
empathy for the special need as a motivating factor. I was a part of a group of four
designers representing a good cultural mix—one fellow CS student from Ireland and
two colleagues from France—and an equal split on gender. Most of the teams employed
physical aids to either restrict movement or otherwise reproduce the physical feeling of

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being handicapped, aged, or impaired, but our group sought purely mental ways to evoke empathy or better understand the end user of our design.

Our group employed a method we named “the émotion method” to role play the end user and in doing so address prejudices, challenge assumptions, and help in understanding the end user’s emotional landscape. The method could be used in the first design phase as a motivational tool, in the middle to gain more insight into the user, and in the prototyping phase to describe the end user’s profile. The process is simple, but tests among our group and with few colleagues showed it to be quite effective. For instance, as the test case, I assumed the role of my grandmother. Several people are needed for the exercise, one to ask the role player questions, including ones involving personal and emotional subjects, one to act as observer of nonverbal communications occurring during the channelling/reflection/interview, and one to record answers. Later on the group discusses the session to form a user profile. We envision this as an essential part of a design process, especially for user-centered and special-need projects. In the reflective essay on the workshop, I described why we chose to concentrate on emotional impact rather than physical:

"Sure, through that empiricism one should end up feeling empathy, but that would in most cases root from pity—which empathy is not. Empathy is not pity, it is also not saying I get it or ah, now I see, it’s not compassion—it is to me, to recognizing the feelings of others and really feeling those feelings as the other person. That’s why I’d claim that plain physical experiments to walk in someone else's shoes are testing their shoes, not how the owner of those shoes feel in them, but how you feel in them. That is empiric knowledge of the situation, not understanding the situation of others—empathy towards the end user is evoked by aiming to walk with their feet. This isn’t to say that empiric experiments aren’t effective tools in some design processes; they in fact are and proven to have been a source of many innovations—to overcome physical challenges. Although emotions won’t bring specific knowledge about the unique needs of the end user, it will broaden the view to the end users holistic needs, in a way that couldn’t be explained by just physical vocabulary. The emotional connection should also motivate the designer to go that extra mile when designing for a specific situation and a special need—a humane need, thus an actual need. Designers, who claim to design for others, instead of
The workshop was an interesting experience and exemplified developing methods for specific designs. The workshop led to an ongoing project that combines human studies such as ethnography and anthropology with design thinking—the Big Plans Bakery initiative.

**4th Sustainable Summer School** was a week-long workshop organized by The University of Wuppertal which, for the first time, held the workshop outside Germany, at Aalto. My role was as a local tutor and group member in a group working on a mobile app. This app, which was to be a game, was based on the idea of educating elementary school students on sustainability and was to be geographically based in Suomenlinna, Helsinki. I found the project meaningful and intriguing. The workshop included morning and afternoon joint sessions on various topics interspersed with group work. Our group included four designers, with a good cultural and an equal gender mix of designers from Croatia, England, South Korea, and Finland.

A learning outcome of the workshop was a sustainable-design process where group members approach the same issue but from very different levels of experience and backgrounds. Instead of this creating frustration, it actually allowed the group to function on different levels, but aiming at the same goal. As the group members learned from each other, the ones educating learned a lot from their own ideation and the reflection they received in reactive feedback.

**From Conflict Management to Creative Cooperation** was an intensive course organized by Aalto ARTS about group work facilitation and covered different methods, whose functions were explained, analysed, and later tested. The timing of this was perfect for me, as I was participating in workshops myself, including one I was to facilitate. A learning outcome was the course facilitator's example as a good facilitator, an underlying element of the methods taught. The final course task was to hold a

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workshop of our own, of which the other course members took part as a test group and included drafting an invitation to the workshop, setting up the workshop location, facilitating it, and getting proper feedback from participants. Our workshop involved role playing as city officials trying to obtain a better understanding of each other’s specific roles in project planning and management. We assumed roles different from our own, i.e., designers as economists, economists as architects, and so on, and then formed the groups so as to obtain a representative sample of disciplines within each. The specific task for each group was to craft a project calendar that represented tasks and responsibilities within the project.

Learning outcomes included the marshmallow challenge, covered frequently in workshops, where the group is supposed to realize that just talking and then creating one construction quite often fails in the end and that instead prototyping should be used to determine a functioning solution prior to plan creation. Another outcome was role-play where people played roles with disciplines other than their own and had to work together to find a solution, realizing, it’s hoped, the importance of input from the entire group.

Based on its feedback, the workshop was a success, and I’ve used the methods presented there in workshops. Although not novel, they encourage input from different sides in analysing the task, the process, and the end result. I wrote a complementary essay on the subject of facilitation entitled “Group Dysfunction and Facilitation: Efforts versus Benefits of Special Attention” and the following is from its:

> Any group, as effective and brilliant as its members might be in their own sphere or work, put under the pressure of a task that requires speed, agility and creativity will prove to be dysfunctional and that clearly is why I choose from now on to say that that’s how it is, and that’s well okay—it isn’t a special feature of one particular group but almost inevitable fact and what actually makes a group finally and utterly dysfunctional is just the point when it as a collective feels like it can’t be fixed. So it doesn’t matter if the group is what it is, what matters is how you yourself choose to react. Facilitating oneself is the strongest method to affect the group work—I believe. If everyone in the group felt the same, and decided to act accordingly, all groups still if start ill, will end up to
As a facilitator, the most important and impactful member in a group is yourself. By facilitating your behaviour, you can change the whole group dynamics. Your behaviour provides an example of how to function within the group; you choose how add to the group or sometimes subtract from it. Secondly, you can layer a group task to have multiple realisations and outcomes. The task can function on different levels from *ad hoc* to analysed, from concrete to abstract, and from reactive to proactive. Whether this is the most effective way to get data out of group or not, it seems to serve the purpose of having multiple discussions regarding a small task with the group.

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1.3. Content by Extracurricular Activities

- Studying in the Meta-University

To better explain why I feel my university education derived from the meta-university, I need to map the activities that occurred in that sphere and further justify why I feel these are nonetheless still attached to University and not to professional or personal interests. Some of the main activities that I consider to have happened in the meta-university sphere were as follows:

- JOO!-studies at Helsinki University:
  - Introduction to the Philosophy of Science
  - The Sociological Project
  - Issues in Urban Security
  - Regulation of Life-Styles
- Internship at Demos Helsinki
- Producer at World Design Capital Helsinki Pavilion
- Whose Issues* Project
- Peloton Camps
- Aalto in South Africa and Tanzania
- Big Plans Bakery Co-operative
- Teaching or facilitating courses and workshops at Aalto and Lahti Institute of Design
- Mainio Social Uni-Camp

**JOO!-studies at Helsinki University**

Applying to study at Helsinki University through JOO!-studies was a result of the realisation that social, or socio-cultural, sustainability was the right approach to coherent sustainable planning, and I wanted to obtain more information on social theories. In retrospect, the path from solid practice as an industrial design student to the methodological and philosophical approach as CS student is easy to see.

**Introduction to the Philosophy of Science** introduced the history of science, not
just as a phenomenon but as a process. In addition to lectures by the great Professor Jenkins, the course covered Alan Chalmer’s *What is This Thing Called Science*\(^{25}\) and Brian Fay’s *Contemporary Philosophy of Social Science*.\(^{26}\) During a course filled with scientific terminology, explanations of sense-making mechanisms, and scientific thinking methodologies, I kept reflecting on sustainability and its relationship with science.

In relation to the philosophy of science, sustainability represents a paradigm shift in knowledge, which originates in thinking, not in actions. When talking about changing a behavior, not reactively like nudging but analytically through thinking, what changes thinking then is not only input as knowledge or awareness but thinking that impacts the hard-core knowledge of a person, who then learns in a transformative way. Thus, the paradigm of knowledge, i.e., the things we hold true, changes. World view might change through awareness, but the paradigm shift happens only if one can apply that knowledge to his or her hard-core knowledge of existence, compare it to a framework or foundation, and see the new as falsifying the old. This is how we learn.

The philosophy of science and sustainability share an emphasis on facts, i.e., how ultimately nothing can be held as the only universal truth but rather as the best version of it we have at the moment. Sustainability is based on avoiding an imminent threat—depletion of resources, environmental change, etc. A typical rebuttal is that no one knows the future. Surely true, but we have the best possible version of truth at hand, like the state of the world as stated by IPCC. The endless lack of ultimate truth shouldn’t then be seen as a pardon nor as a burden but as a dam which we can open once filled with the best possible version of the truth at hand. This is how we make all of our choices, mistakes included. Faults are natural parts of any plan—and this is unavoidable. Faults are those parts of any plan that were either overlooked, unseen or even planned but in the fitted context behave differently than thought, thus creating symptoms, which we recognize as faults.


\(^{26}\) Fay, 1996.
The more complex a problem is, the more any plan fitted in to intervene with it just adds complexity and thus ultimately undermines it. As in social planning, problems arise from interactions of complex systems, which are themselves systems of systems, and interventions designed to remedy these problems must be simplistic enough to create new connections within the interaction of the systems-of-systems, i.e., to intentionally cut off excess complexity by creating new connections within. From this meta-level thinking comes concrete practical steps, and one of those was to me an end result of a workshop held in Cape Town, South Africa. An essay I wrote as part of this class, “Relation and its Counter-relations,” uses the philosophy of science to develop the science of sustainability:

“As science is a progress and it is to me an absolute universal capita that we have been building since the earliest inventions up to date. It’s sort of a mass existing in this universe as a body that has a presence—maybe it is around us, or one could argue that it is in us. For example even though one wouldn’t understand the theory of gravitation, one still know how its rule functions and effects the reality, and when explained the theory an axiom of truth presents itself—one can easily accept the theory, since without knowing it one already knew it. As Fay writes about the opposite stance his taking towards Kant’s perspectivism “…an important body of thought insists that neither in the notion of experience nor in the relation between the world and our ideas is a specific or unitary conceptual framework implied or required.” This body of thought that forms to universals, that we base our logical thoughts on and we use it as a background of sameness to reflect and experience the world. This is both a given gift and a burden. Given gift in the obvious way that this body of knowledge, confirmed or validated by science or taken as common belief that makes it so, is there to serve us a base of our logic—to explain us what we are experiencing. It is a burden in the sense of, taking it back to Einstein’s notion, us being unable to separate or unlearn that theory and logic from our experience. Einstein has another suitable quote suitable to explain this phenomenon, of being a prisoner of our own limitations: “The only thing that interferes

Another feature of proper science making which I can see seamlessly fitting with sustainability and any good planning is continuous inquiry. Science will never stop asking why, because if it does, it is no longer science but religion.

The Sociological Project covered the development of sociological theory and research throughout the twentieth century. This 6 ECTS lecture course, finalised by an essay exam, had depth and was well constructed as a whole, in that every theory presented reflected the previous ones. The three-month lecture course covered Joas & Knöbl’s Social Theory with gaps filled in. Social movement, changes, and phenomena were addressed by extending accepted theories internally as behavioral patterns and externally as systems of behavioral initiatives and consequences. Applicability of social theories was emphasized to bridge understanding and the ability to affect social movements. The terminology taught in the course aids in groupwork involving people from a sociological background and in finding a common language to speed up the process.

Even though sociology aims to explain what people do in society and not so much what people or society are as such, there is much to gain by bridging human sciences and sustainability, both by the methods through which theories are formed and the possible practices that might arise from the creation process and testing of those synthesised theories.

One approach is a classic, that Max Weber set up and Arthur Bentley\(^\text{28}\) concluded, and now I paraphrase: that social grouping happens initially through interests that can form through inner or outer need to a pressure group and ultimately to an action group. This has helped especially in forming initiatives from the bottom to implement a change in state. As one element pushes individuals to be a part of the pressure group, to move beyond that there needs to be also a pulling force. Both push and pull create pressure.

\(^\text{28}\) Prof. Erkki Kilpinen (2011), Lectures on the course The Sociological Project (Helsinki University).
Thus, to move in direction or another there needs to be push and pull, internal and/or external. This thinking has been helpful in trying to plan where to direct pressure within a pressure group, in other words, in the outside existing society, where is there room as a vacuum or even need as a more apparent pull, to receive and host the movement. And again, the other way around, if one observes a pull from the societal sphere, who would have push to fulfill the need, the void.

With respect to this, I want to quote the essay I wrote upon reading the works of Niklas Luhmann, who’s a sociologist by nature but a systems philosopher by trade, whose biggest contribution to sociology has been to radicalize functionalism.

*Surely, the effort to change the system and systems in the system, by affecting the communication which defines the system, on a universal scale to have more sustainable world would fail. But it’s not the world we need to change, it is the people in the world we need to change. Then again, as a pessimist, I also have to admit that reading his writings led me to think if sustainability is a stage even humanly possible. But in this too, the question is wrong, not the elements. We as humans will never just sustain, we won’t stay the same. We might be able to sustain ourselves in this system, but to sustain isn’t the goal, it’s the mean.*  

There’s no free will—there’s just time.

**Issues in Urban Security** proved useful much later in urban planning and sustainable behavior as expressed through the constructed environment. Issues in urban security were mostly based on the philosophy of surveillance and Foucault’s description of the Panopticon and hierarchy of power in modern societies provided a basis for the course. The course included a two-hour session that begun with a discussion, next a lecture, and finally a group task. For the first time, I deliberately put myself into a group-work situation, being the only member coming from a field of practice, and it naturally took several tries for me to reach the level of functional communication and to discover the common methods to the process.

I saw the course to be a natural extension of socio-cultural sustainability in an urban

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setting and meeting an important need, security. Others viewed the course content in terms of governance, ownership, and the philosophy of freedom. None of these notions contradict sustainability, in fact, quite the contrary; they too belong to the equation of sustainable living. Exploring the initial concept of the Panopticon and the different applications of different modes of surveillance and expressions of power created a good dialogue concerning its elements: the *build* part, i.e., how it guides behavior and how people react to it, and the *symbolic* part, i.e., the intended use of the space. Examples of different spaces and how they are governed were public parks, a shopping mall that is still de facto public but is secured by a security company hired by the mall, and private spaces like gated communities.

What this course added to my thinking of sustainability was multi-levelled. I realised that all of us are members of some minority when it comes to comparison and compartmentalization, and these often erect barriers from the point of view of a sustainability planner. A quote from an essay “Fear in the Notion of ‘If Others’” to the course:

> When we bring, in and with ourselves, our culture to a space—our own personal culture that can be divided in societal, family, work, study, political cultures and so on. So we do literally carry our own world with us. Space on the other hand when we assume it to be controlled by the universal others is probably not fully compatible with our view. Then again we can also assume that when we enter a space other will share our view only in the sense that they might feel a contradiction in us against their views. That brings me to my point that since our society and its hedonistically individual past decades has grown us isolated and separated everyone to belong to a minority of some kind, we cannot predict the views of others and they cannot predict our views and the relation of those two. If we think of this in the way that mass media and the overall attitudes against others has been shaped for us, whether we want it or not, we do carry that mistrust with us and we let it control our behavior in ways that actually makes us even more uncomfortable confronting those spaces and others we might even want to confront without any prejudice—alas it is built into us. In a way as we go around our lives as private persons we do actually carry the world politics, its rules and views with us. We have unwillingly but passively agreed to the contract of mistrust because it was fed to us predetermined. Agreeing to that status quo, even in our own attitudes is preset.
and shaping those presets is the core of our uncomfortable feeling—change needs more actions than acceptance.30

Freedom is one of the core elements of socio-cultural sustainability, but sometimes freedom, or free will, is in conflict with the principle of sustainability. Should we be free to make unsustainable choices, based on the fact that freedom is socially sustainable and promotes personal well-being? In the end it comes down to timescale—immediate reward versus long-term negative consequences. Governance, who has the right to oppose personal choices and how is the validity expressed and perceived? When it comes to sustainability one should see it as a dialogue, not as a direct order—sustainability is negotiable as it is an inquiry to find the best practices, since there is no coherent guide book to it.

Regulation of Life Styles, a history of the welfare state and its flaws, was of special interest to me. ‘Regulation of life styles’ referenced the rules and regulations that come with the welfare care system and the stigma that is both created and that creates the common moral that is the base of this regulation. The course included the systematic comprehension of the notion of equality. Equality in a society where welfare is either self-gained or secured by the weaker members through a national welfare plan is difficult to obtain. Equality is not just economic inequality but socio-economic also. This course pointed to social sustainability to me, and in an essay entitled “Inequality and Three Aspects of Sustainability” I wrote the following:

As the chapter 11 from the OECD publication ‘Growing unequal?31 talks about the strategies how to tackle the unequal state of wealth distribution in national state, we should see it to be scalable at a global level. If we take from the OECD’s report the two strategies, that in ‘what-if’ scenario works best when both implemented: 1. We need to move from just supporting the unemployed to promote job creation—with the addition that this should not be done with the expense of other areas of sustainability e.g. environment and 2. When alleviating some from poverty for making sure that those still poor won’t be worse off. In a closed loop we could in theory think that the newly created jobs

could bring in more tax funds to be used to support the ones that still rely on support. Also as the article says, there is no other way to tackle the problem of inequality than to level out some of the power and thus balancing the fields. The flip-side though, in this deal is that as both articles point out, equality is not absolute—its always contextual and circumstantial, so when others are alleviated from poverty at the same time their social status and money wise, purchasing power is still on the level. It’s like being a giant in the world where everything else too is up to scale—contextually everything stays the same.\textsuperscript{32}

The notion of finite equality is still mind-boggling to me, and I've concluded that, as long as we use the same measurement to seek for the equality, it'll be finite. Equality would mean in this sense same to all, in other words, universalism, i.e., everyone would have one fish per day. But what if one gets a fish and one a new pair of shoes—both products that can be monetized? But what if one gets instead of a fish, to breathe clean air and swim in a clear blue ocean, or gets to go to school instead? We can still monetise these too, and have even, since money over any other seems to be the universal language of value. Equality, paradoxically enough can only be found from mass of the same or sameness—and this is finite. The infinite is in equity, not meaning the economic term, but in equity theory or fairness.

\textbf{Internship at Demos Helsinki}

At this point, I did a three-month internship at Demos Helsinki, a think tank working in the fields 'resource-smart economy' and 'social democracy,' which fitted well to my interests, especially the social change part. Demos Helsinki was contracted to coordinate the program to World Design Capital 2012 Helsinki's main event venue, the Pavilion, and this project became my primary task, although I had small roles in a few other projects, i.e., an urban development case for a massive bike line, which is much like the skywalk in New York, Baana.

\textbf{Producer at World Design Capital Helsinki Pavilion}

I'll use this example as a part of my example projects and further elaborate the content of

it later on. Though I want to add this rather long quote here. In February 2013, I wrote a short essay to assess the sustainability of the Pavilion project, which well combines and explains the different aspects of the initiative, with the title “WDC 2012 Helsinki Pavilion—Temporarily Sustainable”:

When talking about the upcoming generations, you often hear the words: wicked problems. What makes those problems so wicked is the complexity of the, and the realized fact that usually the solutions will again bring out new problems. Especially if the solutions are planned complex: it'll only create more complexity and hierarchy to the system and thus further impair its durability. Wicked problems are often part of any organic system—like the society. Society that spreads its problems to surrounding systems—like the environment. Humberto Maturana said “You can never direct a living system, you can only disturb it”, and one way to disturb is through intervention—by creating an abnormality to the normal. That's what the whole Pavilion was—an intervention. An exceptionally beautiful structure built to a parking lot that offered everything, that is usually done behind closed doors and name lists, suddenly open and free. And on top of that the content of the lectures, discussions and workshops were mostly also teaching about interventions. During the summer approximately 100,000 people passed by the 105 events, and more than 10,000 people took part in them actively. What ever was though and learned at the Pavilion, when properly internalized and empowered by collaboration, does already create good momentum for the change. Change in how we think, behave, understand and in our attitudes too. C. S. Holling talks in his book “Panarchy” about the never-ending loop of system’s life: from birth to prosperity to collapse and rebirth—which gains its momentum from the collapse. Learning, sustainability, the physical space as the Pavilion and many other things talked about in this essay follows the same never-ending loop—reorganizing to give birth to something new. When a system runs out of space to grow and reaches its peak of prosperity the systems reason to exist becomes to just sustain that existence—this again will in that sense turn the systems reason against itself, thus it has to collapse. But the parts of a system that collapses wont disappear, but reorganize. That momentum gained from the collapse movement empowers the pieces to join new system—the reorganized one. This panarchic loop, through the intervention—at least to me, was the essence of the Pavilion. So if I may state that at least socio-culturally, by it's events and content the Pavilion was true to the ideology of sustainability, and the physical construction was that too ecologically—we’re left with the third part of what is triple-bottom triangle of sustainability—to look at the economic side of the Pavilion. Although to follow on the physical construction and it's
use, almost all of the Pavilions technical equipment were leased, and thus under shared ownership, kitchen equipment and all of the furniture and kitchenware were sold to the staff and visitors and the construction material itself was given to a design-duo; Trash Design Inc. that will give the material a new life-cycle. But was the Pavilion economically sustainable? Economic and ecologic sustainability are often the counter partners that need to be balanced—floating capita runs the society and it’s generally available—you just need to sell something. I’m not sure how we have balanced it at the moment globally, but I could estimate that the ratio between material product and immaterial service is around 80 material to 20 immaterial. Producing physical products, in business as usual mode—or in almost any mode, but in these global quantities just isn’t sustainable. Even if we find new materials and stop over-excavating our natural resources, a world that revolves by fossil fuels won’t still be emission free. But we were talking about economic sustainability—but what is it then? I’d say it has to follow the same formula as other areas of sustainability—it’s economic progress, but not necessarily growth in the typical sense of it, but the kind that is manageable in harmony with all areas of sustainability. No one area of it can be prosperous exclusively, but all has to be in balance. The Pavilion was funded by public money, by partner sponsorship and by the support of local businesses and people in exchange of visibility, usage of the space and for good intentions. This all happened by supporting the old economic structure and at the same time creating new opportunities and connections, and in that sense it was sustainable economically as well. So yes, the Pavilion was true to the ideology of sustainability—although somewhat unreal in the real contemporary world, but existing successfully in its own bubble. What’s still great about this unreality is those 100 000 people who for a while got under that bubble and got a glimpse of how things could be. As well, when you have 10 000 active participants who are excited to spread that experienced utopia around them, a meaningful movement gets started. The image of new, different and maybe even sustainable development lasted four months as the zeitgeist of the Pavilion, but hopefully it'll sustain itself for a long time as a phenomenon... Pavilion didn’t exist in the passive tense—the Pavilion, even as a construction meant the participation of hundreds of designers and planners, builders and cleaners—and as an even venue it meant thousands of organizers and more than ten thousand participators. The Pavilion was the end result of shared labor. Idea becomes an innovation when it is valued in the surrounding society, and a movement to own and enhance the idea becomes to exist—when a community embraces it. The Pavilion was an idea that became a social innovation through the space, events and its philosophy. Long live the Pavilion!

Whose Issues* Project

Whose Issues* project was a student-led project executed as an event series happening in the center of Helsinki and ending with a larger open workshop at the WDC 2012 Helsinki Pavilion. I’ll use this example as a part of my example projects and further elaborate the content of it later on. Here is a quote from the workshop report:

We aimed for an open discussion where people would feel free to talk, discuss, contemplate, comment, laugh and enjoy rather than having very tangible solution. We arranged ‘post-it-wars’ and an ‘idea pool’ to get individual perspectives, thoughts, problems and challenges out on the table. Surprisingly, many of us had similar viewpoints towards problems about our everyday activities, consumption and social interaction. We also largely agreed on the need for new perspectives for community-building and more non-commercial public spaces. After some discussion we defined our issue: ‘Create more non-commercial public spaces through co-operatives and participatory activities’.
We concluded this because several initiatives take place but they are not connected or not aware of each other. Also, we understood the potential of the existing public spaces. The barriers to their usage were identified as bureaucracy and/or ingrained habits. Another challenge is seasonality in Finland—we’re served with parks and such in the summer, but year-round non-commercial spaces are scarce. The group brought up libraries and schools and the Pavilion itself as examples.34

Peloton Camp

Peloton Camp was a workshop series organised by Demos Helsinki for Sitra. The Peloton Camp workshops are short and intensive, varying from two to three. The camp begins with an introduction concerning the necessity for green business, which is presented as an opportunity; like industrialisation and IT advances, green-tech, eco-business with corporate social responsibility (CSR) can lead to economic prosperity, the camp’s organisers believe. I’ve never been an avid believer in this claim, but I did appreciate the camps for the opportunity for a group work experience and for networking and so returning.

Overall the Peloton Camps were a good set of workshops which allowed me to observe

the methods used. The most meaningful insight I took from participating was on how a meaningful experience and a momentary excitement over a concept could slowly die. Although every group work was meaningful, the resolution at which all aimed was strictly scheduled with no room for an organic approach. Many of the camp ideas have remained as camp initiatives with no afterlife. The reason, I believe, was a tendency to reward ideas which favored those facilitating the camp, thus reducing sense of ownership and therefore enthusiasm. So the camps failed as incubators of green-tech business ideas, but I learned a lot, and these experiences together with ACSI provided the basis for the Mainio Camp concept. I'll use this example as a part of my example projects and further elaborate the content of it later on.

Aalto in South Africa and Tanzania

South Africa concerned the legacy program Aalto University was to set up based on Aalto activities in the 2012 Helsinki World Design Capital as Cape Town is to be based on the next WDC in 2014. The themes of Cape Town’s WDC year heavily emphasizing sustainability and social sustainability spoke to me strongly. As part of the Aalto delegation traveling to South Africa, I gave a short presentation on the Helsinki WDC Pavilion experience and also explored possible collaboration opportunities with local universities such as Cape Peninsula University of Technology and University of Cape Town. In Johannesburg, I participated in an ACSI inspired spin-off “Johannesburg Social Innovation Lab” organized by the international board of ACSI and the universities of Pretoria and Witwatersrand. Below is an entry in the Aalto Talks! blog space concerning the trip:

*When leaving to South Africa I had no idea what can I contribute down there, or what can I bring back. I hope through these blogs I written about the trip, I've been able to somewhat explain what happened and what was my contribution. I have no idea if any of the workshops we did, where I took part has been able to ripple out of it’s own small scale to have an actual impact on the things and plans there, but I tried. And I do feel that at least some of the talks we had, some of the ideas we generated will resonate in the minds of the*
people who participated and thus hopefully help them deal with the issues now in a different way. I can say this because at least to me—it worked like it. I know I learned a lot from the whole experience. I learned from the people there, but also much from analysing and understanding the context. Ever since getting familiar with the theory of panarchy by C.S. Hollins I've been looking into different areas where the idea applies. In social change, economic development, project management—but also I now believe, that it applies to learning processes as well. And more specifically when the learning is transformational. One has an idea how “things” are, based on theory, heuristic knowledge and by their own innate sense-making mechanisms, but the thing is that probably bunch of this knowledge has been formed true by the existence they get to experience in their own surroundings. Making a trip—as just to expand your perspective, mind—is beneficial in the way, that if you make it a point to observe you surroundings you'll get more direct feedback of the ideas you have in your knowledge core—the hard core. That hard core of knowledge one has, is basically the paradigm of information (in the philosophy of science) that one has and changing it—changing the paradigm can only come through peripheral information. The peripheral information feeds to ones knowledge core and by giving new reflection to it, it has the ability to change the core—if one is open to accept a new view of the reality that realigns itself by the core. In this case, the information that did change my knowledge paradigm came from literally peripheral source—to me—which was to observe and breath in the social context of South Africa. Like Helene Shulman writes in her book “Living at the Edge of Chaos”—that to become clinically insane is to observe something against ones own innate sense making mechanism. If this newly, almost forced, reality is in too much contradiction of the own hard-core knowledge, two things can happen: one is to accept and adapt so to learn in a transformative way, the other is with more severe consequences where the truth is in discord with ones self and the fact of the discord stresses too much the construction of ones mind, thus the mind lets go of that. So I didn’t (to my own recollection) become clinically insane during the trip but it did open up new thoughts by getting rid of some old constructions. The more I think of the whole concept I got to experience, and the issue of social change, societal development—both up in South Africa and down here in Finland, the more of the few concepts I spent a lot of time thinking there rings true. First is about disappointment management. This was the base of our suggested actions in the Cape Flats case about health care, and it being insufficient to serve everybody. The case is of course more complex than it sound from just putting it like that but the thinking behind it and the group wide acceptance of the idea let me believe that it fitted the problem as a solution. In many cases the social group that is from
the others perspective the problem—although in many cases really the problem lies at the other end—the group is somewhat disappointed, I mean disappointment and mistrust of the system is for sure found in any "social outcasts". To process this though I will use few very different examples. When we visited the Sweet Home Farm in Philippi Cape Town, the disappointment that the area residents felt towards the system was apparent. But then again, their disappointment is more of the requesting kind—in that disappointment there is still hope and willing to fix the perspective. Of course this wont happen by it self but needs reconstructing of the system. But like Shannon said in her TEDx talk, the issue is as much in our end of the field, we tend to think of their way as the socially wrong way—just because it isn't in-line with our own systems structure. And to some extent, I think the passive-aggressive way to abandon societal outcasts is systemically close to the way of a persons mind letting structures go and becoming insane—I mean, we have abandoned our own wish and hope to understand their way and yet think that what ever change need to happen, has to happen in the way that they change closer towards our way—if not, then the issue is theirs and we can let it go. So instead of us transformatively learning, willing to understand and teach our own system to adapt, we'd rather turn our backs and not take part in the learning, in the joint effort to manage the disappointment that is felt in both of us. The other thing I've been thinking about ever since the trip is the process of mutual resource management. This concept came up in both the workshop in RLabs and in Sweet Home Farm and also has been coming up in my own projects in Helsinki. To summarise how it came up at the RLabs workshop was sort of a continuum of the idea of disappointment management. If we consider that there are two separate, almost opposite parties to an action—in the case of health-care service, integration of an illegal settlement to outside society or sharing a public space in a neighbourhood and so on—it is a resource that the two (or more) separate parties are sharing, whether again they like it or not. I think by bringing awareness and understanding over the simple issue that the parties have to co-exist could bring in more willingness to manage the shared things together. This then again could be the beginning to a better communication and overall facilitation to the process of the whole co-existing. Even take the co-existing from it's hibernation kind of state of "just getting by” to mutually co-evolve and nourish by the fact that the resource itself is then better managed and both parties get to share the benefits of it. This is an idea that I am more or less still just developing but I promise to blog about it, as soon as I get to test it in real context. There are for sure several ways to manifest this idea and implement it to the real context, but as it is just one idea hopefully forming to a proper theory at some point, I guess my first "prototype"
of it is just going to be done in the way of facilitated discussions. Probably through and object—as f.ex. planning a public space together. This is also an thought that has been running around in my head since the trip; that in co-creation, or other way said, facilitated discussion with different parties—or stakeholders—the easiest way to get the discussion or creation going is to be able to let the stakeholders be reactive. Reactive in the sense that the discussion has to happen through an object. The object somehow presents an area of interest to them and thus it is easier to have an opinion about it. This object is then the subject as the resource, of which different aspects they have together manage. And the level of openness of the object has to be delicately chosen before the discussion is started. It has to be presented in the way that the stakeholders at hand at the same time are allowed to have their opinion and manage the resource from their perspective, but also in the way that the systemic picture of the resource is clearly communicated. This has to happen so that the co-creation happens in more of an inclusive tense, so the stakeholders add to the resource management their responsibility and through it benefiting most from its gain. Just to clarify the other way would then be the exclusive way to manage the resource, and co-create it—which would be to maximise the tension to their own area, sort of putting most effort to one area which will then cannibalise the gain from other areas. No matter which resource the output of its system can always only be 100%—but this isn’t easily achieved unless the efforts of the inputs, from the stakeholders, is 100% too. Since in organic, living systems every part has to play their full part to make the system full. Even if five parties gave 20%, the output of the system would also equal 20% not 100%. Sameness, togetherness and similarities are also things that are pinned to my mind when thinking about the trip. I’ll never forget the dryness of my mouth and the anxiety I felt when the words rolled off my tongue to the audience, people living in Sweet Home Farm, when I said that we’re in the end not that different. I was of course afraid that I’m saying something massively stupid and offensive, that I have the arrogance to even claim I know how they feel. And it’s not about me fully understanding it, to me it’s about having the right mindset to look at the situation. It’s about aligning your senses and sense making that one has learned to use and believe to the new context you’re in. This might sound weird but in the end we, people, are pretty universal as we are these days—global. On my short peak to the world of anthropology I came to think, that in the end I have on this day more in common with a fieldworker in Cape Flats than I have to my own ancestors living in Finland in 18th hundreds. The rest is about understanding the ways and means of the other society and it’s complex structure these stories alike exist. Community is a concept we all understand pretty innate and we all in away understand how we belong to our own. It
might be that we’re together with it—going with it, or going against the grain, or that we’re in the middle or on the fringe. But we do understand the position. Seeing a person from another context is as much about understanding that context, or even more, than about understanding that individual. Context has to accept the change the individuals are trying to achieve, otherwise it’s not really a societal but individual change. I’m not sure how I would achieve a societal change in my own society, but knowing the context I can at least try the right channels. I’m sure there is no pattern to it, no one-size-fits-all solution nor a equation that works idiot proof in every context. But I want to believe there is a general guides to it, that can then be applied specific. One thing that comes to mind, on this moment, is the fact that maybe that’s why we are in the global pickle we at the moment find ourselves, that we’ve tried to change the world from a personal perspective and thus in an exclusive manner. One against all—not one for all. More to me is better than some to everyone. We’re managing resources by dividing the output, not the input. I probably expected nothing less, but was still surprised by the reception my offer to see that we all belong to a community and a society received from the Capetownians. That we all belong to a community and a society and all are in different locations in the structure of it. I am a student, part time worker and if we talk about socioeconomic structure I’m basically sharing the position of a fruit stand owner from the Philippi in my own community—middle class worker. But why would I define anyone’s potential in that context anymore I’m willing to be characterised by my own position in my community. When we talk about our lives, past, present and future tense we can see the similarities of our stories and plans for the future alike if we can adjust and accept how big of a part the context plays. We as individuals have too, share the resources we are able to manage with the existing society, we can’t have more of them for our pure benefit, nor we should release some of them from our hands to relieve our burden. There is a role in our lives to all of us, with both gains and takes and together with everyone. There seems to be almost universal stories, only so few ways that things might generally go—but what changes is the context. Context defined by the time and space it takes part. And from the day we spent with the Sweet Home Farm residents, I feel like we put up a harder crust than them in our belief how things might be. If am surprised by the fact that a part time handyman from Philippi tells me that I and him both have educated our selves to survive in our respective societies—and in it we are the same, I need to learn more. I need to learn to let more thing in. Things to affect me. I have had to redefine a bunch of common concepts to my self after this whole experience. Of course it’s hard to say when did it happen, when did I learn since learning is, like design—a process not the end result. What started before and was a thought, and opening
in ones hard-core knowledge to let in something new from the periphery, that then later becomes something learned when it fits both in your sense and the experienced reality. Community is not unique or context specific. I mean it is in the sense that not one is like the other but internally experienced if one can see pass the noise its true structure it becomes more universal. Oneness has nothing to do with time nor is momentary or circumstantial, it is an universal too. Resources, inputs and tensions are the building blocks of our societies, no matter if they are tangible or intangible—they are the basic element we share in good and bad and need to manage to nourish together, not to just benefit from and keep in state of hibernation even if we feel so. Disappointment is misunderstanding the premises of what is to become. this misunderstanding is sometimes unavoidable and that’s why its management is often more important than the prevention—since in most of the cases nothing could have prevented it. They are often based on honest mistakes, honest lies even from both parties where in neither knew before taking the steps of trust to see what is beyond the point of guessing and in the core of reality. Experience is nothing if not shared with other people and reflected with different perspectives of it. If the experience is left to be as its own element in the vast matrix of all things existing it'll drift far from the context it appeared and in drifting, might get lost. When an issue appears in the mass of everything, it appears there because of its connections—no matter how distant, and from acknowledging its existence on the spot it could become meaningful and teach and reveal us something new. But to pinpoint it in there, extracting its appearance from the noise, we need to verify it and this is best done in reflection to others’ realities and other knowledge. Honesty is innate, lying is artificial, learned and forced upon each mouth to let it out. If you have nothing to lose, you will be honest—but instead of letting things go to that point, one should think of what is there to really lose. What part of the resource you’re trying to untruthfully manage and what is the exclusion that follows its ill treatment. That societal change cannot be scaled up, and has to be replicated to have a broader effect—not linearly and in linear logic but stochastically. I realise that this might start to be the summary of my odd education; official and unofficial and that’s why I might stop to digress. And say something about South Africa itself, and please remember this is how I see it. And if it is a lie, believe me it is the honest kind. South Africa as beautiful as it is, is to me about those people inhabiting this south tip of our mother continent. I have traveled quite a bit in my life, on and off the beaten path. I’m not the nature loving kind—although I will be one of the first ones to bow in awe before its presence; here by the grace of it go we and we should never forget it. And of course I do stop and think when an breath taking scenery opens up before me. In those moments I too feel the connection, the
connection of me not being that different of a creation of sums to luckily come
together in the same equation, as are the trees and water of this still blue and
green globe. But these aren’t the reasons I travel, I travel to be the Lilliput in
other countries full of Gullivers. I observe as I’m lost and learn as I accept.
Those moments of realisation in a new context is not just a thrill to experience
but as previously stated, it brings me closer to humanity and by it myself as
well. I believe that the need to travel, see, experience and learn is empowered by
the same internal burn as is to keep wondering about the world and its people.
As is the need to help and for sure somewhat distorted idea that I can matter in
this world and make it better. At the same time as I keep scavenging new parts
of the reality I get to explain and understand bits and pieces of me and my
existence. My mom used to teach me that the reason to exist is to help others to
exist, and I do believe it is so—also because it leads to our own existence to be
somewhat more harmonic, in its chaos. There’s nothing wrong with chaos, as
previously stated, but if the chaos appears too erratic, it leaves no room for one
to grow to understand it. It’s like you’re buried alive and you need to rise, but if
there’s no space for you to wiggle, for you to loose the tight bound the reality
has from you, you’ll stay there deep and will never see the surface. Existence is
ture both on and under the surface, they’re just two different positions to take
and stay in. All and all this whole chain of events did evoke a heap of new ideas
and cleared new paths to patterns in my own sense making mechanisms. From
each and every encounter from the trip I took away something and I can only
hope I “left” something there too, that I could have played somewhat a
meaningful partner to those encounters. I do believe South Africa is on a verge
of something absolutely amazing. They have everything there. The diversity
of the population, nature, socioeconomic classes, cultures—the surplus of
educated people and people willing to work—the proudness they seem to feel
about their own things and the openness to listen and honesty in telling. All the
elements of a beautiful heterogeneous society are there for sure. . . . From all
this I could say that I think I finally got a part of it. The realisation that these
are things that I have now learned not for the learning sake, not for the brag
rights to get to be a besserwisser, not even to bleed it to a blog but to feel more
comfortable in my own existence. This feeling of oneness and understanding
that maybe in the end we’re actually not alone at all. Few months ago I wrote
an essay about using emotions in design. In it there was a quote from a social
scientist Brian Fay: “Give the self fluidity, internal tension, and sensitivity to
outside stimuli—it should not be surprising that self is essentially permeable.
Indeed so permeable is it that not only are you not separate from others but
rather others are part of you.” (Fay, B., Contemporary Philosophy of Social
Science, p.39). This sort of rings true to me now on a very personal sense and in
a really big scale. We’re all parts of this mess that can appear as harmony if you can place yourself in it. The complexity is overwhelming but denying it would not really make any difference other than leaving one feel alone or render them clinically insane—accepting it is the way to learn it. Accepting it is to step into the real world, I’d think. . . . A course originally held and led by the department of architecture called "City in Crisis" later called "City in Transition" is a study module that offers an joint lecture series on the state of the world, much like that I took part as the lecture part of my Sustainable Urban Design course, that can be extended to the practical part, which in this case was a field trip and a real-life case in Dar Es Salaam, Tanzania. My participation in the Tanzania activities was two parted, to participate in the KTH (Royal Academy of Technology Sweden) organised seminar called “Technology Transfer Alliance”—which is the name of their initiated network of universities that freely and openly exchange information, methods and results of their projects between northern and southern hemispheres, which Aalto was looking into joining, and did later on. The seminar consisted mainly of presentation by different educators and researchers from universities in Europe and African continent. On the three day seminar there was also mini workshops, that focused either on exchanging education methods between different part takers as school representatives and some workshops on local development issues—that were still spoken of through the lens of problem-based learning. On my trip I also got to observe some of the Aalto student groups work, as their either worked in their assigned spaces around the city and took part in one of the projects field trips, where they went to gather more tacit information and in a verbal manner to prototype their initial ideas.

I’ll use this example as a part of my example projects and further elaborate the content of it later on.

**Big Plans Bakery**

Big Plans Bakery is the name of a cooperative I initiated a year and a half ago. It originated because of the debate whether we, as CS professionals, should seek positions in our original discipline and incorporate sustainability there or attempt to be non-disciplinary general sustainability planners. Therefore, I thought the best way to test our competence was to create something of our own. My idea was a network to address real-life issues on a project basis that would observe and gain information concerning the
problem context, work on the case with the appropriate stakeholders, and then form a
collection as to how the issue could be either alleviated or promoted—in other words, a
design consultancy. The co-operative, made up of a diverse set of like-minded people,
was the result. Below is a blog entry describing it.

**Big Plans Bakery** is a cross-disciplinary company of young professionals
coming from a wide variety of disciplines from the well-established to the up
and coming. The connecting factor of our studies, projects and skills—our
backgrounds is the interest towards our society and a strong belief that even a
small company can do meaningful things. The founding members have studied
and taught themselves business, social sciences, design, technology—and fields
that combine these. The members are experienced in organising workshops,
facilitation, co-creation, fieldwork, grassroot mobilization and production of
events—the skills needed to make change happen. Our work experience comes
from the fields of research and development, politics, communications, design,
marketing, environment, associational work, corporate social responsibility
and, last but not least, business. In addition Big Plans Bakery has a wide
international network of contacts to bring in specific know-how and know-why
on those areas we don't have first hand experience in. We believe in
collaboration over competition, as we believe that most of us have a stake in
these issues we share and believe that we all know different. The best way to
witness our skills is to invite us to tackle real life problems. 

Big Plans Bakery wasn't really founded to solve a specific problem, nor for it to
seek the blue-oceans of business world but more like a prototype of a future
company form. Even though it's not a NGO or a NPO, but is to also make a
profit or at least to secure our income, the subjects we mostly work with are
societal. From homeless people to a huge construction company to a concept
of sustainable living—the promise is that we will research the subject area, or the
problem context enough to understand the nature of the elements involved.
Every research done under us, aims to find new ways to solve those problems
by us planning concrete steps to do so. “Big Plans Bakery is a seven-member
interdisciplinary organisation that fits somewhere between a think tank and a
design consultancy—which is why we often call it a think/do tank. We’re at our
best in producing solutions to problems that come between people and a
sustainable future. Our solutions are based on valid theory that is proven in
tangible actions—this assures the scientific and ethical integrity that is the

centre of our operational values. Truly understanding the problem context, or the system of problems, is the right starting point of every successful project. The most important thing is to plan a solution that fits the client’s true needs as well as our values, and that best serves the issue itself. Big Plans Bakery is a young organisation, but is highly experienced through its members’ backgrounds in responsible business, sustainable development, eco-friendly consumption, social inclusion and service design, to name a few.36

Because Big Plans is a co-op, we are all considered employees and not employers. We observe a societal, economic, or environmental problem in society and perform preliminary research on the topic during which we determine, first, who owns the problem—i.e., who in society is responsible for trying to alleviate the problem—and who suffers because of it, i.e., who is the recipient of the end result when the problem is not addressed. We boldly contact whomever we feel is ultimately responsible and suggest some form of collaboration.

*Big Plans Bakery makes the utopian sustainable future a reality. Sustainability is as much about responsible corporates, sensible consumer behaviour as it is an issue of individuals, societies and environments prosperity. Our aim is to create concrete solutions and base the solutions to the best understanding of the problem itself. This is why the basis of every project is the tacit theory and proper research that cumulates knowledge about the problem and its context. Our background research is based on our open outlook—we know well both thinkers and doers of the sustainable field both internationally and in Finland. The solutions we provide stem from our knowledge in design, communications, business and social sciences.*37

Some prospective clients do not understand our product and the gain from working with us. However, we educate on sustainability issues, we are demonstrating new ways of combining work learning in a meaningful life, and, if Big Plans does not work out, it will be a prototype for a proactive company.

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Teaching or facilitating courses and workshops at Aalto and Lahti Institute of Design

On the first summer break from CS, undergraduate school, The Institute of Design in Lahti, invited me to conduct a course on Sustainable Design in collaboration with one of the largest pen/pencil companies in the world—Zebra. The course, already a study module for industrial design students, was to incorporate sustainability in process design. I brought theory, primarily systems thinking, and practice, primarily material and manufacturing impact assessment and life-cycle thinking, to the small group, asking them to write a short essay on “What is the Purpose of a Broken Pen?” Zebra received the course’s end results well and adopted a student design for further development in its eco-line.

In the third year of my studies I took on a project, under Big Plans Bakery, as part of the How to Change the World, Part 2 course. The case concerned Pirkka, an alcoholic unemployed approximately 50+ year old Finnish man. Pirkka had been unemployed since his 20s and had generated income from random odd jobs and by selling short stories. Pirkka had an apartment in Kamppi, a central and expensive area in downtown Helsinki. Because he owned the apartment, he was not eligible for social support. Instead social welfare advised him to sell the apartment, thus rendering him homeless. He willingly and enthusiastically took part in our project—as an expert of his life-style, which is quite common in Finland. The project was mostly about defining the problem context from an individual's point of view and aimed for a deeper understanding of the subject area based on one example, Pirkka. We met and talked with with Pirkka weekly. In a few workshops that I facilitated to the student group, we ideated around Pirkka’s situation and formulated a solution to help him. The point of the project initially was to understand from the individual point of view, what it is to live in a welfare society. As a suggestion to the welfare system, the project recommended it attempt to appreciate the individuality of their clients and offer small activities based on their skills and abilities to help heal them; this is called resource-based healing.
Later on in the autumn of 2013 at CS, as Big Plans Bakery, we facilitated an introductory course entitled “Creative Teamwork” to new students. We planned the course in collaboration with a Big Plans Bakery colleague having a political science background and with CS program head Tiina Laurila. The course’s aim was to introduce sustainability and to introduce the students to one another so as to start building a cohesive unit. I challenged the students to think critically about the principle of sustainability, including its three pillars: economic, ecological or environmental, and social or socio-cultural sustainability. The methods used were group work brainstorming, prototyping, and presenting. As a final individual task, we asked them to write a pledge to sustainability entailing their position, describing their intended contribution, and predicting how their work would add to the desired change.

Mainio Social Uni-Camp

Mainio Social Uni-Camp was a multidisciplinary five-day workshop that Big Plans Bakery organised in collaboration with another local think-tank, Avanto Helsinki. This project has been the latest for me in the meta-university sphere, and will most probably be the last before my graduation as a CS MA student, but for sure not the last in my overall CS involvement. From Mainio Social webpage:

Meet the people you can make it happen with. No one can do it alone! Often you hang around too much with people with similar skills. What Mainio does is it brings together truly multi-disciplinary group of people: students and researchers from all the major universities and polytechnics of the Helsinki metropolitan area are taking part. We’ll back you up! At Mainio camp you will also get support from the facilitators, sparring from experts, help with networking the facilities. It’s free! The camp is free for students. In exchange we ask for you to have passion, dedication and willingness to invest your active time over the first long weekend of October. And yes, there will be the necessary amounts of coffee provided to make things click. We believe in you and in your brilliant, ground breaking ideas—pool it in and let’s make it
I'll use this example as a part of my example projects and further elaborate the content of it later on.

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*awesome*[^1]

1.4. In-depth Analysis of the Reflected Image of, and the Issues at CS

– Did we get it?

After completing my studies at CS according to the official curriculum and what I call the meta-university, I must state some conclusions since some of the research questions were to be answered from the CS study content. These initial research sub-questions were as follows: 1: "How much of this utilitarian knowledge is part of an official curriculum, and how much of students own pro-activity?" and 2: "If the self- and passion-driven, outside-official curriculum knowledge plays a key role, then how could university play a critical role in enhancing those outside of official curriculum learning moments to better tackle the real-life problems. In addition, I must ask whether the program got its key subject, sustainability.

To be able to answer to this, one must ascertain how much of our tacit knowledge comes through the official curriculum and how much from one's own inquiry. In other words, we have to break down learning, what it is to gain utilitarian knowledge in a meaningful way that allows one to apply it and adapt it to similar situations. This kind of learning is transformative in the sense that to be able to apply the knowledge, one has to understand not just the on-the-spot know-how but also the 'know-why,' and this kind of learning should be the aim of CS and, for that matter, the whole tertiary education. Learning is not a moment so such as it is a process; although banal, this concept works well as an overall analogue to my own studies. When knowledge is received, it stays on the outer sphere of one's knowledge, much like a piece of a puzzle looking for the right spot to fit. When the piece finds it place, i.e., when the specific piece of information finds its context or its applicability, it becomes a piece of one's knowledge and thus is learned. Gathering the information offered at CS, as the official curriculum part of my studies, was akin to gaining puzzle pieces than finding a place to fit them. In retrospect it's also hard to say whether, had I had a few more years of CS-type inquiry in my CV before I applied to CS, I'd have found more applicability in the knowledge offered. However, I wasn't an absolute novice then either.
By its official curriculum, CS represents a plateau. It’s almost like an attempt to map everything that is not sustainable through the respective disciplines represented at Aalto and thus is a collection of parts rather than an introduction to the whole. Whether it would make any sense to approach it at Aalto from the meta-level and then break it down into parts representing Aalto’s knowledge expertise is debatable. It’s undeniable that there should be more dialogue between these two extremes of connections between elements of sustainability. And the connection is in the end to be found in the students more than in anything the curriculum offers. The whole forms as every student, to the best of his or her abilities, creates it based on empirically observed connections of the parts explained by the program. However, its expression could vary vastly between students, and, according to the principle of sustainability and the philosophy of education, this should be allowed to happen.

In *Education and Democracy*,³⁹ Dewey wrote that the ultimate aim of education is to be able to learn more. No matter what you learn you should by that gain the ability to understand the subject at hand better and better, and so be able to learn even more about it. This notion goes well with Chalmer’s⁴⁰ definition of science, which includes always asking why, and by that, much like as in education, further the inquiry. In that, CS functions as the initial glimpse of what is not sustainable, what is wrong with the world at this moment, and how, if the status quo continues, will things appear in the future. Present and future are equally balanced in my view at CS; issues at hand are taken into account as the program aims to be transformational, and it carries the element of future in it as it is also developmental. As once stated, “History is the symptom of our disease.” The element of history could be introduced into the program, not necessarily as the historical roots of any of the disciplines but as the program trying to delineate the world as it is. Extending reasoning to events that have led us to the current state would be useful. Existence as it appears to us this day, I believe, was not planned; no one planned an unsustainable relationship between us and the nature we live in, no one

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planned for poverty, and no one planned societal systems based on unhappiness. Rather, these all came to be so, in this complex mess, perhaps because life as a coherent whole was never planned. Probably so, because the task would be first of all impossible and secondly the outcome inappropriate and improbable. The historical roots to human development could be looked at through the lens of sustainability simply to avoid the argument that things are wrong and someone planned it to be so. Surely in every situation which provides the opportunity for someone to gain something, the opportunity is used, i.e., enabling makes behaviour. Nonetheless, at CS, the systemic whole of the issue is left to interpretation, not just by the lack of historical background with which to position current events and predict future ones, to situate us in history, but also by the sheer randomness of things offered as pieces of information unrelated to the principle’s meta level. From the unsustainability of having several different plastics that won’t mix when recycled as options in the manufacture of an object to thinking of future trends as drivers for urban planning, from a multidisciplinary workshop to design ethics—much of this is building the know-how and little is building the ‘know-why.’ Know-how is skills, the skillset that is the application part of our education and expertise, but know-why would actually give us the competence to further develop the field of sustainability. At this moment, what the official curriculum seems to primarily and most effectively offer is the inculcation of methods to execute and facts to base one’s arguments upon. And as said earlier in the critical assessment part, CS is true to the application of the original principle, probably also because the principle does overlap well with the University’s competencies. Whether the program was the result of bootstrapping development on a combination of the three schools or whether CS was a CSR project for the school, the program nonetheless has potential as a transformative education to be highly novel and impactful. But all this of course depends on the aims of the school, whether it wants to develop sustainability as a science or wants to adhere to the definition given and develop practices within this principle, which also defines boundaries.

Although to gain the competence to ever challenge the principle, not in the sense that we have to be overly critical of it, but rather to enhance it, further research on the
principle would be naturally needed. Then again, as stated previously, the whole experience is an inquiry more so than a task. It acts as the starting point, although the process of inquiry probably begins much earlier as, in my case, even before my studies in design, and ends only when the learner decides. But from the point of view of the program, the beginning is naturally the first courses CS major students take and the end their graduation, and we need to look at this period between the two as the whole to assess. One of the major deficiencies, seemingly, to me of the program content is the lack of socio-cultural sustainability, as a specific topic of a course or project. This might be because Aalto does not have a department dedicated to the study or research of the social sciences. This, of course, was why I extended my studies to Helsinki University, which does have a whole department dedicated to it. But assessing the courses I’ve taken as parts of my curriculum, it’s easy to see that human sciences do figure in most, if not all, of these. In the end, sustainability can only be communicated to and aimed at us, i.e., humans, thus making human science implicitly embedded in them, although it is often given and expected, more than appointed or remarked. In the end, sustainability makes sense only to us, humans, and should in this sense always be spoken about through the social sphere as a social phenomenon, like any science, even economics and the understanding of our relationship to the environment. This isn’t to say that the program should have social theory, behavioral sciences, anthropology and ethnography, practical philosophy, and future sciences, but rather that, as a practical education based on theories of group interaction, methods of creation, and knowledge of the state of the world, that none are necessarily created but translated at Aalto-CS as a meaningful and helpful part to anyone’s inquiry into sustainability. How much then of that tacit knowledge comes through by way of the equal official curriculum and how much of individual activities has to be assessed based on the aims as well? Is the aim to add the niche of sustainability to one’s respective discipline or is the aim to extend the discipline to become a tool of sustainability? In order for one to add it to a discipline, the program is fairly practical; since everything is constructed under a discipline that then aims to showcase sustainable practices, both in process methods and key elements of the outcome, the program delivers what it promises. But if the personal inquiry is to understand the whole complexity of the issue, it’ll only function as the elementary steps
on the path of inquiry, albeit needed elementary steps. As said previously, learning is about learning more, and, in this sense, CS as a program to understand the basic elements of sustainability, which in all honesty it is, is a needed first step, needed in the sense that it'll let you know what you should know, and after that the only way to extend the inquiry is through one's personal interests and choices. So a short answer to the question of how much tacit information comes through the official curriculum is 'enough for the students to know what they don't know, what they need to know when it comes for the program to be an education for social sustainability professionals.' And admittedly, even as an addition to one's discipline—and we have to remember that this is a university master's program and not a lower level of higher education and not a minor—CS is a selection of generally accepted practices and facts with little inquiry or request to extend it. Maybe this is why it's hard for me to fully understand the reasons that the program pays so little attention to social theory, which could easily be introduced to the program through, at the very least, social action theories, since we are talking about a master's program, that is, an introduction to a field which is young enough by its concept to allow this kind of effort to still be meaningful. And by the true meaning of sustainability, which meaning is to sustain and sustain in adaption, never in static context, then the program should develop not just in practice but in its own existence too, which to me can only happen in that critical thinking that is lacking from the program. If the aim is to educate CS students to truly understand what is the philosophy and the 'know-why' of sustainability, the program should include those elements previously listed not as their own respective disciplines but through the lens of sustainability, and this should be said about the disciplines at Aalto as well. The issue here is that there isn't enough knowledge and know-how of architecture, design, real estate, and business at Aalto—if not here than not anywhere in Finland—but the issue is more about the approach, which is still disciplines speaking with the tone of sustainability and not sustainability spoken in the language of, for instance, architecture. But as a student goes through the official curriculum, the discipline with a tone approach does become the student's trade and creates the groundwork, thus enabling the shift to the other position. This to me also answers the question 'Is the program educating activists or professionals?'; discipline with a tone is activism in a professional
field, as sustainability stated in the language of a trade leads to something more like professional activism.

I've learned a few thinking tools already repeated several times in this inquiry, and I'll use them at this point to assess CS. One is the way to assess original development projects. I've started to use it as a first prototyping of any project. This way is to complete the sentences what . . . , to whom . . . , in order to achieve what . . . . To these, CS now answers: a multidisciplinary master's degree education, to professionals interested in extending their disciplines with the element of sustainability, and to further sustainable practices in their own fields. Extending the program from the official curriculum towards the extended inquiry, to understand the 'know-why,' would change these to something along the lines of: a process of inquiry, to professionals who seek understand what sustainability is, and how it could be achieved. The setup of these sentences exaggerates my point, but only for the point to come across, and also to prove that nothing practical would probably be lost if the inquiry were to be extended to the theoretical, to the 'know-why' end of the principle. Since the principle itself doesn't call for a specific discipline to action, but should function as the undertone to all actions, regardless of the field. If the aim is to sustain life, ultimately human life in prosperity and in the contented state of wellbeing, disciplines have actually little to do with these but surely can be harnessed to achieve them. I started by stating that social or socio-cultural sustainability was the most important aspect of the principle to me, but I need to correct this statement at this point, as a conclusion to my study path. Social sustainability as such, defined as to sustain social phenomena of the kind that we can commonly agree to be good enough and to promote well-being, does indeed constitute social sustainability. Then again, to talk about sustainability from any other than a social phenomenon perspective would make no sense, so inherently sustainability as a whole is purely social. This is why I need to revise the statement and say that my inquiry extended to human sciences wasn't to understand social sustainability but rather to understand what sustainability as a whole is. Even in practice, even in practical outcomes, my inquiry has actually been more about understanding what it is as a whole. The official curriculum has to be then described as the 'know-how' part of anyone's inquiry into sustainability
and is on the way to learning the 'know-why' that can only come through the extension empowered by other fields of science and powered by one’s passion to learn more.
2. Social Sustainability Projects

- or projects socially sustainable

The case examples here are for reflective purposes only. I could have made any one of these my whole project, but instead I am using the mass of them to showcase that the main aim of the project could have been something other than social sustainability—though in all cases that's what they became. They didn't happen to transform into it, of course. As in all sustainability projects, the social sphere is there, though to me the main aim changed. The aim rarely is in actuality anything other than a social change—surely a project can start, like for example the Pirkka case, from a need to provide better social services, which would make the project more of a service-design type of case. Though going through the project data, the subject that we were designing for presented us with a new set of knowledge to the extent that the project really became about the whole trajectory of the design. Of course, because of the urgency of the need, a service design part could have been planned as a part of the process, but the proportions of the trajectory parts which seemed more important—the perspective we had on the problem at hand, the attitude we had toward the subject and his problems—had to change too. So in the end, the project shaped itself to be a wholesome social sustainability project with a new perspective on the subject, services that the new perspective fit, discourse and a concept and so the plan of the project became the subject of discussion and further development. In short, the projects used here as social sustainability case examples are multi-levelled in the aim of the outcome, but no matter what are the sub-tasks in the project, all the parts aim for the same thing, with the same mandate.

How the case example descriptions are written is that instead of going through the technicalities of the cases to any great extent, what is explained is the setup—the need, which is then answered by the methods used in the process, which then again supports a theory reflected in the project. The project is then assessed not by outcomes alone but more on how the methodology matched the need and the theory behind the overall understanding of the situation. So the structure of all the case examples is the same: project synopsis, setup, process methodology, underlying theory, and assessment of the
compatibility and effectiveness of them as a project whole. The case examples are divided into four subchapters:

- 4.1 Design for Real Need
- 4.2 Inquiry for the methods
- 4.3 In Search for Practical Outcomes
- 4.4 Exploring the Meta-level

The subchapter cases differ from each other according to purpose. In all the cases discussed in 4.1, an observed social or individual to social problem was the initiation of the project. Section 4.2 were projects where the inquiry, and the realisation of each project, came from the methods used in the project itself. In other words, though something else seemingly was the project core, the true value of the projects was the proofs obtained from the different methods used. Section 4.3: In Search for Practical Outcomes differs from the real need cases in the sense that the real need was less of a social-societal problem and more of an open inquiry as to what can be created to alleviate a problem system—a state or a status that creates multiple needs that can be solved or at least alleviated by a set of suggestions. And lastly, the cases comprising Section 4.4: Exploring the Meta-level again all had practical outcomes and tangible micro-level activities but are all about the higher level of the thinking that is created within the project through the activities—but still the main aim was the meta-level thinking and development on the issues at hand.
2.1. Design for Real Need

The topic of the chapter is of course once again homage to the thinking of Victor Papanek that designers should concentrate their skills and efforts on the people in real need instead of letting the market economy dictate the best use of their time. The idea has been extended in this work and within the whole field of design, to not only design but plan and source the early initiation phases of a project based on observed real needs. The real need here becomes the main point, since the social change, and a change towards sustainability—or with sustainability created to also answer to a specific need, whether on a larger scope or as a specific challenge. I trust that we’ve addressed the assessment of what then is a real need enough during this work, although it could be perhaps condensed to few lines of thoughts.

Real need is surely something that can be observed through what is communicated—whether the communication is clear or directed is beside the point, but the fact that the need is something that sparks symptoms around the need, in action, in indirect talk, in being—and what we have to here consider as communication. Another feature of a real need, especially in the sense that it is a need that we empirically observe the want to address, is the empathy we feel for the subject of our efforts. When we see the need and can act empathically and with devotion, hopefully to the extent that our own need and ego take on lesser levels of the hierarchy that directs our acts. A third clear way to spot and validate a real need is through its systemic aspect. Quite often the people, the groups, the systems in real need are those that lack equality on a societal scale. Where we see a person or a group in a situation where they lack the same level of access to services thought to be the norm of our society, we should be able to observe a need and assess it to be a real need.

2.1.1. Project Pirkka

– Living in the gap of the Finnish Welfare System

The Project Pirkka was initiated by a simple empirical observation. Pirkka is a late-stage alcoholic who used to live in the same neighbourhood as I did. On an almost daily basis,
Pirkka bummed petty cash off me, but did it with some integrity by handing out his own writings that were photocopied in exchange. Having observed Pirkka for a few years and having quick discussions with him, I started to view his situation in a different light. Pirkka had his own apartment, assumingly acquired for him with inherited funds. He had a background of extended studies in university, first mathematics and later sociology. He wasn’t, then, completely without gifts and wits to cope with and live within the social fabric. He had been out of work for about twenty years, and, in the summer of 2012, he told me he had been drunk solid, morning to night, for the past seven years.

The setup for the project was an assumption that something could be done to better help Pirkka to live a fuller life and hopefully bring his style of life closer to the social norm, not for any other reason than for civic responsibility. Because of some odd technicalities, like the fact that Pirkka owned his own apartment, he seemed to live in a gap of our social-welfare system. A system that is so wholesome that if there is anything abnormal, such that if the system cannot define and compartmentalise an individual, excluding the individual out of the whole system is easiest. In a system, there are no personal exceptions, only numeric equalities. And here arises the whole discussion of whether the welfare system is supposed to be equal—the same to all, or equitable—fair to all, although “the same” really doesn’t work for all. The idea was that, if we’d took a mixed group of planners and got them to see, ethnomethodologically, how Pirkka sees himself and the resources needed for the change according to his own view, we could perhaps come up with something new.

The theory behind focusing on ethnomethodology as the main method to knowledge acquisition was that, firstly, no change can ever make sense to the subject if it doesn’t fit his or her own need and, secondly, the needs of individuals in their own specific situations might not make sense to others. Our hunch on how to conduct the study also was later on proved by outside experts when we decided that, instead of interviewing a few, we focused extensively on one subject example, Pirkka, and abstracted the features out of that study. In a case where we tried to design a change in a system that is planned
from a systemic point of view, that most of all is a system that needs to run smoothly, it made best sense to incorporate a human, personal view. As the system statistically only takes care of their cases, it doesn’t really pay attention to how to better their lives.

At a point, when planning this project I tried to match Maslow’s basic hierarchy of needs to Pirkka’s and ended up with a very different vocabulary. The theory fit well, since we ended up with a suggestion for Pirkka to extend his writing. We gave him a small business idea requiring fewer resources and time, and we tried to match the new plan to as close to the old as possible for the transition to be effortless. Pirkka, whom I’ve now met a few times since, still lives the same life on the fringe, although others benefitted from the project; for example, the Helsinki Center of Excellence on Social Welfare took some of our findings for implementation in their education for welfare workers on client encounters.

From this case, ethnomethodology over ethnography became a proven method as part of my set of social change tools. And it fits the theory of social sense, that nothing else can exist but what is useful and thus valued. Though we failed to see what Pirkka would value enough for it to have sufficient pulling power for him to make the transition, I would argue that it was mostly for the lack of time and resources we had for the project. As said earlier, the proof we got from the professional from the field occurred during a discussion where a group of professional social-welfare workers were amazed at the level of insight we gained into our subject within just a few months but that usually is attained only after years.

2.1.2. Mellunmäki Service Ring

- Designing with the Subsidiary Principle

Mellunmäki Service Ring was a project that was handed to us based on the location of the Mellunmäki neighbourhood. It’s the farthest east suburb of Helsinki and was built in the 60s to 70s, envisioned as a well-served neighbourhood but over the years has proven to be just the opposite. It’s an area that has a steadily lowering population rate, meaning that the basic services have fled from the area as well. Services are concentrated
on larger suburbs, and the rule of thumb places them so that drawing a circle around the location caters to the most people. The problem was a large ageing population living in Mellunmäki that is less able and mobile enough to obtain the services.

The setup for the project was to see if and how more services could be provided to the people living in the area. What services they needed and how often and where did they get the service from now? We knew little about the area, only the location, and that they were in a service-gap. We had a good contact person there, a chairman of the local residents association. Our view of the situation, of course, was that of outsiders, meaning that we only took what we observed and heard as second-hand information from the locals. None of us lived but only commuted there and empathically felt the local people’s needs through the stories we heard.

The method to this project was a facilitated co-creation process with the local citizens. There were two parts to the project. First was the background research on the people of the area, which was done through street polls and discussions and some organised roundtable talks held in the area. The main discussion topics concerned the area development, the development of public services strategies, and the movements in the private service field. Our role as facilitator in the co-creation process became clear by the residents’ need; it was crucial for us to also help the locals to see what could be done and what would be just a lost cause for the efforts to be expended. And, of course, with the public services the discussion became very political fairly quickly. What was most needed was the harsh realisation that the public services most likely weren’t ever coming back to the area and that whatever services they still had left would have been used as the bargaining chips for any other service for the area—meaning, for instance, that if they wanted a public pool in the area, they would most probably need to give up a library or so on. Because the discussion and the decisions were political, we based our process on the principle of subsidiarity.

The theory of subsidiarity fit the project well since it relies on self-organisation and self-resourcefulness of the people and other resources in the area. After the realisation that
no matter how much the area tried to be politically active to plead the case to the city committee or to the near neighbouring private sector service providers, the current situation, at least for the moment, was immutable, the next step was to see what resources could be employed frugally to replace those supplied by the missing services.

One urgent need especially of the ageing people of the area was the lack of an area pharmacy. Thus, the first task was to co-create a service circle around medicine transportation. Using local resources and some recognised champions in the area, we suggested and piloted a service ring version of a pharmacy. This bootstrapped version was operated quite simply through the residents association, which had facilities in a central location in Mellumäki. How the service functioned was that each elderly person in need of a medicine run would bring the prescription, cash money, and a proxy to a staff member of the residents association. Personnel of the residents association would, in turn, once a week make a run to a pharmacy in the neighbouring suburb and bring the medicine and change money back to the citizens in personalised pouches.

From this case, the method of facilitated co-creation made more sense than ever before to me. The co-creation process is best facilitated because the ownership and the possible outcomes best matches the subjects for whom it was created. Not just using the people as a source of knowledge and proof of one’s own suggested concept, but instead employing one’s own knowledge of the process to allow people to come up with their own functions and gains out of the project proved to be the right way to go. Also the theory of subsidiarity as a mode to sustainability was proved in this case, on a small scale but undeniably, and so this case fell within the scope of social sustainability.

2.1.3. City in Transition: Project Suna
I observed a project executed in Dar Es Salaam, Tanzania, in early 2013. The project was a part of an Aalto course titled ‘City in Transition.’ Part of the course laboratory was a fieldtrip to the project grounds, which for this project was an area called Suna, which boasts a few thousand residents that live in very basic shacks and humble dwellings. The area has little to offer beyond cheap housing and even that comes with a cost—the area is
flooded to the roofs every year. It happens every year and every year the residents pack up their things, haul them to the higher levels of the area, and relocate for a few months. After the floods recede, they return, repair, and wait for the next flood to come.

The setup of the project was that, together with the people in the area, something should and could be done. The case was viewed from a personal perspective and the aim was a human-sized solution. The group had done their background research using very limited materials, since Suna had not been too well explored or documented. During the two-week field trip, the students visited the grounds three times for arranged groups meetings with the local residents.

Here the method of ethnography and co-creation was done more in the manner of using the ‘co’ as a source of information and their admiration over the suggestions as a proof for the concepts. Also another method behind the overall process was the empirically gained experience in projects executed in foreign countries that is a way to build global competence. Surely it is hard to assess whether the resources spent—meaning time, money, and natural resources as well flying a group of students halfway across the world to build global competence at the expense of people in real need—is worthwhile, but at least it is something that perhaps needs further development and reasoning.

The theory here was that the empiric experience works both ways, as a motivator to the group workers and as insurance that the knowledge be first hand and tacit when the planning phase kicked in. However, the real experience gained from the field trip and the course over all deserves re-assessment. From the interviews I did among the students who took part in the course and the field trip, the consistency of what was learned from the time spent in the field and what was self-acquired from other sources seemed blurred. Surely happier brains learn better and playing football on a sandy beach in Dar Es Salaam might ensure that, but whether it is worth the effort is perhaps to be seen much later on.
Even though this case differs both in that I was an observer, not an active member of the group, and that the learning points came through as negatives, it certainly wasn’t a loss. What I learned from this experience, which is close to the theory of fairness, is whether projects like these work best to further its aims, i.e., to build global competence and to help people in need. Global competence cannot be built on the old idea of exotic world view or specific project locations since neither element is really global. Global competence is best built through effective projects and deep knowledge of the issue, of which neither really occurs in these kind of examples of academic or even so called dark tourism. Global competence is as available in our backyards as it is in the backyards of the people living in Suna. What makes the competence global is that the abstracted knowledge is applicable in other parts of the world. Field trips will only educate people in the local peculiarities and features—which are the opposite of global. And to my honest recollection, neither global adaptability nor local viability were created in this project.

The design here, not to say that in this case as well there ought to be a trajectory of different things created around the same problem, should still happen on a very different level. Which is referencing back to the topic of this chapter.
2.2 Inquiry for the Methods

The topic of this set of case examples is the project aim with a focus on method. This is not to say that the projects were done for our own sake, that is, for the sake of finding, testing, or assessing different methods to be used throughout the execution of the projects but, instead, the methodological inquiry was in each case a major part of the project planning and execution for the purpose of finding a new, better way to serve the projects, their subjects, and the case. The chance to focus on the inquiry for the right method became a necessity through the reasoning that something new needed to be tested and hopefully with it proved to work better than the bag of old tricks. To put it in another way, the method became the key to achieving the needed end result. This might seemingly sound like something that would be basic, that is, something that good process management would inherently encompass—in which the method is selected prior to the performance of the task and we’re directing the process, thus to some extent preventing us from learning from it. However these cases do provide an exception to the rule because the inquiry for the method was not the sole purpose of the project but rather was initiated to solve the problem. The method was just one possibility and another could just as easily have been selected, but for whatever reasons they seemed to work for the purpose that was set for each project. One could argue that the method shaped the project to too great an extent, rendering it a self-realising prediction—which is why the word inquiry is present at all points, meaning that each case really was an inquiry, not a proof of concept in the minds of the project workgroups. Each case was approached with a method thought to be more effective than the typical approach to the case’s problem.

2.2.1. Whose Issues*

The Whose Issues* project was originally initiated by me and a few fellow CS students. We were fortunate to have access to a venue to showcase what a CS programme could give back to the society beyond the university sphere. The venue was the Helsinki World Design Capital 2012 Pavilion, which was a temporary construction created for the
WDC to serve several different purposes for the theme year. The Pavilion was called the living room of the citizens, as it was a place to drop in and stay for lunch, coffee, or just browsing through a design-heavy library—but most of all it was a venue for seminars, workshops, lectures, and other types of events. Why using this opportunity and venue felt important was the compatibility of the WDC year theme with what we as CS students felt to be important, themes such as ‘Open Helsinki’ and ‘Better Life through Design.’

The Setup for the case was setting a date for a workshop at the Pavilion. We had a few months before the date and decided to utilise the time to its best—which seemed us to be an empiric background research. We reached a group consensus that the best way to serve the general public in the city of Helsinki was to hear first-hand what issues the citizens had in everyday life concerning sustainability. Hence the name of the project: Whose Issues*, since we wanted the focus of the project to be the burning issues of sustainability on a human-sized scale, but who was to offer to communicate the issue was the object of developing a method.

The method we chose to execute the project was commonly called design probing. The probing occurs among the subject audience—which makes this method a preliminary phase to co-creation. In these probes, people from the project group deployed in the centre of the city of Helsinki and surveyed people passing by as to what issues they felt were important, challenging, or even annoying in their living environment and sustainability. Those people interviewed were invited to a workshop that was held at the WDC Pavilion. We chose design probing as our method firstly to generate the right kind of discussion with the passersby—meaning that we wanted to pose the question of what sustainability is to them in the context of their everyday lives—and secondly to share the feeling of ownership with them. Having a discussion on the topic, really listening, taking notes, and giving them first-off ideas of how to go about making their everyday environment more sustainable gave us a way to invite them to the workshop. And according to the number of participants who came, we were apparently quite successful. All told, about 40 people attended the workshop, developing four
different ideas, ranging from nature conservation in one area of Helsinki to the question of how to get more non-commercial spaces in the city centre.

The *theory* behind the method of probing and co-creation was, of course, that we, as designers and planners of sustainability, wanted to assume and retain our position as facilitators. Our primary skills are in process management, and the content of the process comes from the people themselves. This is based on a few different ideas that I’ve talked about. Ownership comes from participation, the right to say what, how, and why. This is the venue, and through it nothing that is unneeded will ever come about. Thus, combining the discussion on sustainability within the everyday life context of the people should ensure both participation for ownership—their issues within their lives—and sustainability as a necessity, since the conversation was based on sustainability issues in their own lives.

From this project, what I learned was that, first of all, people are willing and even eager to collaborate, and, by collaboration, I mean co-creation, even with respect to their personal issues and struggles. They were willing to share and receive advice and even direct help from outsiders, i.e., us. People can clearly share the thought: half their life, which they are willing to open up for you, half of what you represent—the sustainability—as long as there is enough shared surface over the two. Probing, though an extension of the kind of ‘quick and dirty’ ethnography that I personally despise, seemed to work well but only to evoke interest in taking part in the co-creation workshop—where knowledge of each individual’s perspective was deepened.

### 2.2.2. WDC Helsinki 2012 Pavilion

The *setup* for this case was the World Design Capital 2012 Helsinki year and its associated events. I was a member of a team, or the second half of a pair that curated all of the events at the Pavilion in the summer of 2012. There were close to 300 different events at the venue during the opening period. We had thematic days during each week—from ‘do-it’ Tuesdays and Thursdays to ‘listen-to’ Wednesdays, ‘afterwork’ Fridays, and ‘time-off’ weekends. Around these and the themes of the whole WDC
Helsinki: Open City and Better Life Through Design, we coordinated the events around the beautiful, yet temporary construction that was the Pavilion, a living room for the citizens of Helsinki, the happening spot, the physicalisation of the WDC year, and the outpost for the institutions of design that stood behind it; The Design Museum and The Museum of Finnish Architecture and Aalto University.

The method the we had, to fill the calendar for 105 days of the Pavilions existence was: to support what we have—to enhance what ever buzz there was around an issue, to give room and audience—to something we knew existed but was still unfamiliar perhaps to the larger audience, to collaborate—to invite the happenings and the people and acknowledge the ones making something in the city by inviting them to organise something at the Pavilion and most importantly we had in mind those that we knew that weren’t really interested in the Pavilion or the WDC year itself. The thematic days helped us to structure every week but also created a sort of user interface to the audience. The best thing about the pavilion was what we learned to call peripheral participation. Meaning that as it was an open space that catered multiple different functions to the visitors: from using it as a library, a cafe, an information post or to intentionally take part in the event—which ever reason you came in with, you had a right and a reason—a story to be there and that allowed you to peak in, get interested and take part in the events.

The theory behind the peripheral participation was the outcome of a collaboration. Realising that the organisers had multiple different agendas for the pavilion and that the needs of the audience differed, we thought it best that the venue and its programme resemble this multiplicity of needs. Thus the theory was inclusion. Inclusivity in all kinds of activities, from lunchtime yoga to hardcore political panel discussion to movie Sundays to gay-lesbian-trans-bisexual match-making games, the plurality of the city and its people was matched. Acknowledgement is a powerful force, and the venue aimed to cater to all. We even snatched a good group of the ones that seemingly thought nothing about the WDC year by allowing their participation from the periphery from which they approached as our displays enticed them.
What I got out of this experiment was that participation is momentary and fragile unless accompanied by the opportunity to talk directly—as, in this case, in events concerning a specific topic where we knew the active community would take part. The rest comprised probably more than half of the almost 100 000 visitors we had at the Pavilion. Typically, this type of visitor will come only if there is something that they feel strongly about. And yes this does sound banal, but the learning here is more about how to create an opportunity for participation than about the fact that, once again, nothing that is needed in a social sphere really exists. It does, though on a conceptual level—but on an active level, that is the society in the making, only the things people feel for are given value and thus kept in existence as far as the society is concerned. Inclusion was the key to the success of this project.

2.2.3. TalkootTaxi!

The setup for the TalkootTaxi! project occurred two years later in 2014 in Cape Town, where we had the privilege of hosting the next World Design Capital year and so had the privilege of executing a project as a part of it. The idea for the whole project arose from the project initiators’ first-hand observation of the gap between the Cape Town city centre, the city bowl as they call it, and the city periphery. The gap isn’t only physical but also very much mental and societal. The people further from the centre actually talk refer to those in the city’s centre as ‘the people close to the mountain’ because the table mountain is located in this centre. The division between the two populations is quite apparent: People further out in the townships suffer from multiple different service gaps. There’s less commercial and public services in the periphery of the city and the building of the highways and the public transportation, or lack of it, is very much unequal. For their jobs and services, most people have to commute to the city centre and back, and the commute is primarily by the informal mass transportation system— taxis, i.e., minibusses that run from hub to hub. People manoeuvre well with and within the system though it is time consuming and not completely reliable. The idea behind TalkootTaxi was that the different communities surrounding the city bowl—all the way to Khayelitsha 30 kilometers to the west, most probably suffer from the same lack of
services, both commercial, as these areas generally have fewer business opportunities, and public, as the city is still somewhat organized according to separation—social, economical, cultural and thus even spatial. The idea was based on the Finnish talkoot, where people cooperate to help one another by accomplishing such activities as moving, tidying up a yard, and painting a house. Our plan was to organise a series of workshops within the different communities so that community members could share their problems and co-create solutions.

The set of **methods** selected for this project was of course once again facilitated co-creation, sourcing the content to the design process with ethnomethodological thinking—though with a few twists. One such was that the workshops occurred in the different communities, thus automatically tying the thinking to the community members’ everyday lives. It also felt right to discuss the issues in the context in which they occurred. To help structure the workshops, we created a grid to organize a facilitated discussion. We made it very clear that we knew nothing about their problems, that we were merely providing a process through which to explore solutions, and that we were there to learn from them.

In the first round of workshops, the local partners were our access points to the local communities and with them we started to build a version of a champion model within the communities—accomplished by us knowing the partners and them knowing their communities. The first round of workshops were more about sourcing issues, whether it involved public services, and creating their own ventures or simply collaborating with neighbouring communities in a social movement. In the second round, the different communities and their issues were intermixed. People from other areas were invited to workshops within different areas to work together—as in talkoot, on issues common to the different communities. The point to the second round of workshops was for us to familiarise the locals with the process and so, it was hoped, leave the locals to continue with the idea, the method, and the movement. The project was, in that sense, educational.
The theory behind the whole process adheres closely to what McKenzie defined as one of the most important elements of social sustainability— that people need to be educated with respect to social sustainability, or social development, the theory of which was that people need to be empowered and educated with respect to the tools that can be used to easily create solutions to their issues. Whether the solution has to happen in collaboration with other people, private companies, or the public sector, it begins with the people themselves, and they have the right to attempt to involve other parties in finding and implementing solutions. Typically this type of approach with respect to these kinds of service gaps create multi-win situations, the social theory here once again being that something is needed in the lives of the people that has a social form—a social outcome.

From this project, I learned that the challenge associated with this theory is that, although apparent, the urgency of the issues are meaningful only to the people suffering from them—which is why of course the service gap exists. The issue thus is better communication but in such a way that the parties have enough in common for the collaboration to occur. We also frequently discussed the difference between a problem and a symptom of it, the difference of course being more on the systemic side, especially to the people suffering due to it. The symptoms of a problem are often easier to alleviate though because of it, although less meaningful. The symptoms associated with the issues cause the harm, while the issues themselves—the real problems—often remain hidden within the structure. This is exactly why examining the problem context, tracking the symptoms back to their causes, pays off.
2.3 In Search for Practical Outcomes

As stated in the introduction, these projects differed a bit from the first set by their scope as an initiation. Where the real need was more singular, these projects were more about what we could, as a group or as a team, do to help a general issue, i.e., a generalised issue—where the problem was easily thought of as being universal and thus the suggested solutions adaptable in a wide variety of situations. It needs to be emphasized that all of these projects started from and constituted an inquiry for the best possible practical solution as an outcome of the process we set forth. The process was less structured beforehand than was the outcome itself—meaning that what we needed to achieve and how was left open for both testing and contemplation. In all these projects, although the methods were found and implemented along the way, the process itself was less important than the need to reach a solution. This kind of setup does indeed change the process—it focuses the thinking on the specific outcomes. In these examples, the groups or stakeholders recognized some of the problems for which they needed to obtain an answer and, in a way, invited us to help with the process. These different projects though vary largely by lengths and scopes—as projects, workshops, or innovation camps.

2.3.1. HOAS—Student Housing

HOAS is the student housing organisation of Helsinki and was founded by local higher education institutions. They house around 14,000 students in the capital region and run it all with a staff of 40. The setup to our project was a school course in collaboration with a local think-tank working for HOAS on a larger project. Our task was to take a look at and initially just to make some plans for refurbishing one particular building and its community in Pasila, Helsinki. Distinguishing this particular building is that HOAS placed most of its exchange students in it—not all of them, but 99% of the building’s residents were in exchange in Helsinki, some staying there for as short a time as four months and some as long as eight, which explains the building’s feel as of being more of a hostel than an apartment building. The initial task was for us to plan the refurbishment
of the common room, both corridor lobbies, and some other shared spaces. HOAS considered the main problem with respect to the building was the somewhat careless attitude the residents had towards the space, which it attributed to the culture of residing there as an exchange student and just for a short period. Their idea was that, with the renovation, the building’s looks would be improved, thus making the living experience there more enjoyable. We quickly realized that, in order to change the culture, things other than just the building needed to be changed as well. More specifically, the physical changes needed to be supported by other elements, like communication, to cause a whole attitude change, both within HOAS and among the residents.

The **methods** we used for this project were selected for their different functions to suit different parts of the process. In the beginning, we mainly just facilitated the conversation, or, to be fair, initiated the conversation between the building community and the HOAS staff and facilitated the process. We approached the community by leveling with the students that we were also students and not from HOAS per se, and we organised some events (e.g., breakfasts, workshops, movie nights, and so on) through which we collected data from the residents. In the beginning we had some difficulties in getting the people to join us but after the first few events, we started to pull in a better crowd. In these events, we interviewed the people about living in the building, living and communicating with HOAS, and generally living in Finland as an exchange student. We then analysed the conversations, scribed the post-its, and reported to HOAS the community’s attitude toward it. What we heard from HOAS, we then took back to the community, and so forth. We started to draft some plans for changes, not only in the space—though we retained that as the core of the project, and those plans acted as a focus for our gradually deepening conversations, to which we all contributed our opinions. Much like the trajectory associated with design, this process produced other outcomes that had their basis in the physical artefact—the building. One path of thought concerned communication within the space, like signage and so on, that led to a change in HOAS’s customer communication materials and ultimately led to a change in attitude within HOAS itself, one more customer oriented than previously.
The theory represented in this project again relies on ownership and inclusivity but also attempts to attain shared understanding of the institution that the conversation is built around. HOAS perceived the housing it provided as a service but the residents viewed it very differently. What the provider (i.e., HOAS) viewed as carelessness could also be perceived as neglectfulness on its part—e.g., dirty corridors, broken light bulbs, and so on. In a sense, both parties expected more from the other than was being given, but no one initiated or acknowledged the other’s efforts. The residents felt that HOAS had no interest in their personal living, and so neglecting what HOAS offered was easy. Why should they care for and tend to the building when, from their viewpoint, HOAS didn’t pay them the same respect. A multi-minded and workable solution was easily found in the end, in the form of a compromise that arose from the well facilitated conversation.

What I learned from this project most of all was humility in approaching a project. According to the brief given to us by the local think-tank and the client, we started the project thinking that what was broken and in need of fixing was the community, that due to a lack of communal feeling the building’s population neglected the building. The truth, however, was quite different. The community was actually a quite good one—though the communal attitude placed the residents in opposition to HOAS. The genuine correction in our attitude led, I believe, to the major change HOAS made subsequent to the project. The change was easy enough for the organisation to implement.

2.3.2. Sitra Peloton Camps

I took part in three sets of Sitra-funded Peloton innovation camps. The camps were all separate events, organised within a year, but I took part in all three. During the first and third camps, I was a group member and in the second the project initiator—meaning that an idea I originated was developed over the days comprising the camp. The setup for the camps was quite typical. The organiser put out an open call for ideas and for people willing to work on someone else’s ideas on green tech and other resource-smart
innovations. Basically they all were a mashup of people sharing the same aims, working together.

The methods used during the camps were quite similar to those employed in many other workshops and co-creation processes. Each day’s goal was set early in the beginning of the workshop, and each team had a team facilitator to make sure that the process went according to plan. In addition, we all had access to mentors—experts in their own fields whose role was to accelerate the process and help to focus the work towards the attaining the goals. Their facilitation was more from the periphery as they merely pecked in every now and then to ensure that each team fulfilled its obligations to the predetermined process. For the most part, the method was meant to be an iterative co-creation process where the team planned and re-planned its project until the very last minutes of the workshop. As all of the camp participants were preselected for their expertise, the camps ended up having quite good outcomes.

The theory, at least from the perspective of a participant, was based on what I introduced earlier as the symmetry of ignorance where the skills and backgrounds of the people involved combine to create something out of the process. Thus, the project was shaped primarily on the group composition. In this case, the people organising the camps provided the process, and those taking part provided the content. In addition to content, the people brought their own knowledge of processes they’re used in the past or were familiar with, and thus the process ended up being a compromise worked out by the members of the group. As the aim was set to be general enough, the group interaction became automatic as the members shared their aims and biases.

What I learned from these three camps was that, quite often if not almost always, if the process is well nurtured, people selected carefully, and the group’s aim somewhat shared by all the members, results will occur in almost no time. It’s all about creating the right kind of atmosphere for the collaboration. There has to be enough room for people to pitch in and enough structure to keep the process productive. The key element is perhaps in picking the right topic to work on and an aim that is clear enough to be
commonly understood but open enough to provide space for each individual to make it his or her own—especially if the process is intended to be ongoing.

2.3.3. Talkoot and Sweet Home Farm in Cape Town, South Africa
The setup for these two individual yet in a sense quite similar workshops was that a delegation of which I was a part was visiting Cape Town, and, for it, these two opportunities were created with the local partners. The Talkoot was organised in Pinewoods, Cape Town, with a local actor—RLabs—that hosted a talkoot type workshop at their facilities. The Talkoot brought in a few different communities: the Pinewoods and their surroundings and Khayelitsha, which is further from the city center. The group the delegation took part in concentrated on solving issues associated with local health services—their main issue being that the local hospital, which also functioned as the pharmacy, was overworked, crowded, and unable service every customer on a daily basis. The idea for the workshop was, in the spirit of talkoot, to work on their issues in larger groups with everyone pitching in time and effort. The group we had working on the case was a mix of foreigners and locals—some from R Labs, some from the community for which we were trying to create something, and some from an organisation that worked with them, which called itself the Social Justice Coalition.

Sweet Home Farm again was a project run by two great thinkers, Sharon and Marc. Their very open project on researching Sweet Home Farm, an informal settlement in the Philippi area in eastern Cape, intrigued me and boggled my mind for months after visiting the site. The project as such had no direct aim or outcome other than to understand the informal better and perhaps also determine why then both informal and formal so stubbornly think they should become the same—the formal. The day we spent there started with us pairing on a one-on-one basis with a resident from Sweet Home Farm, during which the residents took us around the area—their homes, neighbours, friends, shops, and such. We discussed, as much as possible given the language barriers, and learned about their settlement and its multiple different cultures. The second part of
our visit to the site was a mini workshop organised for us and the locals to co-learn from each other.

Though both workshops were very different in setup, the methods chosen were quite similar. In both, the organisers were careful to set the workshops up in such a way that the participants felt on the same level. We knew nothing about the lives of the locals and they possibly had some biases towards a group of outsiders coming in and examining their lives. This duality was bridged by the mutual aim of learning together and from one another. We listened to them and their stories, saw how they lived their everyday lives, and took it to heart. No one challenged the problems they stated they had and suffered from, and so here as well the view was more ethnomethodological. The workshop conversations flowed well back and forth through the asking of questions and proposing of suggestions, i.e., co-creation. The method here, although implicit, had the outside experts—we designers, planners, thinkers and doers—handle process management, meaning that the process had to fit all the participants and not just themselves and making the locals the experts . . . of their own lives and the contexts thereof and also the judge of suggestions.

The theory underlying the workshops was seemingly sourced from the symmetry of ignorance thinking, or the design trajectory path—meaning that sharing the locals’ reality and context was necessary to optimize the content of the ideation. Combining the locals’ viewpoint with an outside one that relies both on observing and communicating with the locals makes possible several perspectives: the universal one that is a combination of one’s own background and uniqueness, the personal one which is dual: one, in the outsiders observations and how the locals communicate their own view, and second in the others perspective which comes solely from the communication, back and forth from the outsiders to the locals and the other way around.

What these workshops taught me was that, in the end, we’re all very much the same. Take out the details of the context, which of course does constitute the reality, and there was very little difference between us outsiders and the locals. Sharing the views from the
different perspectives got us to a point where the co-creation was truly a joint effort. We helped them to come up with suggestions to solve some issues and they educated us on the differences and depth of their issues. What I learned from the experience primarily was that global competence has little to do with context but rather is mostly about communication—and that can be occur there are people to communicate with.

2.4 Exploring the Meta-Level

These examples of social innovation for social sustainability differ from the previous sets is that they prove that the real running of the process is primarily about the concept itself. The outcomes weren't so much the point, as these could have been reached probably with and through other methods as well, but that how they were planned—as camps and a course—worked best with respect to itself but probably best for the outcomes as well. The meta-level here is thus that the inquiry wasn't only to achieve the outcomes but rather to prove that it could be done. The 'it' here being that a camp with almost a hundred very different people from different cultures and disciplines can work wonders together when the context nurtures it, that a camp combining classic university students and applied sciences university students can bring people together, and that a course, even though an introduction to the programme, can still give something to the students that will resonate with them for the rest of their studies. Thus, I view this set as primarily concerning the meta-level—even though the examples would otherwise fit into the other categories as well.

2.4.1. Aalto Camp for Societal Innovation

Aalto Camp for Societal Innovation (ACSI) was an annual weeklong workshop held in Helsinki from 2010 to 2012; I took part both 2011 and 2012. The camp gathered the participants, facilitators, mentors, and, most importantly, the case owners from around the world to work together for a full seven-day week. The setup of the camps I took part in were as follows: In 2011, I worked with a group on the topic “Silver Potential” whose point was social innovations and services to alleviate the predicted ageing
population of the western population. The 2012 group of which I was a member worked with a regional development body in Sweden. Our case was, simply put, a challenge on “how to make innovations a core value of a society.” And, quite oddly, although both were on the topic of social innovations, the camp organisers were the same each year, and I saw no big change in the parameters of either group—the group experiences and outcomes were totally different. The first camp I attended was less facilitated. Although we had lengthy conversations concerning the topic and were democratic in letting the voices of everyone be heard, it seemed like the conversation got nowhere. The group I was a part of had a very good mix of principles, ages and genders, nationalities, and so forth and on paper should have worked like a charm—however, this was one of the worst group work experiences I’ve had to this day. For some odd reason, the group was unable to share the vision and instead kept separate the vision of what should be done and how they should get done completely separate—apparently hoping it would come together at the end. Alas, it didn’t. This experience made me think hard on the key to group dynamics—and realize that a group of individuals working together is a system. What is considered as noise and what as valid input.

Over the next year I took it upon myself to understand the group better and so took part in facilitation methods courses and in many workshops and began to facilitate them myself. After a year, I was ready for another go at ACSI. And the 2012 experience ended up being the best, most pleasant and productive group work of my career. This was odd, given that the elements were seemingly the same—a group of very talented individuals from all walks and parts of life. This time the group really came together, however. The topic too was perhaps clearer this second time—or actually much looser in concept. Here our aim was in the form of a question ‘how to . . . ’ whereas the first camp’s case proposed a problem, i.e., the ageing of the population, and viewing this ageing population as a problem was at times hard to swallow.

The methods here were facilitated group work with observation and interviews—aimed at prototyping and thus to be an iterative process. In the Silver Potential case, we discussed the potential of the case name extensively. Some viewed the potential to be
harnessed of the ageing population as consumers while others saw its potential to be intrinsic, as creating services rather than just being their receivers. Here the thinking became methodological—in every problem we tried to see the potential. This great tool for thinking came from one of our group members, Chris Dabbs, who runs a UK-based think-tank called Unlimited Potential, which unsurprisingly uses this kind of thinking extensively. Although the group work as a whole was somewhat broken, I learned a lot from working with Chris specifically and also from the actual struggle we had as a group. I came to the realisation that the most important person in a group is yourself, not meaning you’re the most important person of the group but rather that all of the people are leverage points to the small group, and your most effective facilitation is towards yourself. You have the best abilities, the best grip, and the clearest communication with your own self.

The theory behind the camps was based on systems thinking. A group of individuals form an organic system which becomes autopoietic, meaning that a group consisting of mindful organisms—systems of systems, is self-referential. This self-referentialism is then again directed to the process outcome. What failed in the first year’s group was that the group ceased, or never got to be, autopoietic due to lack of trust in the input, which was partly viewed as noise and not a signal, thus alienating some members of the group, who then stopped feeding their input into the system. So the system comprising the group simply collapsed. This too is an interesting observation in the sense that more than the group itself wanted to collapse. I saw that some parts of the group felt the need to introduce their input into the system, and so they created their own.

2.4.2. Mainio Social Co.—Uni-Camp 2013

In terms of setup, the Mainio Social Uni Camp, held in the Aalto Design Factory in autumn 2013, was put together for our own interest. Being a workshop regular in the field, fairly active in Helsinki within the field, and an ex-student of both Aalto and Helsinki Universities and given that most of my colleagues are actually from the classical university disciplines, I, together with my colleagues in the project, had an urge to proof
a concept of expanded collaboration. Together with the people from Big Plans Bakery, a co-operative I co-founded, and a partner co-op called Avanto Helsinki, the camp was not just an inquiry if the collaboration could work, but a proof that it does. We promoted the camp mainly through social media and through our own connections within the two universities. The camp ultimately pulled in 50 students, approximately half from Aalto (applied sciences) University and the remainder from Helsinki University. The 50 students represented 39 different majors/disciplines/background from all stages of their studies—freshmen, bachelors, masters, and even a few PhD students. The camp took place in the Design Factory, separate rooms acted as headquarters for the different teams. In the camp application, we asked prospective participants to simply write down what kind of societal problems they had observed and what bothers them with respect to modern society. These answers, together with their backgrounds, were used to form equal-sized teams assigned general topics such as food and sustainability, equity in education, and so on.

The methods for the five-day camp (four days of working and one for the seminar of which the group presentations were a part) were selected very much based on our own experiences, a mix ‘n match of different group exercises and methods that we had ourselves tried in other workshops, a sort of best of collection. Each of the four days had its specific aim and set of tools to help the groups focus and progress. The first day was obviously about setting aims and finding the group cohesion. To accomplish this, one of the groups’ first assigned tasks was a two-part post-it exercise in which the members wrote down all the social-societal problems they were interested in and then listed their skills—which then of course led to an ideation phase in which they determined what skills were needed to address which of the problems they had mapped. For the process structure, we gave each group a social version of a business canvas, slightly altered since the groups were free to choose a social venture, movement, or non-profit initiative.

The theory for this kind of collaboration rests on the realisation that neither social change, sustainability, nor even actual multi-disciplinary work can be accomplished through thinking that’s all practical or all pure theory. It’s an age-old question within all
soft sciences of where theory meets the practical—but it in no way means that the bridging of the two shouldn't be tried and tried again, and, at the camp, this seemed to work, although what bridged the gap wasn't the camp itself but the people and their shared aim. Also, this camp relied on autopoietic system theory although the facilitators more closely managed the groups when the process seemed to halt or go of course.

What I learned from this experiment and have often cited as an example is that people differing in discipline, culture, sex, age, nationality, and so forth can work together—sincerely they can!—as long as they share a view of why they should work together and perhaps have some hint of guidance as to how. The 'what'—of which they should be working becomes the talisman and the rest is up to their individual skills. Witnessing a conversation between an Iranian strategic designer, a German new media specialist, and a Finnish theology major concerning the future of higher education and academic inflation was truly spectacular. These moments happen, and with even greater probability, if one organises them.

2.4.3. Creative Sustainability—Creative Teamwork

The setup of this example was a course in Aalto University’s CS programme. The course is the first joint studies course all CS majors take when they enroll to the programme. It involves five contact and group work days with some additional mandatory individual work. The course has few clear aims. It works as an overall group- or team-building exercise, where the point is to intermix and familiarise students from the different CS schools with one another. It also functions as an introduction to the topic of sustainability—and especially how sustainability is taught and thought of at Aalto. And, not of least importance, the course is about introducing the students to different group work scenarios, methods, and challenges. Big Plans Bakery has now been with the course for the past two years, and, after two years’ experience and feedback, it appears that the course model has been finalized. More importantly, we now have a good feel for how the course resonates, what is its real impact, with the students individually and the master’s program in general.
Several methods taught in the course, although they are predictable. It is probably more appropriate to discuss the methods used in both the 2013 and 2014 courses. The course was guided first by challenging the assumption that the principle of sustainability should be introduced in a very systematic way. Asking the students to challenge the typical definition of sustainability—or more specifically its pillars—they become familiar with the current definition and at the same think about it in a critical manner and consider their own role in and commitment to sustainability. This is important for several different reasons discussed in this work, although more theoretical than just methodological ones.

The theory behind the methods relies on critical thinking, the science of sustainability, and autodidactic learning. Critical thinking extends beyond autodidactic learning, though of course they are not the same thing but are, rather, two sides of the same function, with the science of sustainability providing the context. The important thing really wasn’t familiarisation with the pillars of sustainability but for the student to learn from the get go to also challenge the offered version of sustainability—to think critically, and to form their own version of what sustainability means to them—i.e., the autodidactic process—and, it is to be hoped, with it to find their own ontological spot in the vast field and existence of sustainability. The ontological stance, in theory, helps to battle the perceived passivity related to sustainability where none feel the ultimate responsibility of acting upon it. Finding a personal spot in the field makes escaping responsibility later on near impossible, as they have defined their roles in it themselves.

Most of all, the courses taught me that either students get the point, by chance and by following the course plan and seeming to both enjoy and learn from it, or that—more selfishly—I could claim that some of my learning from the whole experience of formal, post-formal, non-formal, informal—the ride I’ve been on for the past five years have actually educated me coherently of what, how and why sustainability is.
Aalto Creative Sustainability

– An example of a Post-formal education on Social Sustainability

VOLUME II – The Theoretical
1. Theoretical Framework and Background to Social Sustainability

- *Theories, Methods and Practice for Social Sustainability and Design*

For the inquiry theoretical background, I selected a set of keywords comprised of concepts, methods, theories, and actions I've heard repeatedly the past four years as a CS student and activist within the field. These keywords reflect not just the programme but the main research question on social sustainability and the ability to design for it, which to me are the basic elements one should comprehend and even master if the aim is to work on this specific, yet topically very general, field.

As I talk about a programme, it was necessary that I discuss, not just the study analogue and the aims of the CS programme in reflecting and using different new educational modes, but also developing some practices that should be considered for addition to *new education*. But what is this new education I am trying to analyse here? It's multidisciplinary—sometimes aiming at transdisciplinary as it's problem and passion based—in the sense that it creates a dialogue between producing activists or professionals, it's critical thinking, it's meta and transformative learning, and so, it's fair to say, it is about a lot. Most of these different theories are well represented and included in post-formal science and post-normal thinking theories. The division here shouldn't be comparative—that is, of old education and new education through what it is not and what the other one is—but more about describing and analysing the elements that often appear in the CS programme. As the description seeks for the theories behind the methods, that then again lead to cognition and learning—perhaps the comparisons should be between the individual and the shared, between purpose and knowledge seeking, or between thinking and learning. I've taken some of the most commonly used, or at least talked about, theories as my keywords and will go through them in the next few chapters. The purpose of these chapters is most basically to further explore the program in action, as I've tried to by now explain how I've experienced it—what I have learned and what is the programme description, including its aim. By intention, I did not go too deep into pedagogical inquiry. I have less background in pedagogy and more
in practical philosophy. Parts of pedagogy are included as well, but mainly this is about the theory of education. To the set of keywords that have to do with the programme as an educative initiative, I've included things like: *cognition, learning, education, interaction* and *participation, post-normal, post-formal science*, and *systems*. These surely overlap with many other theoretical areas of my inquiry, which clearly was in the first place the reason to select them.

*Design* of course was a core keyword—although extended towards something that can be either considered as one stage of design or as its own worthy entity—planning. I explain further on how these two differ, but in brief design thinking could be seen as a tool to solve problems, as planning to happen as a prerequisite step. Design thinking is surely one of the most used buzzwords of this era, and from what I've observed, there's almost as many interpretations of it as there are practitioners of it. And of course, I have my own, about which I will elaborate further. I've taken to calling myself a planner rather than a designer, partly because of this division in my own thinking that guides the practise but also to simplify the difference of my, and probably many other CS alumni, professional image. Design, even after a few World Design Capital years that tried to change the perception, is still quite often seen as the end result and not the process that it actually is. When only given the title planner, one seems to receive more attention and be less subject to a preconceived notion in the receiver's mind. Other keywords from the realm of design have much to do with methods and the philosophy behind them. The different practices and emerging methodologies I've tried to capture under the keywords of interaction and participation—with the aim of co-creation and the designer's role as a facilitator. There's plenty of reasons with which to justify the selection of these when it comes to social design or socially sustainable planning—but as with most of my thinking they also come with a grain of salt. There's been enough discussion around the new role of a designer in the post-modern world where a designer can feel pressure from both directions, i.e., an internal push and an external pull, and yet a designer as a *mere* facilitator often raises eyebrows, especially of those who have a differing view of the role empirically. Once again it's, in my view, about the perspective and the mindset—or concept of a facilitator that one might reflect to the new suggestion that creates the
friction, as the late great philosopher Krishnamurti stated, one cannot see the actual thing from the concept they have of it. But a facilitator, as I see it, is much more than a caretaker of the process or the self-claimed manager of the team—but at its best is an impartial translator of a co-creation process that can with a systemic view of the problem context and with the unbiased allegiance to no other aim than to serve the issue, can bring in the needed elements that will be the building materials of the multi-minded, plural solution. As the previous lines should take care of the introduction to design, interaction, and facilitation, we’re left with participation and co-creation, which both are core trades of social design. Co-creation has reached the level of popularity amongst designers that it could almost already be viewed as the norm of a design process. Co-creation can be thought easily done in two different modes. One is to source information from end users and, by doing so, forecast the reception and hoped acceptance of the design at hand—to avoid the stupid mistakes that even a user, and especially the user, will probably point out in the prototype phase of the process. Another would be to co-create in that both source the data so as to give the end user a sense of ownership in the way that the solution isn’t only partially initiated by them but is inherently almost a part of them in their thinking; it grows from being a user of a ready-made object to a do-it-together (DIT) solution that fits the context and the purpose, not only in the designer’s mind, but in their shared minds. This of course, is a rough simplification of the concepts which is why I’m going to use even more words to explain my thinking and position of and towards them.

The already hinted future- and forecasting differ little in aim but do differ in purpose. Forecasting could be seen as predictions from now, with this moment being the point of reference, where the aim is to foresee the future developments of a specific thing under the research. Futurecasting tries to look over the longer period using multiple points of references in time and thus building open scenarios of the overall landscape of things to come. As far as difference in purpose, forecasting would be based on developments of a few selected drivers and lead to a scenario based on trends of living, and futurecasting would look at the zeitgeist of the moment and try to predict what it could be in a selected timescope. Forecasting being more then again overall and less specific and
futurecasting perhaps more specific, both in area of interest and scope of time—but both predict images of things to come. As we were taught at CS, the one who tells you that they know what’s going to happen in the future is first of all, a liar. And the point in selecting this area of soft-science wasn’t to contemplate the differences in the two, future- or forecast, but to view them as a specific separate choice which we do from time to time employ as a part of our processes but could also make better use of. As sustainability, innately, is about longevity, every decision and plan should be assessed with respect to impact in time. As well as we often do approach challenges problem-based, which means that the unsustainable status quo has already been forecasted to lead us to the issues we try to tackle now, in backcasted manner. So the casting is very present in the work of a sustainability planner, whether it is an integral part of the problem or solution definition process or taken as its own area in the whole process. In either one, it should be taken as a crucial part of any long-term plan, since planning anything on a timescale with right now as the point of reference will fail, since every effort made to change the reference will also affect the reference point itself. Thus, predicting the pace and the scale of the change today will look very different next month as things will have surely been changed by every effort. It is somewhat of a quantum-fluke truth. Another interesting aspect to casting is something that I’ve grown to hold true in the cross-disciplinary thinking of sustainability and systems, which is somewhat of a blend of Hollins theory of Panarchy and Tainter’s writings on collapse of societies. I will of course elaborate more on these and go into detail why these two should be of interest but, in brief, as Tainter tells us, the point of knowing that every complex society collapses isn’t necessarily for us to avoid the complexity but is useful for us to understand the moment we live in now in our own society, i.e., to predict the collapse and, by the prediction, perhaps ready ourselves for it. Then again what Hollins and panarchy adds to this is somewhat along the same notion of systems life cycle; as it builds and flourishes, it has to, as the complexity of the process grows, at a point collapse to gain the momentum for rebuilding. So from the melding of these two great theories, we could find meaning in knowing what moment of our own history we are living in and how close the inevitable collapse of a system we are, and where will the parts of that system fall, i.e., the old that needs to be rebuilt or the new to be replaced.
Systems thinking, or systems theory or philosophy, is an important part of sustainability and thus of the CS programme too. Things are meant to be looked at holistically, which quite often serves as a synonym for systemically. Although systems thinking can, and should be, broadened to areas such as systems theory when it comes to social systems, and systems philosophy when it comes to systems thinking, for the thinker to get a perspective of the trade itself.

The same goes for yet another chosen keyword science, as in both the philosophy of science and the science of design, and actually further on the philosophy of the science of sustainability. Systems thinking surely supports the issue of sustainability in many areas; practically we find it useful in design, where systemic or holistic approaches aid us in things like life-cycle assessment, resource smartness, frugal design, and even innovativeness. Systems theory of social systems helps us to picemeal the biggest whole, as when thinking of a global transition towards a sustainable society. Somehow, whenever I've thought and, in a way, objectified my own systems thinking, I've done it through viewing systems as social, or human, systems. This could have played a huge role in the fact that I've adopted social sustainability as my niche, or it could have always been there and so explains why I naturally chose it to be my niche. Systems philosophy, much like the philosophy of science, is an important area of not just sustainability but of any trade that requires both post-normal and critical thinking and specifically an area as new, lucid, and holistic as sustainability, where the best version of truth is found almost only on individual levels and beliefs that form the angle to the whole trade. Meta-learning and the level of autodidactism needed to co-evolve with the ever-changing challenge of sustainability means that one must reinvent the challenge and themselves as the challengers accordingly, which can only happen if it is understood how and moreover why things are thought and done. As Ringland (2010) says about building the skills needed in the post-normal world: "Competition will be intense, and on new terms." It’ll be intense in that it is on new terms, renewing daily. Systems thinking could

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serve as a better and more appropriate word for design thinking as sustainability could be replaced by well-being, or even just-being, which is inherently existential and thus philosophical. Why these keywords were chosen is also partly because I've observed a lack of discourse on the subject of science of design since Buckminster Fuller and, even more so, on the subject of the science of sustainability, which to me is somewhat alarming or at the very least disturbing and discouraging. As design progresses, either self-driven or by the power of external pull, without understanding the place and role of design in this existence, is there a true aim for it and, if so, from whose perspective and at what cost? The same goes with the science of sustainability, which oddly is something almost unheard in the realm of sustainability thinkers and doers, who all hail by the words that sustainability is holistic and continue the sentence by the counterproductive, paradoxical reductionist definition of sustainability as enduring the challenges in and by the areas of socio-culture, economy, and ecology, or, as the 3E quote goes; “Sustainability requires the reconciliation of environmental, social equity and economic demands.” Whether the definition should be redefined or the pillars and, with them, the underlying disciplines should be abandoned is not the main point, but rather the inquiry to understand the place and role of sustainability as a trade in this existence. Sustainability is a challenge that we can all understand the need an answer, but is the challenge understood correctly in the first place and, if so, are we trying to make it better with the right tools and, even more importantly, if it isn’t understood correctly in the first place, then are we doing more harm than good with our efforts?

This also should shed some light on the discussion of what is our role, aim, and responsibility as sustainability professionals. Is this an emergency we understand the necessity to react specifically to or are we on the verge of something that isn’t quite clear to us in its entirety and so we understand only the urgency but not the direction of our reaction. In my view, at the moment the aim is too dualistic and we seem to be too concentrated, as Kuhn discusses, on the rules of the trade for us to overcome the pettiness of details and so understand the transition, the paradigm shift that can happen

even without that. What else, disregarding the typical explanation or even excuse of time and magnitude of the change, could explain the stagnation of sustainability. To understand this better, the main keyword of course is sustainability.

Sustainability, as said earlier, could most probably benefit from the discussion on its aims more than its rules or modes. I’d even argue that the slow process is specifically the result of this—the disagreement on details which has led to the blindness of the main aim. And this is a counter to the common argument that the transition is too slow because the trade is too lucid. The stagnation, from my perspective as a graduating sustainability student focusing on social change and working in the field from a very human level, is because we fail to understand the differences in the three scales of domains—meta, meso, and macro-to-micro—that are the essence of the transition and the element of time—past, present, and future(s)—by which it all needs to happen. Most of the discussion seems to happen on the macro and maybe the meso level, as most of the actions are intended to happen on the micro level, with the aim to effectively affect the macro level. But unless the meta level is commonly understood, or unless the meta level is commonly created, whatever happens is too multi-purposed to ever reach a goal or an aim. The same differentiation goes with the timescales; do we understand the past in the same way—what has led to this, what can we learn from it, in which part of it—the past and future, the present—are we, and are we aiming to help whatever is now, or the future, or the futures? So naturally to back this thinking up, I’ll look at sustainability by applying it to this matrix of spatial dimensions, the levels, and the timescales. Another interesting aspect is the social side, or socio-cultural side of sustainability. As sustainability is still quite often a synonym for green, for ecological life and choices, social sustainability is seen as leverage to achieve the green lifestyle—and, of course, this is just a partial, and, in a way, even a minor part of the whole picture. Sustainability—as sustaining something—should mean that the ultimate aim is to sustain the society and the culture. This then becomes more of an inquiry to seek and find the most sustainable society, which in this equation should already entail our economy and trade—the well-being in relation to the environment in a manner that is sustainable as a whole. The environment is the setting where the impact of our doings and makings, which has
become the basis of our well-being, are all taking place. Social sustainability in this sense is the meta level sustainability which should be connected in practice to the meso level, which is the environment and, in the end, to the macro-micro of our economics. Not that the social sphere in magnitude is the biggest whole, but in every sense of our existence it is the ultimate sphere; nothing exists to us, but rather through us. Social sustainability then is the sustainability—although in transition towards it, we need mechanisms and tools to understand it and help us all to grasp it. To relearn it. Which is why I chose a few additional keywords: decision-making mechanisms, existentialism, altruism and empathy, and, case specifically, dark tourism.
1.1. Formal, non-formal, and post-formal education

- For the Education or for the Knowledge

The tertiary division presented in the subject line is probably not a usual way to describe one’s full education, but as the CS experience has been quite equally to me all those three, it's useful to define them and further analyse how and why each is used at CS, and what are the expected and journaled results of them. Firstly are the terms, or concepts needing to be defined, in the manner of how they are academically treated and talked about, with the addition of how I have observed them at CS. Non-formal education surely can mean almost any form of skill or knowledge acquirement that is unconstructed, non-institutionalized, or uncertified, but in this case it should be understood as non-formal within the University context. Non-formal in University context might sound paradoxical, but I again refer back to the idea of the meta-university, where almost everything one does affiliated with the study or passion subject that supports one’s formal, curricular studies that is organized by an outside party or even self-organised. It might be knowledge-acquiring outside ones discipline, but done still with the aim of gaining knowledge or skills, that is seen to be supportive or useful to own study core. Non-formal thus here means that the point of learning is not organized directly by the University and the learning experience is offered through channels that aren’t in the University’s domain. Non-formal isn’t, however, necessarily opposite of formal. By formal education, in this context, I mean University-organized and -certified learning experiences, which quite often refer to the typical classroom learning, although classroom isn’t the best exclusion since post-formal theories do reach outside classroom settings as well. Formal education perhaps in this sense is meant as an institutionalized process having a specified input with prerequisites through previous educational experiences, a qualified and quantified process, that all aims to a certain outcome. The formal education in this form can only have one kind of each: one input that fits the one process designed to be suitable and one output, and anything else could be seen as a failure. And post-formal education then could be seen as almost a mix of formal and non-formal, even though as a concept it is much more novel than I now make it sound. Post-formal might not be an academically used term, but to me it best describes the actual
learning, competence- and skill-building, and knowledge-gaining during one's studies that aren't necessarily non-formal as fully outside of the university domain, but also wouldn't fit the typical concept of formal education. As said previously, formal education isn't the opposite of non-formal, but rather the opposite should be, terminologically, non-formal, but this is coined to describe the opposite of formal, as it is "elastic, open to change and is ready to adapt to heterogeneous populations with many and diverse educational needs" (Romi, Schmoda, 2009). Post-normal education as a term takes its roots from the concept of post-normal science and post-formal thinking. Post-normal science derives from Ziauddin Sardar's coining of the term in 2009 in the article "Welcome to Postnormal times"—but has, since the coining of the term, taken on a life of its own among science makers as more of a democratic and peer-led form of science making. This concept of post-normal science has the features and characteristics of a strong sense of community and peer-level development of knowledge, not just among scientists or academics of a specific field but sourcing from peripheral areas of knowledge as well, i.e., practitioners and other stakeholders in the issue. Post-formal thinking then again comes from a concept of complex thinking, one that "engages not just formal logic, but a range of postformal logics such as creativity, complexity, paradox, imagination, inspiration, intuition and many other ways of knowing" (Gidley, 2010).

Together these two concepts, or theories, join and form, in my view, a perfect description of the aims and modes of CS education, which is post-formal, not only leaning to post-formal thinking but post-normal times and science.

The aim isn't to claim any of these to be better than another, since this isn't a comparison aiming to promote one over another but rather is more an analysis of the benefits of each of them, that should and at the moment do function together as a personal and individual set that comprises education. As much as the non-formal and informal add to the formal, formal is the base that has to be built upon to achieve post-formal education. As John Dewey stated, "The aim of education is to enable individuals to continue their

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education—or that the object and reward of learning is continued capacity for growth” (Dewey, 1975). But this process naturally has to happen gradually—you have to learn to walk before you can run, as the saying goes. Formal education as it is today, as Sir Ken Robinson stated in his famously animated talk on changing education paradigms, is more or less based on the Adam-Smithian factory-line model where student subject are taught in distinct subjects in separate groups as yearly production models. This model is the way we’ve created academic experts, where expertise is knowing more and more about less and less. Compartmentalisation, in other words. But having said that, these experts are exactly what is needed in some areas of science, and, moreover, these experts would surely add to the body of knowledge that comprises their own fields but would also add to that of other fields of science as well. And of course this is the basis of cross-, multi-, inter-, and intradisciplinary processes, none of which are new concepts. Even the terminology is decades old—introduced to us by Kuhn and further elaborated by many, of which A. F. Chalmers is one of the most read ones; both initiated inquiries on revolutions of science through shifting of paradigms. The shift, by commonly accepted sense and science-making mechanisms, comes quite simply from updating one’s hard-core knowledge of an issue. In a mass of newly proven knowledge, peripheral information is often enough to achieve a shift of paradigm. This peripheral information then is inherently sourced from other fields of knowledge that more often is logical by post-formal thinking than it is apparent with formal thinking. Nonetheless, there needs to be a paradigm in the first place to be shifted—a mass of universal best versions of the truth, that can be then built upon. Science and knowledge certainly have their philosophical aspects, which are truly very interesting, but the main point here is that knowledge is accumulated not simply attained. And to build the ability to accept and absorb the results of this process, one has to learn to walk before he or she can run, to learn before he or she can learn how to learn. Non-formal together with formal, aiming to post-formal, is not necessarily the only, but is certainly the most suitable and compatible path of capacity and capability building, especially in a complex area like sustainability, which truly needs and benefits from critical thinking.

As I said, non-formal, as what one can seek for from the meta-university sphere, together with the formal education of CS, is in my view the basic requirement to the path of grasping sustainability as a coherent issue. Surely by the formal education, still slightly leaning more towards the Smithian process, will bring in new knowledge of selected areas and will form the basis of the hard-core knowledge which the latter parts of one's learning process—education—aims to grow. Though as I'm going to talk about later on, even the formal education in the CS programme does use a mix of methods that wouldn't usually be counted as formal teaching, like Problem-Based Learning (PBL), but it is still formal in the sense of process and, from a dualistic view of pupil to institution, is outcome aimed and purpose based. Perhaps in the basic concept of formal education, the sense of division between education and learning has the strongest contrast, as formal education aims to certify one's knowledge, which I have to admit it does in a hard-system manner, as grades are the final qualitative assessment of the same mass of quantitative learning every student should have gone through when graduating as a master of anything from a university. It is hard to say, though, again according to the ethics of education, how much the educational institution should support individual wants and needs and how much of a responsibility they take in educating students so that they have a good possibility of being employed—which of course in these days is the standard. As Davies (2013) says, "Higher education is, more than ever before, a means to employment. But qualifications and content knowledge is not enough."\(^49\) This is a standard that will surely change, as it seems to be changing already, thanks to notions like the Generation of 700€\(^50\); so in a sense even with an academic certified degree, nothing's for sure. As formal education changes, not only to serve, or more likely not to serve the students, as we are slowly moving from a service-based education to a co-created model, where much of the learning experience comes from peer-learning and project-based learning, the major difference being what I could explain with the concepts of the Cathedral of Knowledge or the Bazaar of Knowledge that Richard


\(^{50}\) The concept of Greek educated young adults that earn, after the financial crisis, a median salary of 700€ per month (http://en.wikipedia.org/wiki/Generation#Other_generations accessed 12/2013).
Sennett used in his book “The Craftsman.” Although he took the example from open software and the co-creation and development of them, the selected figures are quite suitable, as the Cathedral is, as imagined, standing tall, steady, and static, waiting for the people to come to it and receive the learning it gives. The Bazaar model is a plateau of offerings where one goes and samples things to their personal taste to make a whole. Bazaar is a lateral model as the Cathedral model is structured and up-kept as a vertically hierarchical one, but an effective one, a machinery. It also has to be considered that, ever since elementary school or even kindergarten, we've been taught to learn in a specific way, especially when it comes to formal education, and this is nearly impossible to unlearn.

The non-formal education surely adds to the formal. Since we're talking about education still, not just learning, we have to consider that a formal version of education has to exist as the basis and the point of reference to others. Non-formal differs from formal more often by its methods and modes than necessarily its pure aims—that is, if we still go with Dewey philosophically, plus either with the market economy in seeking for job opportunities or even just by the nature of humans—which is that we are innately doers. Non-formal learning does quite often happen by doing—learning by doing, which is problem or at least challenge based. Non-formal, as an addition to the formal, is then probably also passion or interest-based, naturally, since it is as a voluntary addition. Few notions contribute to formal learning as well as non-formal learning when it comes to learning outcomes. Firstly, when one is in the learning situation voluntarily and for self-sourced reasons, learning is for sure more interesting, which neurologically is proven to give us better learning outcomes. Learning as creativity, which could be seen as the core element of complex or high-performance problem solving, is neurologically very dependent on dopamine production. This trade could be, and as one article calls it, novelty seeking. In my view, novelty seeking doesn't only provide help when it comes to learning, but, as said, probably improves the outcome of the process when it comes to problem solving. Creativity should also be thought to be a trade one can use to guide one's own learning, as creativity helps to process the learned things and is the gateway to

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meta-learning. Creativity helps us process and explain the received information we have to work with, to ourselves and to others too: "Creativity can be seen as a particular kind of response style (MacKinnon, 1962) and activities of problem-seek, problem-find, and problem-solve. Research on creative cognition can best identify traditional areas in cognitive psychology and cognitive science that could be explored in a more creative way, such as mental imagery, concept formation, categorization, memory retrieval, analogical reasoning, and problem-solving" (Schweizer, 2006). Although this trade shouldn’t be considered to exist exclusively in the realm of non-formal education, for a good part of academic history it has been thought to be so for several reasons that form the base of its effectiveness; learning by doing or doing by learning and, because of creativity, which still on many professional fields is seen as an opposing force to professionalism. ‘Professional’ implies ‘qualified,’ in which creativity is hard to include—one can be hard and other remain soft and lucid. Dopamine levels, which can be viewed as the physiological reward of problem solving, not just in us humans but in our closest mammalian relatives chimpanzees, affect us both physiologically and thus also emotionally. New research also shows that happier humans learn faster and are more open to new information. This research came to light when antidepressants were tested on patients with brain trauma or injury and were observed to boost brain cell regrowth. So from this research another outcome was the realisation that a happier brain is also a learning brain. Of course the controversy of this comes from the long-term use effects on memory, but then the question arises, is learning the same as memorizing something by heart or are we ultimately seeking transformative learning where one learns not just facts but methods, as a toolset for understanding new information that includes tools to be meaningfully processed. But back to learning by doing and creativity in combination or, viewed more correctly, as parts of the same process of problem-based learning. Meta-learning is a trade that naturally attaches to creativity and learning: "Another piece to the puzzle is provided by the connection between emotion and learning. As we have seen, a distinctive characteristic of high performance teams is their capacity to generate expansive emotional spaces" (Losada, 1998). Losada continues to ponder the explicit

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effectiveness of emotions that lead to action which leads to learning. Emotions aren’t defined by their typical categories, but it should be clear from other researches that those emotions that make us defensive and closed, like confusion, fear, or even boredom, would probably work differently than a happy, open and intrigued brain. Could passion, amongst other emotions, with creativity in learning, lead to autodidactic students? At least self-regulation and autonomic learning are tradeoffs of non-formal and informal learning, although autodidacticism differs from these in the sense that the autodidactic person is his or her own teacher, rather than learning without a teacher. But in all communication, exchange of information and ideas—one can be seen as a teacher or the initiator, and in autodidacticism it is the self. Ellen Boeren (2011), in an article on gender differences in different learning settings, defined non-formal and informal adult learning: “Non-formal learning was defined as organized education taking place outside the formal education system... Informal learning was described as the natural accumulation of knowledge and skills in daily life, often unorganized and incidental.”54 Clearly, by the division these definitions make, the concept I’m explaining through meta-university isn’t represented truly in informal or in non-formal education. And, as I’ve repeated a few times here, both of them only add to the formal, as we talk about the University moving towards something like the concept of meta-university, which represents both learning experiences organized outside a formal education institution and less organized learning, like having a discussion around a study topic. And of course considering all the learning points, by which we as active university students are saturated in this time and age, it is hard to draw the line between what was learned in which domain, primarily because learning is a process in timewise and by the different interconnections of the knowledge one acquires, tests, and then learns to use. Much like what Sennett describes with respect to a handiworker, learning is accomplished by doing and doing by learning; the craftsman teaches the hands to execute his ideas, and then the hand provides feedback that teaches the craftsman to ideate. So what might start in a classroom might gain significance and gather attention in a conversation but is tested in another context, where it is finally learned. These definitions are the norm but, in normality, lack parts of

reality, thus most likely explaining why the concepts post-normal and post-formal came to exist.

Post-formal education, which acts almost as an umbrella for a philosophy of education, entails much of the hoped-for, noble aspects of education, which every student should want to acquire. Post-formalism quite neatly embraces, or at least encompasses and recognizes, the importance and qualities of all the different modes presented here, the formal and non-formal—and, yes, on a meta-level—its own competencies combined to comprise an education. It is heuristic and humane, and its source is the aim of educating, with a mix of methods, the pupil in his or her inquiry of ‘how’, which leads to ‘why’ and, beyond that, to ‘what-if; thus, “For physical science it is what/how?’, for design studies (biology and technology) it is ‘how/why?’, and for PNS it is ‘what-about/what-if?’” (Ravetz, 1997). Post-formal education is like its predecessors post-normal science and post-formal thinking with their multi- to trans-disciplinary approaches, and critical thinking, with its non-disciplinarian renaissance best-fit-to-a-purpose approach (and at the moment they best fit the purpose of sustainability, which is itself a trade encompassing all of the above). Thus, post-formal education shouldn’t posthaste be thought of as the mode of education, but it suits the purpose almost perfectly and in harmony with respect to sustainability education, where it reflects the trade itself. And it is important to recognize the blend, or mix of different modes within the notion of post-formal education. Ravetz also considered post-normal science to be the tool with which to tackle the issues of sustainability. He, much like myself, set a challenge for the understanding of the situation and our best capabilities to respond to it—to stop believing in some things by starting to believe in us: “In this vision there is no longer need for awe of the world and its supposed Maker, nor a need for awareness of our ignorance. Such hubris was certain to bring about its nemesis. Our awareness of this historic drama of our civilisation started with the Bomb, and it now continues to grow through the environmental crises of this century,” a statement from 2007 which could

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equally apply to the current climate and economic crisis and, as a part of the zeitgeist, the socio-cultural crisis too, if not globally then at least in the majority of the world’s nations. Ravetz originally considered post-normal science (PNS) to have strong political implications to policy making, i.e., the statement "old image of science, where empirical data led to true conclusions and scientific reasoning led to correct policies, was no longer plausible," which argued for change in the scientific field and for nuclear power, the case where the method was first used. The idea to using PNS was to break from the typical use of hard-core sciences, like mathematics, to assess the impacts and broaden the ideation to what PNS calls the "extended peer community," since surely the impact of nuclear energy goes beyond the mathematicians and civic engineers. Ravetz proposes a utopia, where in PNS could be the "science of, by and for the people." And of course, as Ravetz also predicted, there will be criticism as to how much of a scientific contribution a group of laypeople can make, but again PNS should be considered the method in sciences like sustainability, the soft science where we all share an equal stake in the outcomes and process, but someone has to facilitate the process: "There is no essentially privileged perspective on a system (knowledge as a system), as each subsystem has its own characteristics of scale, rate-of-change, and fineness of perception (Mario Giampietro), along with value-determined aspects of perception." In the co-creation process, the group forms a bigger whole in understanding the issue than a mass of professionals from a field could, simply because the group now makes the issue a bigger issue than it originally was before, as it was thought to be an issue of civil engineers. This has become a matter of many fields, not that it is only an issue identified in many fields, but ultimately it will be solved under one. Why PNS and sustainability, in my view, go hand in hand speaks to the core of PNS; with respect to aim, it’s about understanding and managing risks. As the "decision stakes" increase on the Y-axis, the "uncertainties" increase equally on the X-axis, i.e., the bigger the stake for example in impact over time becomes, as do most of the decisions we need to make for a sustainable life, the greater is the element of uncertainty. And PNS lies in the far end of the scope, in the high-stake high-uncertainty end, where, in comparison, the applied sciences are at

56 Ringland, 2010.
the low end. Where we need to know beyond the normal, applied knowledge and handle the uncertainty, i.e., “in the absence of a tradition of skill in managing uncertainty, when scientists encounter it in forms that lie outside their unselfconscious craft practice, they become concerned and also confused,” where the knowing what we know and don’t know isn’t the issue anymore and ruling out ways how not to do it are no longer sufficient, we need to propose an open-ended question of ‘what-if,’ and PNS, with post-formal and critical thinking, would probably offer a method. Issues are problematical, complex, and complicated; “[c]omplexity is a natural by-product of the fact that most of our problems have a global scale.” As post-normal science isn’t necessarily a science, but rather a unique blend of sciences and their truths, with respect to the issue at hand and the peer-network that creates the new science. It is the unknown-unknowns that are trying to be avoided and, as Ravetz says, “whose discovery is painful.” This pain doesn’t come only from failure, which Ravetz expects because of Murphy’s Law, which states that everything that can will go wrong, but in my view, because we know that, we can at most only give an educated estimation of the truth, a best version of the current truth. However, knowing this oxymoronic premise, i.e., that there is still something unknown, we could bring ourselves to make open-ended decisions. When it comes to the process of thinking, to processing the knowledge we attain with the method of post-normal science, we arrive at post-formal thinking. In response to Sardar, Gidley wrote about post-normal times from a post-formal perspective: “Complexity, chaos and contradictions, leading to uncertainty, are closely related to key features that adult developmental psychologists identify as representing signs of postformal reasoning . . . including complexity, contextualization, creativity, dialectics, dialogue, holism, imagination, construct awareness, paradox, pluralism, reflexivity, spirituality, values and wisdom.” Gidley highlighted a few of post-formal reasoning’s features: complex thinking, paradoxical reasoning, creativity and imagination—that are also represented in Sardar’s (2010) essay as complexity, chaos, contradictions, uncertainty, progress—modernization—efficiency, virtues, and imagination. These could, in my view, also be considered simply as systemic and critical thinking and problem solving as in the

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58 Ibid.
60 Gidley, 2010.
following: “Complex thinking involves the ability to hold multiple perspectives in mind while at the same time being able to meta-reflect on those perspectives and the potential relationships among them. This is also referred to as metasystemic thinking” and “Paradoxical thinking refers to the ability to hold in mind the apparently illogical possibility that two contradictory statements can both be true—or indeed both false. This paradox of the included middle allows for both/and and neither/nor to be correct.” Complex, or systemic, thinking is in the end about the ability to recognize the plurality and multi-mindedness of an issue, to cope with the complexity that is the best version of the truth and with the uncertainty of not still knowing the unknowns, which are the things left out of the holistic image, since a truly holistic view would be in human sense impossible. That kind of thinking is the background research of a specific issue, it is the systemic map of it as the paradoxical reasoning—or critical thinking is the processing of that information, and creativity and imagination—or problem solving is the end result of the process. Even if the aim of the process is not to reach a solution to a proposed dilemma, processing always leads to an end result, even if it’s an opinion, a statement, or just an empirical position to the suggestion. It’s a weakness of the human mind that any process seeks an ending or a milestone. As post-normal science is science in making, the platform, or method, to new science, post-formal thinking is then the platform of use: as post-normal is a trade of passive being—universalism, a mode of being, from within. Post-formal is an action.

What combines this challenge of post-normal times, which is best coped with post-formal thinking, with post-formal education can be found to happen two ways; changing the formalism in tertiary education to match the views of the students is needed, and there is a need to renew education to better reflect the contemporary needs. Pedagogically, post-formal thinking should be thought of as a mode of education more than an aim, as with meta-learning, partly because educating with respect to it as a separate topic would probably not work since it is a mode and not a topic. Whether or not CS was meant to be taught in this way, or it just was done so naturally, it is worth noting within the whole CS sphere. Not to claim it all-powerful, there are enough reasons why this kind of new education should appear in CS in the first place, which
also is the reason why it organically did. I would like to note some of the favorable aspects of this direction in education: *multi-paradigmatic perspectives and multi-minded groups, bridging theory and practice on a project-based aim level, meta-learning as a platform of understanding and lastly the openness as tool of resilience in change.* To be unbiased, I do try to critique them as I praise them. In his critical systems paper, Todd Bowers (2010) mentions the multiparadigmatic perspectives, and nicely and simply states why several paradigms, as in co-creation with several perspectives, should be combined in the first place: “*What is nice is that each paradigmatic view is known to be valid and each offers a world of rich insights unavailable from the others.*” What’s clearly difficult in the trade is that each paradigm seems to try to cover the same areas as the others but with its own interpretations, which could on paper be thought to leave nothing but bickering and a stagnation of the process. Thus this idea has to be brought to the level of methodology, or method for the process itself, to which Bowers takes an ontological approach: “*No one paradigm subsumes another (nor could it, says paradigm incommensurability). There is no hierarchy among them. Since their domains are separated, it is illogical to accept that any paradigm could legitimately prohibit the existence of another. It follows, then, that no ontology may legitimately prohibit another’s.*” This is to say, that in a case where different paradigms of knowledge and beliefs or, even a paradigm acting as a discipline, are represented, no one of them, as in whole fields on the topic at hand, should consider itself to be higher in the hierarchy, since they don’t exist in the same space to ontologically have the possibility to be so organized. Instead, the process that follows the recognition of multi-paradigms and perspectives could be structured in such a way that either the coming together creates something of a new approach, where ‘multi’ turns to ‘intra’ and the paradigms try to meld in and onto an area which is a new territory to all, or the multi-paradigms and perspectives find an onto-epistemological common ground where they can share representation through a methodology that constitutes the common ground. And this falls pretty close to what Davies (2013) wrote about critical thinking: “*The generalist  

view is that the skill of critical thinking is in large part (if not wholly) non-discipline-specific.” Looking at a generalist view, not from the perspective of there being no expertise, but from the point of view that, as in the first move of a chess game, what is momentarily created by the members that represent different paradigms and perspectives is something novel as a combined new paradigm, yet it is that undefinable but generalist view that actually fits the description; rather it just has the wrong emphasis as a layman’s term. Linstone et al. (1981) wrote on a multiple-perspective concept taking up the challenge through a reductionistic approach as a tool to cope with the plurality, to seek for reductionistic, simplified challenges at hand to match the challenges with the perspectives that could unravel them. Of course, for the sake of the process, stating that breaking a problem (i.e., a system) into parts, reducing the sheer size and complexity of it, allows us to “... arrive at problems we can solve.” In all actuality this is true, and reducing the problem of course makes the solving of it a simpler task as well, but in cases like sustainability it only leads us to such a reductionistic area of the problem that it doesn’t mirror the real problem system anymore. So even though it is a part of the issue, it has little to do with the whole that the parts create. Linstone et al. do come to a conclusion on the coming together of a group that I too can share, which is also present in Bowers; that the group should move from a merely interdisciplinary mix to an interparadigmatic group, which of course is innately present—but this, to me, gives the members of the group a more personal position with respect to the group and opens the individuals to use their abilities beyond their disciplines without losing their sense of professionalism, which of course is acquired through post-formal education. There are other methodologies to perform this kind of process, e.g., Participatory Action Research or Total Systems Intervention, of which Clarke and Lehaney (1997) give a nice explanation: “The TSI approach is not functionalist, but neither is it interpretivist. In its commitment to complementarism, it combines both functional and interpretative elements in a single framework.” And complementarism sure is a nice word, in a world of pluralism.


Bridging theory and practice is one of the biggest challenges of the academic world. I by no means even try to tend to solve it here but rather try to argue why post-formal education could help to fill this academic void. There is a sense of urgency for action, surely, when it comes to things concerning sustainability and sustainable development, and a hefty part of the people in the field of sustainability are practitioners, more so than academics. At the moment, it seems like, the science of sustainability is mostly present in the academic sphere with the practical actions left to the outside. This is, of course, natural, but, from the point of view of true sustainability, the practical field should also understand the science so as to be able to view the whole in unity.

The same sense of division seems to occur in the realisation of the CS programme sphere as well; the theories are solid, or at least solidly accepted, since the programme itself isn’t scientific but practical, but the application part of the process seems, compared to the unified theory, to always be too reductionistic. Of course no one plan, or leverage point that strong, could even be found and, if it existed, it would be too dangerous to dabble with, but the balance between big theories and small actions or big actions and small theories seems to appear quite often. Post-formal education (as in post-normal science and post-formal thinking, once again) allows one to fluctuate and iterate between the theoretical sphere of academia and the true valid sources of information to the real cases found in practice. This is the basis of the mix of educational theories from the typical classroom experience to peer-learning and projects to passion-based learning but allows the iteration to broaden the needed lengths from the core, which may be to test a theory extensively or to reflect the practice to non-formal, or post-formal, theories. Theories are more debatable than proven practice in effectiveness, but, then again, tracing the action back to a specific theory needs a little more proof and practice. One other aspect that should be considered in the quest for a sustainable world, especially from the educational perspective, is the uniqueness of the trade. In short, just like any development working towards a specific aim, it should render itself obsolete, right? If the world were sustainable already, there wouldn’t be a need for this struggle and, in that sense more than anything, we should understand the transitional characteristics of it. And in my view, the true struggle of a transition is the same as in
bridging theory and action; it’s about understanding the reason, mode, and moment to put knowledge into action. And in the universal case of sustainability, the understanding has to reach beyond one’s own reasoning to the plural. The inquiry of sustainability is here and has been set up as the stage for the transition, but until the theory understands the relation between it and action, and action understands its relation to theory, we’re building two different bridges that we hope will meet in the middle. In much the same way that Jerneck et al. (2010) talks about connecting natural—i.e., hard sciences that are proven in practice—to social sciences—i.e., soft sciences that are proven in theory,” [t]he lack of theories on nature–society interaction is a hurdle. Yet, a number of new approaches with different origins and with their own biases, strengths and weaknesses are emerging to bridge the gap between natural sciences and social sciences. . . “ Or if we plan not to render ourselves obsolete, as the change isn’t only hoped to happen outside academia but also inside as more and more of every other profession also aims for sustainability, then isn’t our most sensible and sustainable (pun intended) location there on the bridge, putting theory and practice together? “The present value-free model of development needs to be replaced by value-based development by means of dialectic knowledge, which facilitates bridging the gap between industry/academy and real society through institutional building. Contextualization of knowledge in time and place and its connectedness to society constitutes the science of sustainability for a bottom-up development.”

The importance of meta-learning shines through from the nature of the issues at hand. Complexity, complicatedness, wickedness, and systemicity are all dynamics of the elements at play in the problems we tackle, problems that are real and, as their source, are not just symptoms that we can with the reductionistic approach hope to at best alleviate and never solve without knowing the source. Going back to the trade of a professional sustainability planner, a designer, creative or not, should aim to gather the tools of a process, more than the content, which is ever changing. Meta-learning can

provide us the means to learn how to handle the content in the way it wants to be treated, i.e., as a source of a solution to our problems. Much like “critical thinking has little to do with what we think, but everything to do with how we think,” meta-learning is really not about what one learns, but that one learn how to learn—as critical thinking is a pathway to autonomy, meta-learning should be seen as the pathway to autodidacticism. Maudsley simply described meta-learning as "the process by which learners become aware of and increasingly in control of habits of perception, inquiry, learning, and growth that they have internalized." But unlike critical thinking, which is mapped along a process of choice making, meta-learning cannot be intentionally determined to be a specific learning process. Meta-learning, although this quote sources from computer sciences, can be harnessed as a natural catalyst to reinforce the learning experience and enhance the learning analog as whole: “The main-learning module approximates a continuous function between input and desired output value, while the meta-learning module predicts an appropriate change in parameters of the main-learning module for incremental learning. The meta-learning module acquires the learning strategy for modifying current parameters not only to adjust the main-learning module’s behavior for new instances but also to avoid forgetting past learned skills.”

Also, as multi-paradigmatic perspectives offer us a field of knowledge and ontological approaches, the bridging of theory and practice and of the needed concretism and professionalism, meta-learning permits us to remain agile and understand the issue at hand. We could think it as offering a mental platform to approach the unknown, not content-specific but as a dictionary to the language of the problems. Base-learning is accumulative in the same domain of understanding; we as humans are learning systems—so accumulating knowledge of a field is a given in that sense. Maudsley (1979) formed a five-point action list for meta-learners: formulate a theory, work on the theory in a positive environment, discover through work the rules and assumptions, to reconnect, or reconsider, their initial information in the light of their own rules and

assumptions, and finally reorganize by changing those rules and assumptions. To these one could add that this loop can be iterated again and again within every mass of knowledge. Much debate has been spent on the specific steps of the suggested process, for example, between Losada et al. and Brown et al., on the effects of positivity ratio to group performance, and seemingly little on the applicatory benefits of the trade. Firstly and simply, like a multi-paradigmatic approach, meta-learning seems to meet the challenge; how else can you possibly learn to understand something that is ever changing, except learning how to study and learn from it? Secondly autodidactic students perform well. Thirdly, in the complex experience of education—formal, non-formal and post-formal—the accessibility between what we take in as a learning experience and what is applicable, or noise with respect to the task at hand out of all the possible learning points, becomes impossibly difficult to grasp and validate. How does one then promote and support meta-learning within the university sphere, or the meta-university experience? The simplest answer is to make sure the setup for the five-point action list is correct; that there is the opportunity to formulate one’s own theory and synthesis, to provide a positive environment—latent in hierarchy, to give tools and space for self-reflection and critical, systemic and post-formal thinking, and lastly to create those opportunities for self-re-aligning and realisation, creativity, and iteration. The tenacity to stick with the process is up to each individual.

The last claim for post-formal education is openness, not as a mere mode to construct a post-formal education but for the sake of its own resilience—sustainability. Openness has been discussed in this chapter more than once previously, and in its all frightening fogginess it is an odd contradiction of a construct without a specific border. Openness, to me, is helpful in explaining it as a process rather than as a state, and this stems quite well from systems theories. The simplest visualisation of an open process is how we think of the process’s boundaries. It’s quite common to talk about a funnel process, where the scope narrows, and this of course aims for a precise and detailed view of the problem and a solution that tries to alleviate it. One can also think of it as a reversed

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funnel, where the narrow part is the starting point of the process, and the scope expands as it progresses. Barton & Haslett\(^7\) discuss the importance of open systems and suggest a process that proceeds by alternating between reductionism and holism, fetching new data and reflecting it to new wholes it creates along the time axis that flows between these two extremes. This kind of process creates a reverse funnel as the process aims to open up, not close down, thus seeking to clarify the connection between systems thinking, analysis, and the scientific method, but to me it also delineates a philosophical definition of the approach we should apply to problematic issues. This is the approach, even if the aim isn't to tackle but just to study, analyse, and understand it. It implies a process incorporating inquiry, analysis, and synthesis so as to meld the best of both worlds: a reductionist scientific method of knowing and proving what is thought to work and the inquiring holistic, applicative method of trial and error, all included in an iterative process. And this process itself is a post-formal learner: “We have established that the scientific method can be interpreted as a dialectic between analysis and synthesis and that systems approaches are not just concerned with synthesis but are characterized by the manner in which various system constructs frame this dialectic. In this respect, systems thinking plays a central and ethical role in the application of the scientific method.”\(^6\) In spite of the fact that, even if we'll never be able to comprehend all the things we'd need to to profoundly make sense of everything and to find the integral theory explaining everything as we were challenged by Ervin Laszlo, surely we can conclude that the base has to be built so that we can at least learn to study the elements that makes this all up. And if sustainability is the overarching topic of which one tries to make sense—what can you really leave out? In a study, based on an actual sense, i.e., the sense of hearing, it was proven that irrelevant information actually facilitates the processing of relevant information.\(^7\) So why would you decisively close a process? To apply a reductionist bandaid to a symptom that's in all actuality in need of a massive operation. Closed systems are effective, as they concentrate all the momentum to specific production, but are fragile to change. Open systems are painstaking and resource heavy,


but also learning, mindful, and sustaining.

Is this to say that we all need to become generalists, dilettantes—or holistic, polymaths? All are surely useful at parts of the same process, so perhaps it should be left to each individual to decide. But this takes decades, as post-formal learning is just a platform. Learning is one of the only resources in life, that is, areas of growth and pools of accumulated mass, that seemingly has no boundaries.
1.2. PBL and LLL

The potential takes on PBL: Problem-Based, Project-Based or Passion-Based Learning and LLL: Life-Long Learning to CS

Whether you refer to it as a problem-, project-, or passion-based learning (PBL), it, together with life-long learning (LLL), is probably the most prominent educational theory and/or methodology that has made its way to the mainstream the past decades. As post-formal and normal learning try to comprehend the needs of personal inquiries to professional sustainability planning, benefitting from the spirit of activism, so PBL and LLL view the process over a longer time scope and moreover fit it to the educational scheme as a whole. PBL originated from the definition problem-based learning and was later extended to exemplify educational methodologies that could be generalised to combine real-life cases that are addressed with the support of other educational elements; these extensions, in my view, to the same ideology are project-based and passion-based too, with the addition of personal attachment to the subject. CS as a programme has, to my recollection, attached these keywords to many of their own analyses and speaking points, of which passion-based has been found to be the most exact one. Derived from the same human function, learning, the two different theories coexist and are related, although they differ a bit. Superficially the most on the societal level of institutions and informal spheres. "PBL is student-centered and makes a fundamental shift—from a focus on teaching to a focus on learning, from convergent way of thinking to divergent way," and LLL then says the same, from the learning whole in and outside the formal education: "All learning activities undertaken throughout life, with the aim of improving knowledge, skills, and competence within a personal, civic, social, and/or employment-related perspective."

The origins of problem-based learning were, surprising to us designers, training programmes within the medical field. Although Dewey and other well respected

73 European Commission, “Making a European area of lifelong learning a reality” (Commission of the European Communities, 2001).
philosophers and developers of education have dabbled with the idea centuries before, the term was coined and applied to a functional concept, as it is today, in the ’50s and ’60s in Canada.\textsuperscript{74} In hindsight, it makes sense that the methodology originated in a field with a history flowing from a highly practical apprenticeship-based mode of learning the trade to the typical classroom-based education; a comparison of the two extremes makes it quite obvious that both are indeed needed. PBL has had its share of developers along the way, of which actually quite few are worth mentioning, as PBL (and LLL) does not only add to the field of educational sciences but creates dialogues between the different educational models and thus intentionally or unintentionally lessens the gradient between formal, non-formal, and post-formal education. This lessening happens in the creation of this hybrid model, where practical learnings are validated and supported by other educational functions within the formal educational sphere. The core model of PBL has been quite commonly accepted as a set of different characteristics: learning must be student centered; it often happens in groups with some form of tutoring as a support, i.e., a facilitator; a sequence to the actual learning is the acknowledgement of a real-life problem, which are then used as drivers to the aimed education; and finally the education, within this framework, becomes self-directed.\textsuperscript{75} As said previously, these being the characteristics of problem-based learning, the differences between it and project- or passion-based learning are miniscule. They all follow more or less the same path, have similar aims and processes, and all boil down to the learning that happens throughout the whole process, which leads to analysis and assessment of it. Of course, all this is said with a specific learning in mind—a meaningful one, meaningful not in comparison with all learning that isn’t it, but as a suggestion to an ideal aim—learning on matters of sustainability should be transformative, critical, developmental as meta-learning is, and combine valid theory with practical approaches. Education as an institutional platform for learning should have noble aims at its core, especially in a programme like Creative Sustainability. And why is probably a more fitting question in this inquiry than how.

The benefits of PBL derive from more than just the coherent and subject-fitting method of education—as it often improves deeper personal gains, like motivation. Having a personal attachment to the subject matter, whether the project, problem, or passion is towards one’s own interest or the benefitter’s of the project, outcomes are the reason of the connection, helping motivate the students to stay with the topic and learn more of it. It should also motivate and push the students to be true to the subject and work as a driver for integrity when it comes to analysis and assessment of the process. The benefits of being motivated are quite clear and straightforward: "Students with higher levels of intrinsic motivation to academic achievement are more likely to attain meaningful understanding. In fact, educational research has long since shown that there is a positive relationship between intrinsic motivation and the use of learning strategies that lead to meaningful understanding."\(^75\) Although academic achievement is mentioned here, other aims should not be ruled out or considered incommensurable, like personal growth and working for a cause. As listed in the key characteristics of PBL, self-direction is a crucial element in the method as is personal motivation; "[s]tudents with intrinsic goal orientation engage themselves in the task of learning and understanding."\(^76\) Of course, there are downsides to PBL, among them that not all subject matters can or should be taught. And again, one should keep in mind where along the path of learning, where education, i.e., impregnation, occurs, and when does it become known to the learner. The ratio of PBL to classic classroom education shouldn’t only be balanced within the whole plateau of one’s education plan but within the study modules and courses themselves. Problem-based learning does not exclude any amount, be it time or resource, of the classical learning experience, as subject matters can still be taught and debated on within the framework of PBL. As there are hybrids of the two, the discussion around the aims and essence of PBL has revolved around the vitality of the elements and the importance of facilitators.\(^77\) PBL could as well be condensed to include only the elements of self-direction, critical thinking, and proper analysis of the process, if the facilitation is supportive enough—enough in the sense that it focuses the aims to


\(^{76}\) Ibid.

these three crucial elements and blurs the learning analog route to them. Strong facilitation then again does bring PBL closer to the classical classroom experience where the teacher can be seen as the facilitator. Though the mode of involvement between a teacher and a facilitator differs, which foremost should promote the self-direction and empower the learner to make the process his or her own whereas a teacher, by loose definition, can still treat the learner as a student or as a pupil. PBL is, of course, much more than just a tool to better motivation; solving problems is typically an emotional and even physicochemical game of dopamines, survivalism, deeper connections, and often a good workout to test the pool of knowledge and skills one can apply to the task. And there is sense in creating comprehensibly framed chaos, much like what Losada (1999) says about high-performing dynamic teams and their creativity to solve problems and find novel solutions: “There is an intriguing parallel between research in the area of health and my own findings which sheds light on the adaptive flexibility and innovative power of chaotic dynamics.”\(^\text{78}\) In this act of creating purposeful chaos in a low-risk setting is an inexpensive chance to find an organic, sensible order from parts that have, till now, been inorganically co-existing in dysfunction.

How the three suggested terms—problem-, project-, and passion-based learning—compare, or more likely coexist, with each other is less of a question of methodology and more one of how the learning outcomes have been framed and how the individual approaches the process. The problem, to designers, is getting a handle on a project, which gives a design-minded person an angle with which to approach the project, especially with design thinking; anything that can be thought to be changed can be designed to change. So the problem is in the core of the process, and this shouldn’t be thought to be a negative, as abundance can be a problem just as well as scarcity and so on. The problem is in the core of a project, and these two aren’t inclusive or interdependent. A loose definition of a project is a task with more specifics defined, and ultimately it can be abstracted to the banal statement that a project is defined as having a beginning and an ending. Project-based learning, though, works well as a no-perspective

frame for a problem-based learning process. Project strengthens the oomph of a problem-based case and gives it a second-order audience. Problem-based learning urges the observer to understand the problem as a system viewed as a problem-process with the problem in the middle and causes and symptoms on either side. But the goal of problem-based learning isn’t necessarily to reach a solution, as project-based learning’s often is, by through giving the task an audience beyond the problem, its sufferers, and the observer—another entity that is the combination of the two with a possible third party which could be a client, or anyone who could be seen as the problem owner. So having a problem at the core and the project structured around it, as stated in a no-perspective ontological manner, we’ve set two out of the three common perspectives of the case that aims to teach lessons, the third being the observer him or herself in the middle, and this leads us to the passion-based learning lens of PBL, which can be seen to be either in the heart of the core, surrounded by the problem and the project, or to be an overarching element enclosing the other two. Either way one wants to see it, it is a force for motivation, integrity, and stamina when it comes to a process that aims to teach, serving a cause and completing a process, not in a particular order of importance. The importance changes depending on which ‘P’ is meant and what does the ‘P’ represents to the individual. Passion alone is a driver that leads to personal change and action, but in order to have CS act as an initiative that has a societal impact, tools, methods, modes, and just overall skills need to be learned to turn the passion from activism into professionalism, to turn the internal passion to external impactful actions. Passion enhances, or even ensures, motivation to learn a problem, and this can be channeled to a result by framing it into a project. What PBL is to passion within a formal, non-formal, or post-formal educational sphere, LLL offers beyond the educational sphere; it’s not just about education, but like it says, learning. LLL is thought to be the enabling theory to form or achieve the knowledge society, which becomes a reality through a learning society.

Again leaning back a bit to Dewey’s ideal case of learning, where true learning is, ultimately, just for enabling new learning, lifelong learning offers a theory for this. LLL acknowledges the same three forms of learning as education: formal learning, which is
organised and structured and is intentional learning; non-formal which is learning in between the lines in that learning is embedded in organized activities but without learning being explicit—it's through intentionally organized; and informal, which happens through daily or mundane activities, is experiential or even accidental, and is non-intentional. The term lifelong brings in the cradle-to-grave element of learning, meaning that learning is and should happen not only lifelong, but life-wide, meaning in all areas of life. L.L.L has multiple definitions that differ primarily in the description of their actors and the perspective from which they're viewed. These descriptions vary to include passive (L.L.L is the process of constant learning), institutional (learning does and can happen beyond the formal educational structure), societal (education is flexible, diverse and available at different times and places and is pursued throughout life), technological, economical (means of accelerating assimilation of new technologies), personal (learning in which a person engages throughout his or her life), developmental (to enhance the quality of life). Furthermore L.L.L is typically defined in sections, based on ages, in a scheme that's called a four-stage model; up to 25, 25-50, 50-75 and 75+ years80 or in a slightly different division 0-5, 6-24, 25-60, 60+.81 In either case, the scope of this inquiry falls into two of the slots, not necessarily according to the characteristics of what define the different stages but simply the ages of typical tertiary education student. Schuller and Watson (2009) lean toward learning in the 25-50 year phase, stating that typical learning during this period “should aim at sustaining productivity and prosperity”82 while Rojvithee (2005) locates similar functions of learning as occurring in the later years of 6-24 with the majority in 25-60, with learning comes from both institutional and informal education, meaning from secondary and tertiary education and problem solving. Either way, L.L.L is about recognizing the vastly available learning points throughout life and, in a sense, acknowledging them as productive learning. The theory also broadens the horizon a bit by taking a learner into account as a lifelong analog of his or her own learning path, of which each specific moment or point or even a

82 A. Rojvithee, Introduction; Definition of Lifelong learning (OECD, 2005).
83 Schuller and Watson, 2009.
sum of learning is just a part. L.L.L. seems like a soft science, as it in a way brings nothing new to the educational or even cognitive table, but groups the parts into a sum. And even though it poses no immediate alternative to the current educational system, it is innately created within the same space and thus suggests a viable extension to it.

Clay Shirky\(^8\) discusses the abundance of learning opportunities in the information society in which we live, how the society and everyday life is almost saturated with free, acquirable, validated information accessible to us not only through multiple technologies making it within reach but also accessible in that it’s understandable, commonsensical, and quite often applicable. All this works well for the beneter of L.L.L. and P.B.L.\(^8\), although it might not always be the educational institutions depending on whether their aims are selfish. In any case, recognising both L.L.L. and P.B.L. as educational methodologies, not just causal cases of learning, institutional education can validate the outcomes of the two. In this sense both P.B.L. and L.L.L. not only democratise education within the educational system as a whole—meaning that new organic and systemic methods pave the way to different kinds of learners as well, but it also softens the border between what is institutional, classical classroom education and what is life-learned, non- and post-formal. This democratization is in no way a minuscule change in the overall philosophy of tertiary education and its institutions as it has of course multiple reasons to acknowledge the new. Following this path of reasoning, to an obvious extent, appreciating knowledge and learning, regardless of the source of it as a part of education, especially on matters that are social or other ways though to be civil or for the common good, is too a form of homage paid to the issues at hand. In short, recognising alternative ways to reach the ultimate aim, which is to serve a purpose, is a much more humane trade from an institutional perspective. Surely, both P.B.L. and L.L.L. have their barriers, as said education is often planned otherwise than ideal. Laal (2011) lists a few of L.L.L.’s typical barriers, which of course consist mostly of the no-learning cases: “Many of the barriers to learning are inextricably linked to one another, particularly in the case of non-learners, whom policy makers are particularly keen to

engage. For example, those who have not learned since they left school face the barriers of attitude, confidence, funding, basic skills and lack of time or childcare issues, all of which would need to be addressed before they would be willing and able to participate in learning." These though, not surprisingly, are not only barriers to LLL but to learning and thus education overall. In addition, both new methodologies suffer from true assessment, as does any learning with aims more complex, as in cases where the information that is to be learned is either not the true aim or is valid in different interpretations of it. It's easy enough to test if knowledge has been transferred, when it's specific and the point is to endow the students with the information and not necessarily leave it to their own processing. Both PBL and LLL have extended aims other than just to transfer information, which is to gain, process, accumulate, and use it—in a way that is meaningful to the learner and in a form that is personal to them or personal to the subject. Here PBL and LLL differ a bit, with PBL taking into account the nature of the subject matter and having been proven to be superior in cases where both theoretical knowledge and practical skills are needed—it personalises the educational form to the subject. On the other hand, LLL personalises the learning to the person: "Individuals are frustrated if they cannot find a way to learning which interests them."85

PBL is a form that’s not only accepted and in use within CS but was also in a sense developed there. PBL and its formulations from problem to project to passion. Problem-based is surely the right way to go when it comes to educating sustainability minded people, who are supposedly to become professional practitioners of the trade. Although an appropriate balance of theory and practice, depending on the case, should always be taken into account, since they together and only together form the right kind of basis to create the right kind of learning outcomes. Also a project-based course structure, although reflecting real life not only by the case but how it is approached—as a project, should still be analysed and always represented as an artificial amount of time and other resources—artificial in the sense that time and resources at hand should be initially understood in relation to the task at hand, analysed to determine whether they're

84 M. Laal, 2011.
85 Schuller and Watson, 2009.
sufficient, insufficient, or excessive. Also what should be assessed are the end results and their impacts, not to scrutinise the efforts but to put them in perspective of what needed to be done, what was gotten done, did it have the wished outcome, and how could the project be furthered. The short-term commitment often evoked through a true-life case might give mixed signals to the ones working with the case, since, quite rarely, especially in sustainability planning—a true problem is solved through a project, but what it really needs is a series of interventions. Appointing and emphasising this would at best lead the learners to extend the experience from just a test case to something more substantial, and, even if the case remained as a one-off, it does make sense—also as a learning outcome, to locate your efforts to the bigger whole. This kind of guided reflection is often an impactful learning point as it peels the process layers and thereby gives an opportunity to either replicate or develop it. Passion-based, and the personal passion towards the subject at hand on which it is based, should be thought and used as an underlying theme to the project as it both motivates the learners to learn more from the subject and helps the students as practitioners to stay true to the subject. "Based on the expectancy-value theory of motivation (Wigfield & Eccles, 2000), people start to learn if they believe that they can be successful in performing a task (expectancy component), and if they consider the task to be important (value component)."

The theory of I.L.L then offers new perspectives to the structure and role of the institution in one’s education and hopefully empowers even further learners to be self directed and autodidactic when it comes to their own aims of learning and education. Although institutions are changing, and education as well as its subjects, the learners, and the society around are in constant flux, the structure surrounding them is quite slow to change. That being said, universities are one of the oldest institutions in the history of mankind—right after the catholic church 86 so bears the burden of not only history and traditions but also rules, legislations, certifications, and so on, which, while occurring at the top level, nonetheless affect primarily the learners, who are at the receiving end of the resistance to change. The rules and so on cannot be said to be obsolete or pointless, because they function as validations and verifications of quality both to the learners and

the third sector of the society, which looks for skilled individuals to join it to produce. LLL offers another viewpoint to the effectiveness and downright quality of the self-directed, solution-based model of learning. This isn’t to downplay the role of the institutions in the society but to challenge their structure and ask for the top to understand the needs of the bottom, to work together—which should have no barriers if all have the same aim at heart. The institutions could not only acknowledge, but enhance and embrace, all the different modes of and reasons for learning, by having a collaborative role in developing education to serve specific subjects and learners. This isn’t to say that the institutions should customise their service according to each individual, the individual’s learning path and the point and aim that they help them to achieve, but to look at what they offer the best, which is a time and space—a platform for learning. Universities already have all the needed resources to do so and the change wouldn’t weaken but, quite to the contrary, would strengthen their role as an approachable stakeholder in global societal development.

Individuals move fast relative to institutions. The information society was about the liberation of knowledge, so perhaps the time to liberate education is to come. A university without condition, as Derrida defined it in 1998—and Kant 200 years earlier during the Enlightenment: “For this enlightenment . . . nothing more is required than freedom . . . the freedom to make a public use of one’s reason in all matters . . . . The public use of reason must at all times be free, and it alone can bring about enlightenment among men.” The era of the knowledge-cathedral is over and, as in any evolution, the strongest—meaning the most adaptive, will survive.

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1.3. Social theory of Sustainability

- two trades with multiple theories sitting around the same table, not talking to each other

Oddly enough, and not at all, sociology, which is more than 200 years old as an established science, still is rarely brought into the same conversation as the social, and/or socio-cultural sustainability. Even Wikipedia, which in a way is a beautiful example of social sustainability, states initially that "Social Sustainability is the least defined and least understood of the three pillars of sustainability and sustainable development." This being said, I would lean more its being least understood than least defined, since it seems like everyone has a definition or at least an assumption of the definition in his or her mind, and most often it might not be based on either what could be thought to be compatible with other social theories or fit the definition of what is sustainability, which is coherent. In a way, social sustainability suffers from a dualist position depending on where one would put it—is it in the core of sustainability or is it the surrounding whole? As all of the three pillars of sustainability fight for their co-existence, they collide and ask for priority over another pillar, and social is the most misunderstood. Social sustainability comes through other pillars all too often and is put on top ad hoc almost like the icing on the cake of whatever is attempted. Nonetheless, there are definitions, some of which define based social theories and others just from the social existence that is modern humanity and its problems—after all sustainability is a problem-based inquiry.

Before looking into the possible, or potential, theories, I need to dive deeper into the different definitions of social sustainability. In a way also, what is social theory but that “sociology offers ‘theories’ about social things.” A few attempt to define it as such and much more and, in a way, define its aim, although through a different framework, like Sustainable Human Development Index. By Nicole Hodgson from Integral Sustainability, Perth Australia, there are three main centers of research on social

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sustainability. Oxford Institute for Sustainable development states that the literature focusing on social sustainability is limited and that even though social sciences and policy research have developed many objectives, social sustainability is not directly addressed. Although later on, this chapter quotes their own definition of it. Sustainable Europe Research Institute states that social sustainability—as an independent and equally important dimension of sustainability—still lacks recognition from both communities, the scientific one and the decision making one. Few are cast out there; all seem to stem from the same roots. And no wonder; sustainability as a principle, as practically undefined as it is, seems to be less often criticised from within the field.

The West Australian Council of Social Service (WACOSS) has developed its own framework for “the Government in considering its commitment to social sustainability in the state budget” that consists of: equity, diversity, quality of life, inter-connectedness, democracy, and governance. To elaborate more on them: Equity is as in equitable experience, and perception in being a part of one’s community—and surely, I’d think, a specific community within the society. Diversity of people, in all its forms of social, cultural, artistic, intellectual, and economic ideas and expression—not just for the gain of personal good in diversity that creates equity but as a more resilient whole that is created. Quality of life, in access to basic needs—or more likely access to fulfilment of one’s basic needs that follows the human development definitions from food to shelter and services to water. Inter-connectedness in the ability to be an influential part of one’s social sphere both formal and informal—which, I need to state, differs from the rest of the list in that it is a mode rather than a self-righteous aim. And lastly democracy and governance, in transparency of the system and accessibility and accountability in its actions and decision making. These principles derive from WACOSS’s definition of social sustainability, which is as follows: “Social sustainability occurs when the formal and informal processes, systems, structures and relationships actively support the capacity of current and future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and

provide a good quality of life.”

Under a partnership programme, *Future Communities*, Young Foundation, and its Social Life enterprise wrote an extended paper entitled “Design for Social Sustainability” in 2012. In a chapter entitled “What does Social Sustainability Mean?” it includes an Oxford Institute for Sustainable Development definition of social sustainability:

> Concerning how individuals, communities and societies live with each other and set out to achieve the objectives of development models which they have chosen for themselves, also taking into account the physical boundaries of their places and planet earth as a whole. At a more operational level, social sustainability stems from actions in key thematic areas, encompassing the social realm of individuals and societies, which ranges from capacity building and skills development to environmental and spatial inequalities. In this sense, social sustainability blends traditional social policy areas and principles, such as equity and health, with emerging issues concerning participation, needs, social capital, the economy, the environment, and more recently, with the notions of happiness, wellbeing and quality of life.” and then argue that Social Life would rather define it as: ”A process for creating sustainable, successful places that promote well-being, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world—infrastructure to support social and cultural life, social amenities, systems for citizen engagement and space for people and places to evolve.”

Before I start to break down these three models, I feel that McKenzie deserves a fourth spot under the list of definitions, although his definitions have served as a basis for some of the above—being that he has worked towards the definition since 2004. The statements go as follows: “Social Sustainability is: a positive condition within communities, and a process within communities that can achieve that condition.” This is extended by a list of features that are indicators of the condition, and steps towards their establishment and implementations are aspects of the process: equity of access to key services, equity between generations, a system of cultural diversity*, active political participation*, sense of community ownership, awareness of social sustainability*,

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community responsibility*, mechanisms for community to identify and fulfill its strengths and needs* and mechanisms for political advocacy to meet the needs that cannot be met by community action.93 The first thing McKenzie notes though, after the list is: “The list is for discussion purposes and is not intended to be complete.”93

A few things from among the definitions pop out at me. Firstly and most noticeably, the contrast of formal and informal, which comes through not only in the tone of the written definition, whether a feature is appointed intentionally or unintentionally to either the people or the governance as well as it comes through appointed as a part of the definition, underlined as to be the responsibility, role, or right of either or. This is reflected against the background of social life, which shouldn’t define either in social existence but in modes, not in principles—which sustainability is as well. To put it in other words, a hands-on definition of a sustainable life, especially in its social pillar, is slightly obscure in the science of sustainability, not only because social sustainability is a coherent whole that should be designed to function collaboratively but also with sustainability looked at as another surrounding whole beyond the social sphere. This isn’t to say that the definition doesn’t work, used as a frame to help to see the different aspects of the social sphere, in most societies nowadays—the dualistic division of formal and informal is fine, although not necessarily all embracing. The argument could be that the point is to frame the actions and actors, rather than the whole, but as I tried to point out, it might be counterproductive. Secondly, what stands out to me from the definitions is two ways may have led to these definitions; one arises from breaking western societies into systemic pieces under the principle of sustainability, and whatever was put there was because it didn’t fit in the other appointed spheres, the pillars. So whatever didn’t fit directly to the more easily to be measured, defined, and accounted for within economic and ecologic sustainability was put into social—making it the sociocultural, almost as the random miscellaneous folder of things important enough to list and save, but too immeasurable, debatable, and redefinable, all features which make those even more soft. Another defining, yet unspoken connecting element in the features

93 S. McKenzie, Social Sustainability: Towards Some Definitions, Hawke Research Institute Working Paper Series No 27 (University of South Australia 2004). (with own abstraction of the original concepts).
defined under social sustainability was the element of time. Economic and ecologic resources, again as almost opposing elements, are defined to be sustainable often by their longtime views that are then backcasted to actions, to principles. Actions taken now for a sustainable future—for which both the now and the future are based on the best possible scientific estimations available to humankind. And going back to the first chapters of this work, who am I to argue with the best and the brightest of what we have—less attention was awarded sending a probe to Mars, which alone is an achievement beyond my abilities. In this sense, the baseline of what we have now, in terms of ecology and economy, is more substantial, understandable, and better defined already and what needs to be done now in order to have the future we all hope for is more linear and accountable. In a sense it’s not as much a utopia as it is a forecast. Then again, social sustainability, the state we aim for in a perfect sustainable future, is in a way fully utopian, since it is a state unprecedented in humankind’s history. No society has ever proven to be sustainable before. And when it comes to timescopes, society is at arm’s reach in good and bad; it is a thing that we and we alone can change and are the empowered builders of sustainable societies and the barriers to these, and this realisation renders us conflicted and urges societies to be sustainable now, not in the forecasted or the utopian future, since there is nothing external needed to help the development—but yet, it’s not here now, nor has it ever been.

Thirdly, the lack of theories within the pool of social sustainability theories is apparent. This isn’t at all to say that they are non-existent but rather to point out that a person that has experience in sustainability and taking a stab at sociology would find the connection between the two surprisingly thin. Social sciences, relatively new among the sciences, beats sustainability—not as a goal of the field but as an established science by a decade. As I said, the pillar of social sustainability differs much from the other ones, from the perceived authenticity of a science by the bounded softness of it—it as a science is only based on theories, whereas the other two offer us hard facts to rely on. This perhaps makes social sustainability, a lean innovation—meaning that it leans heavily on the boundaries set around it, to force it in a strict slot—it is for and by the existence of the other two. Although there are some keywords taken to the core of social
sustainability from rather well explored concepts of sociology, or social phenomena—like equity, democracy, and free will, none of them are sustainable *de facto*. The essence of the embedded features lies more in the common ethics than in proven success, and how could it be anything else, since they're all states based on the static right now—that is a utopia. This isn't to say, or to judge the forefathers of social sustainability, that they closed their eyes to the theories of sociology, but to say that it is there to be explored to further develop the concept of what social sustainability could be and, moreover, what would be the reason as an aim for it to become a process—carried through by the society. As I will argue later on, sustainability as it is at the moment, too needs further development as to its overarching principle, but surely social sustainability suffers the most from the ill wording and concept of sustainability. In all actuality, it alone is deserving to be the true encompassing sphere of sustainability. Why? Since any part of sustainability is experienced through us, and the whole concept, as it is a principle, is a social phenomenon. What social trades of principles should there be then, in the definition of social sustainability—if sociology and other social sciences were used as a foundation to the definition? For now it seems like sustainability was the principle, which then was fit to the societal sphere by matching which elements are interconnected.

To build a frame with which to approach this issue, it's important to divide the aim of sustainability into logical parts of what sustainability aims to be. On the other hand, it's sustaining, it is in that seeking for a state of balance—within the flux of both reacting and proacting to the changing system as a whole. And on the other, it is about the transition towards the sustainable world. In many cases, when sustainability is thought about in transition, social or behavioral sciences are at the core, since it is the behaviour that needs to be changed too. So we have to take into account theories like free will, but shape them with methods like nudging and predict the possible outcomes like rebound-effect. Social sustainability—or should it rather be Sustainable Society, can and has to happen on many levels, as such on a macro-level the society itself has to sustain, in the
sense of Joseph A. Tainter’s *The Collapse of Complex Societies*[^94] or Jared Diamond’s *Collapse: How Societies Choose to Fail or Succeed*[^95] that both accredit the surrounding context, be it other neighbouring societies or nature, to have had a huge influence on each collapsed society, in reaction to how the society itself existed. And as said previously, all of them have failed except the one we live in now—which ultimately will too or perhaps it has in all actuality done so already. The society itself has to act sustainably, meaning that in every defined sphere sustainability has to happen for it to be sustainable by *acting* sustainably and *aiming* for sustainability. For example science, which is a social phenomenon, has to *act* sustainably—the everyday actions have the least negative and most positive impacts on society, its economy, and the surrounding environment, and *aim* for sustainability—to accumulate knowledge by researching and thus develop the science of sustainability, either appointed or leaving the knowledge to be interpreted for the benefit of sustainability for it to be defined as sustainable. In this sense the society itself has to *act* and *aim* sustainably for it to be one. So how does the society act and what is its aim?

The typical division of a society—what constitutes it when we talk about sustainable development—are the people—the individuals in their own right, the businesses making up the private sector, the civic society of the third sector, all of which are the organised groups of individuals that function between and as a separate arm of the government, the public sector. It’s common knowledge, or at least a common aim, that all of the above have and have to assume their role and responsibility when it comes to sustainability. This makes sustainability the overarching principle, and in a sense it doesn’t necessarily exist in all of the spheres innately but it tries to, it urges to—and this makes it a multimodal principle; this is the reason for it to be divided into the three pillars that make the construction of our existence. Though it needs to be said that no single principle in the history of mankind has been able to penetrate all pillars of life, and even moreover to be at the core of every society in existence, as sustainability tries to be. It is a global issue, and it can only function as such, which again can be seen to be one

strong mode that both inquires and makes the society global—chicken and the egg. Sustainability, by its aims, can only be achieved when the social existence holds it in its core throughout the different layers and levels of society in the global unified society—or in the case that there are separate ones every society has to act accordingly. The aim that leads to a mode becomes so strong, so overpowering that at first glance even the statement stands horrific in its conformity and universalism. Although what is sustainability in action then, but, on its most abstract level, both responsibility over actions and aim for the future, which both should be embedded in our nature as every cell acts in survival mode. But survivalism itself is bipolar. Short-term decisions are favoured over long-term ones when the gain is direct and seemingly leads to a favourable outcome. Gain now, and gain in selfish mode are the barriers of sustainability and, at the same time, give reasons for sustainability to be developed. What Tainter formulated and Diamond articulated is that one of the reasons for societies to collapse, for societies not to sustain, is that the short-term aims of the elite (the political and the economic top, the powers that be) are in conflict with the long-term aims of the people (the commoners, the rest). These roles are taken, because they are given and can be taken. The same could be said both within the behavior of each individual and more broadly the society and all the societies together. So even when the mode of the act is sustainable, but the aim is unsustainable, it has to be deemed unsustainable as a whole. Sustainability leaves little chance for the elements to be justified; it is harsh—but it is the lens we need to look at things through, not as a future past assessment but to define what sustainability in the social sphere is, formal and informal sectors, by their aims and acts. If society in action is to be sustainable, it needs to be most of all responsible. Responsible in its actions to itself, to others that share the surrounding context, now and in the future. But does society have an aim? In a way, it is well-being—well-being of its members, which goes back to responsibility of well-being. Well-being, as sustainability, for itself the surrounding context, now and in the future. Action towards something, in my abstraction, is both about the process itself and the aim of it—like the economy, which is the entire production system. Ultimately mankind is productive. From hunter-gatherers to factory workers, from social-welfare workers to sustainability consultants—we all labour for ourselves, to achieve our well-being, and thus for the society. Society in action
is in the well-being in making. Adam Smith knew this and learned to exploit it—which led Marx to criticise it and alter it. What does production entail then? It builds capital, it accumulates to the stock we have of things that often though are as well in flux and don’t really add to the mass but instead change what the mass is—in with the new, out with the old, or rather the new transforms the old. McKenzie lists different capitals that are used in social sustainability project measurements such as natural (natural resources, ecosystem services and aesthetic value), human (knowledge and skills of individuals), social (productive networks and shared values), institutional (institutional structures in the private, public and third sectors)—and then separately the produced ones, which I’d label the economic ones, that are “the built environment, harvested or manufactured goods and monetary resources.”⁹⁶ The state, nature, and the future of natural capital is undeniably the reason why sustainability came to be. Overexploiting it, as the tool to build produced capital, has rendered the finite to become scarce with respect to several types of resources, from metals to nutritious soil. Clearly here, the actions of our societies has been unsustainable—to put it mildly. Taking the opportunity to exploit resources has been irresponsible as well as the aim has been irresponsible since, aware, we have built the stock of produced capital at the expense of nature but also the human, social, and institutional capitals. The created imbalance comes as much from overspending natural resources as it does from disturbing the social and institutional capitals in un-unified aims and responsibilities over the production—the action, and from unbalancing the human capital by restricting equal possibilities by leveraging the importance of one system status by the pressure of others around it. Ultimately this is all interconnected, and no element of the production, the levels, or sectors of our social existence can be separated from one another. There is no separation in shared existence, close to it—momentarily are uncharted territories which come from how we change, but nothing new is created, just old left behind and unwatched. In good and bad, social change—action towards aim, is driven by the conditions⁹⁷; motivation—well-being, ability—to act and opportunity—the resources in the context.

As sustainability, ultimately is a human concept, it is looking at the world, humans in it and what they do in it, for the purpose of seeing how to sustain the elements that need to be sustained. Or even more so, to sustain us in it. After all, we’ve clearly moved from preserving nature to preserving ourselves as the inhabitants of nature as well as sustaining our economy to sustain the achieved development, at the level of what needs to be sustained. Gained development is somehow thought to have become the basic minimum and our human right—so who would give up on it? This being the case, it is clear to me that what is needed the most from a concept of social sustainability—or of a sustainable society—is that it should become and be thought to be the governing sphere of sustainability. Instead of it being an undefined, undermined element and pillar of sustainability—it should, as it already is, be the only lens we see sustainability through, be the starting point and mode to anything sustainable. It is the only responsible sphere of the whole concept. It is the only existence that is ours to manage and thus should be the one that governs the rest of the pillars so to recapture what’s been established for now. Social sustainability is found through the social act and aim that turns action into responsibility and well-being. And before and over, what ecological or economical sustainability can be—the social sustainability defines. With these parameters, we could probably find some, if not all, social theories to be used to better, or further define, social sustainability. At this point it also becomes apparent to me that when it comes to social theories—there basically is only one that is a natural part of social sustainability and that is the whole that is social theory. This means that social theory is the theory embedded in social sustainability—the concept that is the building block of social theory from economics to politics and from law to what is social in its entirety. So, instead, the inquiry to map theories that are in actuality the ones to be considered to help society achieve sustainability derive from societal theories—and even more so, from societal methodologies. To move from social critique, as Kenneth Allan said, to societal—a society in actuality. When it comes to this process, the difference in this to the definition of social sustainability is three fold: the suggested theories either add to or expand on the current definition or, the third way, introduce a completely new definition.

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Context, including nature, society, the others, and the connection between the self and everything else external that makes it our context—constitutes the system such as interested classical theorists like Weber and Durkheim via Parsons through the structure of the society and the functions within—and on a different note, a slightly more contemporary social theorist and systems thinker Niklas Luhmann. Parson wrote his major work in the 1930s The Structure of Social Action—in an attempt to bring some cohesion to societal theory, as, for example, when he “declared the substance of Durkheim’s and Weber’s writings the core of sociological thought.” Parson’s thoughts of social theory actually address all the here elements defined here, through building the context, through the action that defines it, and by the aim that these actions have. To him, the aim was utilitarian. From Bentham’s statement that “human beings take action because they always and in all circumstances avoid pain and seek pleasure, because they . . . wish to increase their utility” to Mill’s Greatest Happiness Principle and the definition that human action is utility oriented and to Hobbes privilege utility, where “people compete for scarce goods in the absence of constraining rules each individual merely seeks her immediate advantage, her utility”—according to Parsons, these formed the utilitarian basis for an “entire discipline, namely Economics.” But the problem arose, that if people act purely to seek pleasure, to enhance their utility—then societal model would never be stable. No cohesion could be found in togetherness if the aims were purely self-centered. So the inquiry became to understand “which qualities of human agents might render social order possible” which Parsons viewed as not random. Through a voluntaristic theory of action, Parsons describes the society as functioning normatively—actions are sociologically persuasive and so lead to both order and structure. And he understood it, even actions with long-term effects are shaped by norms and values. An actor acts to achieve goal in a situation that has conditions and is shaped by means and norms, and this is a manifestation of values. As noted previously, every action is a manifestation of an ideology. All this should be taken with a fair amount of skepticism due to the known absence of some prominent aspects of social theories

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prior to 1937, the year *The Structure* was published—like Dewey’s theory of pragmatism, in which especially the notions of means and ends differ from the utilitarian view. To Dewey, means are the ends. For example, to learn isn’t to have the knowledge but to have the ability to learn more. Or Blumer’s theory of non-deterministic nature of human action, where in fact, humans only act in reaction to the outside—“[are] passive being[s] that merely respond to stimuli,” which would mean that we in all actuality lack the intention and goals to act definitively, deterministically, or, to continue with Blumer’s theory of symbolic interactionism that explains human action through three premises: that an act towards something is based on the meanings of those things to the actor, that the meaning derives from social interaction, and that the meanings are interpretations in flux of the things encountered. The given importance to interpretations led to the birth of ethnomethodology, and not only for that but also for the idea that goals and values are too complex to guide everyday action but instead are defined after the event, so that, instead, people act in roles that allow them to reach goals and values through action. While the theory of serving needs was developed, other theories were at the time also—of which the main was the theory of social conflict, almost as an antithesis to Parson’s structure that too addresses all the elements of the action in the context of an aim. The main difference, or the source to critique the new theory, was that the structure was too static, stable, and well-ordered, that dynamism was lacking. Or moreover, which were the affluences behind the empiric facts, that society isn’t stable beyond the notion that it consists of its selfish parts. And, of course, the power to modify or change the structure, to the theorists of social conflict, came from power relations and conflicts of interest. Conflict here is by no means meant as an aggressive dispute, nor does it automatically entail that there is disagreement on how to reach a resolution but as one basis of the social structure, this structure being, in my view, comparative and thus dynamic, that Instead of steady loops of processes, social structure in actuality derives from a mix of values that are focused on changing environment-fed stimuli, that creates a conflict in one or many of the actor’s roles. Breaking this apart; conflicts in beliefs and observed realities create an imbalance, either intra- or inter-personal, that leads to reaction. Conflict is a self-generated stimuli—yet

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not necessarily an intentional one, in the case of intrapersonal within the different roles one possesses or interpersonal within the social existence of one’s own roles and those of others, that lead to a set of acts—whether they are inner or external, whether they are expressive or impressive, there is an reaction to the stimuli. Even if ignored, it derives from a decision that is already an action. And these actions construct the societal existence. Lewis Coser, as one of the developers of social conflict theory, stated that “conflicts often have a highly positive effect on entire societies, in that they may trigger learning processes and provide an opportunity for the establishment of new rules and institutions” and, besides this, that reaction on things, especially paradigmatic, can lead to a development, and the positiveness of conflicts can be seen in Georg Simmel’s abstraction of the typology of conflict: “When two fight, the third wins.” The positiveness is present in conflict, where two opposite sides of an issue allow a spectrum to be defined, and in all actuality creates a group—that is the social structure around an issue, and if the two differ, whatever consensus is at the core of their dispute is often abstracted either as a compromise or as a third aspect of the issue, which then can either be seen as a victory for the compromise or to be close enough to an ideological fit for a third party to adopt—either way, the third wins. They often trigger a learning process, a chance to develop. This being said, it is important to mention that the difference between the conflict theory and the sociological theory background isn’t of the social order and the structure but of how can one explain social inequality, which still, in my view, at the same time challenges the order as well—that to explain the inequality one cannot help but also talk about the structure that allows and receives the appearance and effect of inequality. Though, commonly in Marxism, the ends weren’t under observation, but the reasons—the causes were. For example, and at the core, “the differing pay structure in modern industrial societies was by and large an expression of core social values, such that doctors, with crucial responsibility for the cherished value of health, are also located high up within the stratification system”—meaning that they function counterproductive to the wellbeing of the social whole, but the synthesis is that “social inequality, the unequal distribution of goods in a society, cannot be explained as a result of the society’s normative structure”—stating that normative structure alone doesn’t

address the dynamic existence of values. This, to me, also means, besides agreeing if conflict is the constant of our existence that at least there should be more historical support for the theory, since it is developmental and, as previously said, believes that we will at a point reach the end of history. Every achieved harmony is a temporary state, waiting for reaction. Either way, conflict theory is powerful in its dynamism: If every intra- and interpersonal conflict leads to action, it might be the element that fills our social existence, our cognition, and thus frames the structure from a perspective.

The next big bang under the plethora of societal theories, and one that too fits suits my aim well in sorting out the theories to be used and connected to societal sustainability, was Habermas’s theory of communicative action. Here, in short, the idea is that societal action, not necessarily structurally of the first order, is that society is shared, understood, developed, and debated through communication. The concept was rooted in his interest in languages and communication in verbal form. Habermas believed that, through communicative action—best exemplified in public debate, the active society, group, and people within would reach the best possible outcome in cohesion: “Only in the public sphere is it possible to lay one’s own interest open to rational discussion, opening up the possibility that these interests may be changed and that it may be possible to achieve consensus.” Thus the theory reaches to both politics, as Habermas is thought to be the father of deliberative democracy, and to urbanism—to the built structures of the society, as he also believed that the communicative action needs a venue and public space where the open public debate takes place. Interests are, too, at the core of this theory. Although interests are a postulation of many other elements touched upon here; aims, values, norms, gains, and utility—one author of interest is worth mentioning in societal theory, although this is backwards as to chronological order—Arthur F. Bentley. Though Bentley’s major work, The Process of Government, was published in 1908, its greatest influence can be seen much later, in the Chicago School of Sociology up to the 1950s. Like Habermas, Bentley believed that people group—form a collective—around their interests, which of course are realised through communication and in its result—communicative action. The theory was that through initially formed interest groups, given the right conditions, the interest group will form into an action group, simply put:
social movements are brought about by group interaction. Communication and the system it creates, Parsons to Habermas—brings us to Niklas Luhmann, the independent thinker who formulated a super theory with his inquiry of what he called, when asked for the title of his research project, “theory of society; length: 30 years; costs: none.”

The German-born lawyer, with sociology as a mere hobby in the beginning, gave the fields of sociology and systems thinking some of their most profound theories. Although Luhmann is often credited as a social and political theorist, as stated previously, he also introduced systemic thinking as a mechanism to social thinking—surely after many others, to very validly be a part of social theories: “Parsons had always asked which functions a social phenomenon fulfils for a greater collectivity or whole, what role, for example, the family play with society. . . . Luhman was dissatisfied with this structural functionalist approach, with its characteristic tendency to analyse structures first and functions second. . . . The social sciences are unable to determine exactly what structures or systems require to survive, because—in contrast to biological organisms—they do not feature empirical phenomenon of death.” Although the differentiation here is perhaps self-seekedly interpretational, to a systems thinker there is a world of difference in scaling the micro to the macro—to think of units through their parts or to acknowledge the system and seek for its reason, or means, to exist. Luhmann, in contrast to Parsons, believed that no social system would exists at all costs, so he was willing to abandon the idea that social systems have an order—a hierarchy. Connected to this thought, Luhmann believed that no norms or values actually play a role in the decisiveness of our societies, but instead that the social systems is if not lucid as a whole, then in constant flux, meaning that a social system does not necessarily survive by the existence of its concrete elements. In other words, Luhmann, systems theorist or philosopher, questioned the accepted belief that the social system isn’t necessarily upkept as a whole, that elements of it can still exist in exclusion of all, for it to still be a functional social system based on biology, or what we would call nowadays cybernetic systems—Luhmann understood that the social system as a separate whole creates its own organic

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system—coexisting with the biological system which is the physical society—still confined to the same boundaries. So that a social system can exist beyond and beside its physical elements and that a social system is part biophysical and part organically mental that follows biophysical boundaries as a system existing in the same organic domain. Of these two arguments, the sociologically interesting one is the existence of a system, the blurry lines of what defines it—except the connections, and systemically interesting is the juxtaposition of an inorganic system and an organic domain, i.e., could an inorganic system be embedded or ever integrated into an organic domain. Luhmann argued that “stability in no longer to be understood as an unchanging substance, but as a relation between systems and environment”\textsuperscript{103}—which should be interpreted twofold: one, systems and the environment are both systems within systems and systems with respect to their ultimate spheres—which, to the very best of our ability to comprehend, are infinite, and two: the stability isn’t a result of the connection, in comparison from a third view, but is the connection between. Simply having the connection, still, proves the stability, which that links back to the theory of conflict: that the stability is actualised in the connection found in every composition of shared phenomena, no matter how shared, disputed, or different the views of it are, as long as it can be communicated under an understanding that the communication revolves around the same conceptualisation of an element. To this, Luhmann’s thought, as an argument to the theory of action over values, offers us an important aspect to such social behaviour—the background of a highly specific horizon. Parsons, and a few who came after, theorised that human action, or the thinking behind the decision to act, is based on values and norms that were extended to be reflected on situations, biases, and oppositions of a societal level. Luhmann’s theory of the same function was based on individual abilities, thus limitations of human cognition to comprehend the ultimate and to innately focus on the perception of the situation, with the ability to differ with the reality of the environment—together create the background of a highly specific horizon that directs the reasonings behind the decisions to act. Although, it has to be said at this point that the equation of reasoning behind the decision to act—is already a three-part sequence of social behaviour. Luhmann is said to have radicalised the theory of social order\textsuperscript{103} with his

\textsuperscript{103} N. Luhmann, Social Systems (UK: Stanford University Press, 1995).
inquiry of radical contingency. Contingency, here, means that fundamentally social order is built on action and/or relation, or the action makes it such, that is neither necessary, nor impossible. This shaped both the theory itself to be what it was, but also how Luhmann continued to make sense of social existence. The radicalisation theory acknowledges the social order to be highly unpredictable—in general, and it emphasises and embraces the fact that something is “just what it is (or was or will be), though it could also be otherwise.”\textsuperscript{104} Contingency in this notion was the basis for Luhmann to formulate the theory of autopoietic—a self-referential, society: “In general systems theory, this second paradigm change, provokes remarkable shifts—for example, from interest in design and control to an interest in autonomy and environmental sensitivity, from planning to evolution, from structural stability to dynamic stability.”\textsuperscript{13} This meaning that the stability, since stability is in the connection—not as a state but as in having the connection, turns into sustaining the connection as a dynamic one, understanding and working with the dynamic nature of the connection, to have it and work with it, sustainably. In contingency, and in self-referentiality, the systems aren’t planned as such but exists in and because of the entropy it creates: “social (sub)systems are autopoietic systems which function exclusively in line with their own systemic logic which can be irritated but not controlled from outside rules out any prospect of planning or regulation.”\textsuperscript{11} and “any attempt to construct an overall macro-intention supposedly representative of society as a whole—including attempts made with respect to the avoidance of alleged ecological threats—is simply ridiculous and bound to fail”\textsuperscript{11} This isn’t to say that we have no control over our social spheres, but to prove a point that in subsystems there is a governance order—or chance, which is domain bounded, as he simply states, “The place for economics is the economy.”\textsuperscript{13} Here the theory gets even more radical yet also intriguing, as it breaks apart the whole of the sphere into what is social and what is a system not necessarily social but experienced through it: “social systems are not constructed on the basis of human beings and are not composed of actions, but of communication” and “the human being is not part of the social system, and that is not people who communicate but communication itself.”\textsuperscript{105} As there is no

\textsuperscript{104} Ibid.
\textsuperscript{105} N. Luhmann, Die Gesellschaft der Gesellschaft, (Frankfurt: Suhrkamp, 1997).
dominance over a sphere on the part of an outsider, although there is stability between different spheres through functions that humans perform, Luhmann acknowledges that different humans in action are parts of several different systems that exist and behave in a social manner. In this sense, he differs slightly from the typical mindset of systems theorists, maybe because of the fact that to him systems theory applied to social systems made the most sense, as it is the domain through which we observe and make sense of them. The difference is that he appreciates the vast difference between parts and whole—that people aren’t the only parts of the societal whole, but their different actions through communication on several different levels in several different subsystems do in the end constitute the whole. This is why the idea to plan for the societal whole makes no sense: “Systems and subsystems evolve. They cannot be planned.” Luhmann contributed much both to social and systems theory—so at this point I’ll move to other societal theories and return to him in the systems theory chapter. I will though give space for my favourite quote, not from—but about him: “We have already discussed the fact that Luhmann’s radical thesis of the functional differentiation of modern societies and his equally radical pessimism about planning are an expression of a particular diagnosis of the contemporary era, of the detached stance of the observer who has long since abandoned any faith in the possibility of changing social condition and can only cast an ironic glance at the futile efforts of socially engaged activists.”

The next movement to shape the societal theory was Giddens’ theory of structuration, which builds a synthesis on the conflict theory—and on some others. Gidden took a look at the historical aspects of social development through the constant power conflicts—the historical macrosociology. To him, society wasn’t about structures as much as it was about their structuration: “From a historical and empirical point of view, one can only very rarely speak of fixed classes and class boundaries; for the most part what we find are variable ‘stages’ of class formation, influenced both by a society’s mode of production as well as the degree of intergenerational mobility, which is potentially subject to change.” This brings up at least two new things worth pondering: firstly: society doesn’t necessarily have a structure, but it aspires to have one. Then again, the structure is what

comes from the aspiration and the flux to reach a structurally behaved society. And this is evolutionary; no point in history has anything stayed the same; nothing’s permanent but change—as they say, so why would societies be any different, and, as said in the quote—both historically and empirically, it never is. Secondly: the notion of different generations forming society—and I here acknowledge that societies are more than their average majority, the middle-class man and the conflicts he seems to have, although it is from a very distanced view the majority that changes society. At the moment. Or aspires to do so—but only partly and not perhaps as much as the generations, groups, and collections left out of it. Intergenerational aspiration is apparent when observing the power conflicts of any society; no society now nor in the past has exhibited a flat line of influence throughout its life, but on a Kuznets curve—too young to prepare your future and when an elder, too old to build, since it is the past. We, like our cognition, are reactive to the moment, building the future reflected in the known, the past: “Human action occurs as a durée, a continuous flow of conduct, as does cognition. Purposive action is not composed of an aggregate of series of separate intentions, reasons and motives .... ‘Action is not a combination of ‘acts’: ‘acts’ are constituted only by a discursive moment of attention to the durée of lived-through experience.” In other words, much like in Luhmann’s theories, society is a system constituted of acts and thus parts that have no duration—it exists only in the making; if the state was anything else than flux it wouldn’t exist— cogito ergo sum. Giddens also theorised around the connectivity of the micro and macro scales of society, from individual acts based on opportunities, and their effects and responsibilities towards the macro scale. Individual acts are based on the social experience in its entirety but are not responsible to the whole but to parts of the whole that correlate to their acts: “Action depends on the capability of the individual to ‘make a difference’ to a pre-existing state of affairs or course of events. . . . [W]e can say that action logically involves power in the sense of transformative capacity.” This being said, Giddens believed that societies have no needs, other than of individuals. The society has no needs or the ability to develop since there are no stages to its development.

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and no teleology in its process.\textsuperscript{108} Debating on whether there is teleology to the process that is society is banal from our perspective—the existence. Though there is teleology in the sense that nothing happens that couldn’t, meaning that to every act there is the opportunity for it, thus every moment is if not pregnant with one outcome, but pregnant with the opportunity of a happening that the surrounding is open to receive. Nothing happens without the context, and the context wouldn’t exist without the event. The society exists by us but not for us—and we exist in the society because of it, but not necessarily for it. This line of thought gathers our thoughts conveniently around the next theory, anti-structuralism.

Anti- (or post-) structuralism is, to this inquiry, best addressed through the theories of Cornelius Castoriadis—a Greek-French theorist who contributed much to the empowerment of social activists, as his works revolved around institutions and autonomy, language and symbolism, and chaos and creativity. Castoriadis, much like the great contemporary systems philosopher Ervin Laszlo, believed that the world is organized by communication—and that because of it, it always refers to the world. Though what Castoriadis drew out of this was that nothing is under construction, that what shapes society the most is the imagination and ingenuity of acts, communicated through languages: “Castoriadis believes that sign systems such as languages organize the world and thus refer to the world. Language is not, of course, a reproduction of the world. Neither does it represent the world as it is, as apparent the fact that different languages produce differing perceptions of the world.” This being said, returning briefly to Laszlo, he believed communication to be the integral theory of societies, much like the theory of intertextualism—connecting the world (of humans) from the past to the present and the future, since cognition is translated to us through languages (symbols). “If sign systems such as languages are an expression of societal creativity and languages also structure the world, this also explains why different societies and cultures organize different worlds with the aid of language.” This tells us that the structure, in flux, arises from communication, the interaction, and that both language shape the world, creating

and developing different worlds, and, in return, the world shapes the communication. And, in the world, the thing most shaped by communication are institutions, but here the imagination of how, and for what, destroys whatever structure there could have been to the act and to the institution being shaped. These kinds of acts, as Castoriadis says, happen in the reality that humans are unconsciously (too) philosophical, and every act is towards producing—*humans are innately productive*, as said before. Institutions to him, no matter which contemporary shape they appear and are developed in, are never stable, and form the bedrock—the magma out of which societies are formed. Whether one calls them *a God, a sin, a taboo, money, a nation or capital*, these are the institutions the society shapes by finding new meanings and interpretations—and the act of refining them in turn establishes them as institutions. Being imaginative and productive—equivalent to being creative, as we human are—allows us to reshape the world according to our selfish needs in relation to the macro—to the society with no responsibility and always in critique. This is the societal development. And perhaps, there is sustainability: to sustain the entropy at the right level of stress. Nonetheless, the revelation here is that the structure still is there, even though undefinable in a steady form, and it's again to be found in the action, both human action towards anything and what all the action constitutes as—which is the interaction, manifested through communication.

We finally arrive at modernism, which to me rarely encompasses earth-shattering novelties of social or societal theories but is, in fact, instrumental when it comes to expanding the areas and perspectives of societal existence. To name a few. Ulrich Beck wrote about *risk society*—the kind of society that has moved beyond class conflict, which, although still existing and not necessarily comprised of anything one can individually manage—meaning, that although the structure and class conflict are still present, it has lost its significance though against the background of what the risk society is to us. In another kind of contemporary society is the kind, the classic class-society *milieu*, or the perception of it, disappears in the smog of overpowering individualism, and thirdly the contemporary society is the kind where “*the relationship between politics and science which formerly applied is changing dramatically.*” Of these, the last deserves closer attention—which although the others are not meaningless—because I
trust the first two at this point to be quite universal. Not that they don't need any consideration, but I feel that we agree enough in this contemporary society with respect to them. The original writings use examples of Chernobyl that we can all empathise with and extend to other recent natural disasters attributed to climate change and the aftermath of what our individualistic consumerism has added to the equation. This is why we're here. But with respect to the political-scientific and to stick with the vocabulary of this work, might I even say conflict, a comparison is needed. In 1986, Beck wrote about the physicalisation of the conflict between politics and science, especially the natural sciences—which, of course, mainly addresses the issue of nature's degradation, but in this degradation, in the risk society incurs and the threat that made the shift influencing us to preserve nature to preserve ourselves. This becomes the highest priority threat, struggle, and conflict to all of us: "Poverty is hierarchic, smog is democratic"—clearly states that every class, age, and sector will be equally vulnerable. Well, in general at least. Not that this lessens the class or societal struggle, but it presents an equal threat to all, which offers no escape no matter which social or socio-economic status one inhabits. But to rule this a political-scientific conflict is an odd one—not to again say that the blunt tool of policing a policy wouldn't be effective, but that much is and could be done bottom-up and from the middle out. Whether it is ultimately an (eco-)political, behavioral (social), or economic issue is up to each perspective to determine.

What is attributed to sustainability in the social sciences, as to concepts and theories behind methodologies, are social interactions, social structures (politics including power structures), and individuals among social organisations and institutions according to a rare find of a book that, on a subject level at least, addresses social sciences and sustainability: *Methods of Sustainability Research in the Social Sciences*. A good part of the book seems to address sustainability from an environmental-sociological view, requiring sustainability to be attained through the balance in human-nature relations, whether underpinning consumption or everyday life in building context and examining

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research and assessment methodologies. Anna Davies, one of the essay contributors of the book, talks about social groups and decision making, referencing the famous Earth Summit Agenda 21. The agenda took into account different social groups of the society with the aim of generating more momentum behind the sustainability movement—mainly from the groups that the agenda felt to be typically shut out from the societal decision-making process, e.g., youth. Davies continues to sort out different groups, mainly through market research lingo. The different focus groups though, all function through the same mechanism where to me the gist could be that they could all be seen as interest groups—although in different stages of their process. At the initial stage, the setup is a formulated group to whom knowledge is given: “information provision through awareness campaigns, exhibitions . . . and public meetings”; this aims to shape the opinions, attitudes, and, thus, the behaviour of group members towards sustainability. The second stage could be seen in the deliberative turn in sustainability engagement, where the knowledge becomes more tangible through future researches, visioning, summits and panels, planning and such—and as the main point to the essay, focus groups. The idea here is that focus groups should be used as a medium, space, events—a forum of people, where the participants, although not experts on the issue but interested in it, the ‘it’ in this case being sustainability. The effect of the focus groups comes from co-learning and co-creation and simply sharing the ownership of the planned action, through shaping them to fit the individuals who create it to fit their needs, aims, and context. Focus groups, here then, lean heavily on the theory of conflict in risk society by offering an opportunity for an interest group to turn into an action group. True to Agenda 21—NGOs and such of the third sector and private citizens are in mind here. Mark Garavan, in the same handbook, talks about local lives and conflict. Here the method to research a local (cultural) conflict leans to the theory of communicative action. And later on Jaeger-Eber writes about Everyday Life in Transition, basically to think and map different leverage points, or moments to affect unsustainable lifestyles. This, to me, derives from Giddens’s concept of intergenerational mobility. The conclusion arises then that there is a latent presence of sociological theories in theories of social sustainability, not underlined nor fully explored, but they are

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*Of the UNCED held sustainable development summit in Rio de Janeiro, Brazil in 1992.*
there. And then again, how could they not be? They are all theories of society and its sustainability. Surely to synthesise, again, the concept of social sustainability, the sociological theories need to be given the lead; they should be applied to build the boundaries for what sustainability can be within. Reflection is in order then. Reflecting back to the current definitions by WACOSS, Future Life, or McKenzie, it seems they lean more to the side of being methodologies than theories of what social sustainability could be and that there is another whole section dedicated to social sustainability methodologies and methods for planning it later on in this work. So it’s in order to summarise the sociological theories of sociologists instead.

My thesis is that, instead of scientific or trade disciplines; ecologic, economic, and socio-cultural spheres, sustainability is to be built by the elements of human existence. The context—the environment both as nature and social, of the process—of what we produce, in interaction with each other, the institutions created and the context it happens in, the aim—the responsibility of our aspiration, what we want the result of our actions to be, and the impact of them. Aim is almost like the tension between the context and the process, context is the receiver of the process, and process comes from and directs itself towards the context, aim in mind. Social sustainability, by itself, makes little sense in its paradoxity—it’s self-evident but passive, it talks about society as something that is, not that it exists in the making, and in the making by us. Maybe this is why it has been the least defined, most misunderstood element of sustainability. And for sustainability ever to be at the core of our societal actions, guided by values and aims, it can only happen by the just rules that we make. There’s nothing else to it. Simple—not easy though, as Amartya Sen states: “The quandary of unsustainability may be our predicament, but the task of solving it is ours as well.”

What is to be sustained then in the social sustainability are the societies, the actions, flux, and entropy that is the society’s existence. As long as there are collections of human beings functioning in interaction, societies are there. How well they thrive is a different question. Getting back to Tainter and Diamond, both of whom theorised about societal collapses—even

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in collapse the societies don’t really disappear, or rarely do but by an external force. Internally guided collapse is basically just a heavier scale iteration as an end result or stress release of entropy where the action shifts the aim so that the society itself changes shape, meaning that it collapses only to regroup again—in panarchy. Human systems on a larger scale are quite durable—but bringing to the equation the other dependencies that the context for example represents, the equation gets more complex. Two-part systems have to exist by both their rules, or they cannot exist at all, and to add to the complexity, there is a third element in play, the tensions between the now internal rules. To take another framework to see society with, let’s break it into sectors.

Individuals, private and public sector with the third sector somewhat, define a social order by the existence, function, and relation of people and institutions and organisations of the society. People, the individuals—the ones whose private actions happen on the least informal and centralised end of the spectrum, form the mass that constructs the rest of the sectors. It is the unsigned, culturally bounded action reserve of the society. Private sector, the businesses, I’d even say the NGOs and NPOs that function corporate-like—hierarchical and existing for if not profit, then by means create opportunities for livelihood in exchange for a product. They’re the servants of needs, others or their own, that use the human-created unnatural space of the eco-social system, but at least under the rules defined by policies and in audience acceptance of the other sectors, in responsibility to these. Public sector that is the appointed monopoly of ruling and provider of other products that aren’t private—by choice. Public sector is constituted and funded by the rest of the sectors, that it does though feed back to the surroundings. It is the manifestation of past values that stands in the middle as the issue, the concept of our society we all agreed on to exist in some shape or form—just to change it, to have a conflict over to keep up the action and the aspiration. As the private sector is the alien, the public is the known. The third sector, the organisations, movements, initiatives—the interest and action groups of people revolving around an issue, a topic. This sector, unlike the private, is natural in the sense that usually something is formed around an issue when there is a void, the third sector fulfils a need, where the private creates it—a third sector organisation drives to make itself obsolete,
where a private sector organisation drives to exist. Informal and formal sectors as separate spheres make no sense in this division since they both exist and people are in, out, and in both either way by the division described before.

The tertiary division seems to often function to describe the interdependencies, whether it is a philosophical one; concrete, abstract, and their tension; disciplinarian; economic; ecological; and socio-cultural or systemic; context, process and aim. But to define sustainability in a way that the interdependencies are truly equal the definition needs to be made in a way that it really does leverage all of the elements equally, or it needs to be redefined wholly, so the aim isn’t equality but perhaps supportive and comprehensive still. Why, I argue here, although the topic is social sustainability, how in my view, the concept of sustainability should be defined is because there is too much left for interpretation, too much chance of imbalance with too little interdependence of the three parts to be equal in the current definition of sustainability. As it is now, it seems to be one particular first, and not perhaps for the definition itself but for the most weighty value we embrace in the society—economic well-being. No society has ever nor will it ever sacrifice this to protect the environment or preserve a culture or to serve any other need than its own existence. At a point, we will eat the last animal and the last bag of grain before we starve to death the next week, so the point here is prevention and prediction through responsible actions. Where we get to action—process and responsibility—aims to the context. Concrete actions in tension, responsibility to aims which to the observer are abstract. Actions are allowed and promoted; they're allowed by the policies and promoted by the rest, formal actions that is. Not to say that even the informal, illegal, antisocial actions are inherently unsustainable or sustainable either—it depends on the aim and the context. Aim, like any principle, religion, political system, or trend can never be universal if appointed—it’s inhuman to think so. To this day there are only others to us in this world, in every country, village, and family, but we do share the very base of what we are—humans, in this time and place. That is what makes us humans. We are this time and place, and there’s absolutely no sense in working against it. As long as sustainability presents itself to humankind as a non-necessity and not as a necessity, the risk society won’t consider it to be the highest of priorities; it offers nothing
to us on a societal level, it disturbs what we believe to be the mode to our well-being, and we’ve built the whole existence and infrastructure to exploit the context and deploy the unwanted back to it. Irregardless of the scale you observe people in societies on, as Dewey said every human action is a social one,\(^1\) the social experience is a tightly wound system of interaction that needs stable anchors to change others to reflect and needs to fulfill. So the question becomes, not how (methodologically) can we affect, but where is the access point then to penetrate the feedback loop that is our autopoietic society? Wherever we enter the system, the process is the same and the outcome is also accordingly the same. Logically thinking, as long as there’s an opportunity to exploit the environment—not meaning that the policy or people accept it, but as long as there is a chance the attitudes won’t change, at least not at the pace or the magnitude we’re hoping for. As long as the opportunities are there, people will explore them and policy will allow it, gorge on it. It’s not due to the ill behaviour of people, the parasites of the planet, but for nature to be there steady, ready for it. It’s not our being that created the shift but our development that unbalanced the symbiosis. As a simple example—we used to die and put the material bodies back to the use of nature in time, and that ironically happens to be the main issue our development aims to abolish. We take more than we give back. Not as universal sums, but as to how the system has been, how the nature has developed. It develops at a much slower pace than human consciousness. Development is seen as natural; it’s an achievement that is irreversible. The economy develops even faster than our societies since one way it develops is the speed itself; the faster it moves the more it can serve. Society stands in the middle. Running as fast as it can, but in a race that is too long. Since no one has sovereignty to author free will, people won’t have to act differently. No wonder the movement, any movement, rests on the shoulders of the third sector, who are the only ones that naturally can coalesce around a topic, any topic, so why not sustainability. But what feeds the system? Beliefs, predictions—pointless to say they can affect the future even though there is no certainty, and it is naive to believe that it isn’t in use already. Give it enough time, and the truth will spread widely enough. It’ll dribble down to every act. If not, then the strategy needs to be changed, since society is a logical system. It has no mind of its own, no rules that only it

\(^{11}\) J. Dewey, Public and Its Problems, 1927.
follows or aims the it needs to manifest, if something is—it is, because it was wanted to exist, if not—then not. So the question arises, do we, and who gets to, act inhumanely in order to shove the world towards sustainability. Although, even if we tried, we’d only hit a non-stick wall. The only sustainable conclusion in this is that we can’t force it, nor legislate nor restrict it. We can though promote, educate, ask, and remind—talk, interact. Put it out there and let it spread, but we need to conceptualize much better the institutions as to what is unsustainable and why should they be sustainable. What is the long-range gain that is enough to compensate for the short-term loss should be left for the public to create and debate. Transition is, as previously said, momentary, and technology can always only offer us a temporary solution to challenges. It’s not the mindshift alone that needs to change but the whole system, or systems, forming the backgrounds we reflect the world to. And the basis of those are built before there is a mindset. It’s a proven fact, for the simple reason that we’re here, that societies in some form are inherently sustainable. Whether their functions and aims are sustainable or not can never be given, as it has to be self-generated. We can trust it to be autopoietic and for it to find itself in the risk society, that threatens us enough to make us one. As I’ve often said, nothing groups people faster than a common enemy—a common threat, but also a common concept of something that needs to be changed. The society is sustainable as long as we can disagree to find the agreement, to disagree again. As long as we communicate and interact. As long as there are people—private, public, or third sector. In this, sd in any inquiry into sustainability—the elements are here, we just need to re-organise them, but in this case we need to rethink them, reinterpret them. We need to understand that society never is, it’s just in the making. Under construction. And that is a sustainable state.
1.4. Sustainable by Design

- From the Theory of Science to the Base for Outcomes

First of all, I need to distinguish what I mean by the heading. The point of the chapter is not to map out the different methods or techniques of sustainable design—the point is to explore whether whether there is a theory behind the idea of designing things that are sustainable, not to make something in itself become a sustaining artefact, but to contemplate the idea of designing, planning, and executing a plan aimed at sustainability. The science and the philosophy of science of sustainability are somewhat an unexplored path of thinking. Sustainability is a doctrine, with method born first—not the philosophy, though it seems like its trying to be made into one. It is a principle, so there should be a theory behind it, but then again, I've often heard my colleagues say that sustainability should be more practical, that it's too abstract. And for a good while, actually until this very moment, I thought that the abstract meant that it's too theoretical, when in fact, it only means that it is too undefined by its means and ends, like Amartya Sen said. Another aspect to this according to the topic line is, of course, the science of design—what Fuller, Papanek, Sennett, and Krippendorf have thought about the trade, its opportunities, and so forth to change the world, perhaps to a more sustainable kind. Sustainable design is methodological; it’s nuts and bolts—as it is calculative and assessive; it’s a matter of gain over loss and it follows set rules. Material impact per service, life-cycle assessment, modularity—they all try to lessen the harm, to find an excuse to say sorry but for something that’s already been done. But that cannot be all there is to design and planning, and doing it sustainably—or at least sustainability at the core. Again, the methodological aspect needs to be parted from the theoretical-philosophical chain of thoughts.

So what’s the difference, and why should there be a distinction between methodological, practical, and tangible outcomes of the theory—and the theoretical basis itself? The methodological approach to sustainability does, of course, make sense, since it is a principle aimed at having an application too. It is a principle that exists for the needed action. And as I approached the conclusion, that perhaps sustainability is not a theory
based on a philosophy nor is there any reason for it to be theoretical—but rather methodological. But as previously stated, if the perception is that it is too abstract, it perhaps suffers from the fact that it hasn’t been well defined theoretically. Going back to the previous chapters, it’s clear how important it is to commonly share and accept a concept of an institution in society for it to be able to elaborate, co-develop, and co-create around it to make it an institution, a value, a mode for the society. What is then needed for this to happen? A paradigm shift in the scientific field, through both different sets of peripheral knowledge and through abandoning old beliefs. Kuhn, the forerunner of scientific revolutions, states, “After the discovery had been assimilated, scientists were able to account with greater precision for some of those (discoveries) previously known. But that gain was achieved only by discarding some previously standard beliefs or procedures and, simultaneously, by replacing those components of the previous paradigms with others.” Sustainability, as a multimodal, multi-minded, multidisciplinary science is all about paradigm shifts, and one could even say that it might be a non-paradigmatic science—since building a paradigm for it would only be counterproductive. Paradigms are built around their solid cores, the known knowns to be shaped by peripheral, new knowledge from fringe-science to a paradigm. But what set of knowns would then qualify to construct this solid core? Another avid author of science, A. F. Chalmers, defined a theory as a structural whole of the phenomena being explained. Although as a side note, I have to say that Chalmers refused the basic idea of definitions as explanations of things; rather, he promoted the idea of creating concepts, as the first vague explanations of things that can then be further developed. As paradigms are in flux so are definitions of things that constitute a paradigm—that collected create a whole that is the paradigm. Science is a social, societal phenomenon just as economics is. So, both should follow the mode, not the rules, of any societal mode that is to be found. As previously stated, an inorganic couldn’t appear nor probably could it flourish in an organic system. Chalmers also believed, which I of course share, that we can never know the truth, only a version of it, that is then developed and changed, perhaps even improved. Also, he said that, to develop anything as knowledge,

belief, truth, or paradigm, a certain degree of vagueness is needed. There needs to be something that can be developed. It can be embedded or it can be external as in science, but it is not about what something is but about why something is, as the science of design seems to be more about how something is.

To be able to build a paradigm true, It needs to contain a few basic elements. It has to be ontologically definable, as the perspective of the truth needs to be definable and thus objectified. The truth has to be assessed, proven, either in theory or through methods that can be applied. Fay writes, “We know that assessment of truth-value must occur within a given perspective, the question becomes why one perspective rather than another predominates; and since perspectives cannot be shown true or better without invoking criteria of assessment themselves located within a perspective, causes other than satisfying some criteria of assessment must be at work.” So in short, we need to see the implications and understand the light that shines on a concept we could take as a better version of a truth—not just the object under inspection. There are few issues under inspection here—few things that need to have that bright light shone upon them: why do we produce stuff that’s unsustainable and how could it be made to be sustainable? Sustainable not only by the typical triple bottom line, but by my own Sustainability 2.0 definition, i.e., that it has to be sustainable by context, process, and aim.

From this era that has produced more things; objects, artefacts, phenomena, connections, news, data, information—probably in the distant future the least will survive. The duration of these things, be it because of their quality—whether it is physical or social, because of their culture, because of their interchangeability and -ness, they were never meant to endure; they're meant to be consumed. And whether it is acknowledged or not, the throw-away society did reach our physical sphere as well, as it is not only the artefact but how it leads and teaches us to think and act. Broken is thrown away, not fixed—sometimes even in relationships, cultures, careers, old picture files, anything that one can possess and get rid of. And I’m not the only one to condemn

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this on an ethical level, to say that what you have is what you’ve got; surely aspiration and
change can be good, but I’m just trying to say that the throw-away must have affected us
more than just with respect to physical things. Oh, yes it’s easy, it’s carefree, it fits our
busy lives and it makes us almost proud that we can afford to throw away things. The
mindset of new is always better and more is more. We get rich and along with it unequal
and greedy. Finally, it made us unhappy too. But for a good while, and still growth was
the source of our happiness and capital was the unit of measurement. Papanek attributes
the shift to the American car industry, in his *magnum opus: Design for the Real
World.* He calls it the Kleenex Culture, whose elements the chapter name perfectly
defines, a brand—marketing, trends, built-to-break obsolescence, and yes it is something
that we now own, breath and live—our culture. Papanek talks about the whole
phenomenon through design, through the design and thus building of things. One thing
though that always intrigued me the most in his philosophy was not just how we design,
but the question of why do we need to make things that then need to be redesigned.
Since it’s not just about making things less bad, like another design world changer opus
*Cradle to Cradle* stated; “*Why Being ‘Less Bad’ Is No Good.*” And not to say that
*Cradle to Cradle* bettered the late great work of Papanek, philosophically, although it
could have done so technically. *Design for the Real World* was translated into Finnish,
where Papanek at a point of his life also taught design, and to me the translation is
nearly perfect in capturing the big question involved in making things. It’s called, quite
directly translated, “*Unnecessary or Necessary*”—and that to me became the question to
ask in my own thinking. It goes beyond the means of manufacturing and, unfortunately,
beyond the reach of designers. It exists in all the connections of this loop of our actions,
the process, and the aims and context of it. Not only to ask how, but to ask why—which
is a dangerous one, because it can easily, and quite often render our efforts obsolete. But
isn’t that why we’re here? Again, isn’t sustainability on the whole a trade that needs to
make itself obsolete? We have an aim in our actions and when the aim is reached, we can
congratulate each other and move on to new challenges. Papanek wanted to take a
pragmatic approach to answer his own question through examples of what serves a real

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118 W. McDonough, M. Braungart, *Cradle to Cradle—Re-Making the Way We Make Things* (London, UK:
need and what an advertised one—a need or a desire. Buckminster Fuller, who also, by the way, was influential in the Finnish design scene, said, “You have to make up your mind either to make sense or to make money, if you want to be a designer”—or a maker of this world, I might add. Fuller designed for the future. I believe he shared the same ideology of sustainability that the past is done and gone—it constitutes what we have and nags us for being irresponsible, but in the sense that can we shape it—as every designer wants to do. It’s to be disregarded—we have now got to react to it. The Present is now, and it’s meaningless in the sense that it’s not yet past so there’s nothing to react to that wouldn’t be hasty and making things post haste is the source of mistakes. Then again, The Future is the element we can and thus should shape. There’s more sense to design for the future than there is for the present, but it’s of paramount value to understand that both are greatly needed. This is perhaps why another futurist, Jacques Fresco, came up with the concept of Future by Design, where the utopian future would happen on a clean slate—with nothing left behind to be a hybrid of the past and present, but well designed for the future.119

Elizabeth Shove talks about “the big gap,”120 which states that, to reach our environmental impact aims, to enable the state of sustainability, we need to source 80% of it from behavioural change—since technology, by her estimations will never cover more than 20% of what is needed. In her book Comfort, Cleanliness and Convenience,121 her thesis is that, to use a simple example, the technology that makes an indoor shower with all the amenities possible isn’t the sole reason for us to overconsume water, but rather the fact that it has changed our concept of what it is to be clean. We don’t have to go back too many decades to reach a time where a bath was taken once a week tops and a shower maybe once every other day—and not even a shower but a rinse. Nowadays a 15-minute shower once or twice a day is the norm. Thus, it’s not the technology that changes our behaviour but the aim of our behaviour is enabled by the technology. Technology guides behavioral patterns that shape the norm of their required outputs.

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119 J. Fresco, The Best that Money Can’t Buy—Beyond Politics, Poverty & War (Venus, FL, USA Global Cyber-Visions, 2002).
To extend this thinking to issues beyond the physical ones, the context, Papanek said it perfectly: “The only important thing about design is how it relates to people.”—surely he meant that it has to relate, to mean something to people, not only that it's user centered, but it should be, also, human. This immediately brings in other elements besides physical ones; it broadens the perspective to both ends, internally what it is to be a human and externally—where do we exist. Vance Packard tells us in “The Waste Makers”\(^1\), that in a sense, overconsumption and all that comes with it, is in all actuality nothing new—by using a simple example of the North American buffalo, that was indeed hunt to extinction way before the concept of sustainability was even considered. As previously stated, we’ll always eat the last animal, let the last being die before ourselves. We’re wasteful because it eases our existence—and because we can do so more easily than we can predict the impact of doing it. Simple math. And in a sense, Tainter’s examples of past fallen societies failed in the same challenge—to comprehend what is happening, to exist by sustaining.

To help me extend the loop and explain what we aim to achieve with it, I’d like to bring in the grandfather of degrowth—Serge LaTouche, and his concept of the 8 R’s from the book *Farewell to Growth*.\(^2\) Simply put, LaTouche urges the people of the world to, most importantly, re-think what we do, how we do it, and, again, why? For this he developed the 8 R’s cycle of concepts, mostly in the form of verbs, to direct the change. From the top, the cycle is as follows: Re-evaluate, Re-conceptualise, Restructure, Redistribute, Relocate, Reduce, Reuse and Recycle—with later additions Rethink and Relearn.* Degrowth, in this form and beyond the economic sphere, is a suggested model of change that could and probably would lead to sustainable living. As he himself said, degrowth, to him, was a political campaign: a political slogan with theoretical implications and it’s all presented in a form with enough theory to generate practical steps—not unanalysed though and surely with some unintended interpretations. Nonetheless, LaTouche places Re-evaluate at the highest position, not to say that it is necessarily the starting point, but perhaps to point out the magnitude of the concept it

\(^{123}\) *Foreword to the 2009 reprint
embodies. Much like Papanek’s inquiry into what is needed and what is merely desired—what should be made, and what should be left undone for the sake of the vanity it represents. And Frescos and Fuller’s future design, appreciating the past as the symptom of our decease, the present as the opportunity to guide the most important part, the future—LaTouche urges us to re-evaluate what we conceptualise as our lives.

To be able to understand, appreciate, and give room in this existence to the rest of the suggested R’s, we need to, we must, re-evaluate what caused us to be in this position where we have to ‘re-everything. For example: “We must, for instance, re-conceptualize and redefine/resize the concepts of wealth and poverty; deconstructing the infernal couple of scarcity/abundance, on which the economic imaginary is based, is a matter of urgency.” What sense would it make, unless we were willing to re-evaluate the existence as a whole and understand that the ratio of wealth and what comes with it, power, and most of all, abilities and opportunities, in this world that shared the same concept than us, to re-conceptualise the fact that some have and some have not? Re-think to re-learn being the path to re-evaluation to and to re-conceptualisation and so on. By ‘restructure,’ he meant “adapting the productive apparatus and social relations to changing values.” Restructuring not being as definite an aim as action, but rather a catalyst for change. That what we produce has to be in relation to the values we hold—to make space for what we hold dear and the machinery of production, be it manufacturing or voting in the sphere where it is done. To broaden the space an idea can have in the world, not judging it with narrow scopes by condemning it good or bad alone, but by understanding the relation. “Restructuring social relations automatically means redistribution. This affects how the distribution of wealth and access to the natural patrimony are distributed between North and South and, within each society, between classes, generations and individuals.” Here we have the same line of thought that was presented in the social sustainability chapter—about the opportunity to participate in building the world and the value given to those active in this. Again, we need to think how the societal structures are, but beyond that educate and allow for self-realization to occur, i.e., where things lie in that structure. The next, Relocate, LaTouche approached a bit more physically: “Relocating means, obviously enough, producing on a local basis. Most of the products needed to meet the population’s needs could be produced in local factories
financed on a local basis by collective savings." Also, he continued, "This implies that all economic, political and cultural decisions that can be made at the local level must be made at that level," with which we get to my favourite political concept, subsidiarity. Subsidiarity is pretty much well encapsulated in Latouche’s words of making decisions on-site that can be made in that sphere and only moved to larger ones when the decision requires it. Although it has its original roots in Catholic social doctrine and its modern label in EU law—it has a place in sustainability, working as one optional political model for decentralisation. When talking about decentralised design, one has to talk about Krippendorf—also for clarification of what then can be designed: objects, artefacts, things, and phenomena. Krippendorf lines up a trajectory of artificiality and introduces the elements and the flow path: "[T]his trajectory begins with the design of industrial products and passes through five major classes of design problems. Each builds upon and re-articulates the preceding, thus generating a history in progress." The trajectory as challenges and opportunities for the design process goes from bottom left to upper right are as so: Products, Goods—Services & Identities, Interfaces, Multi-user Systems, Projects and Discourses. Products as utilities, functionalities, and their universal aesthetics—Goods, Services & Identities as marketability, symbolic qualities and local aesthetics, Interfaces as interactivity, understandability and configurability/adaptability—Multi-user Systems as informativity, connectivity and accessibility—Projects as social viability, directionality and commitment and lastly Discourses as generativity, re-articulability and solidarity. How this correlates not only to what can be designed but to how design can be instituted—in definable object to almost an undefinable sphere—a phenomenon that leaves it too to exist and develop beyond the hands of designers and is, in reality, built by an audience. From a pinpointed, controlled, and beginning-to-end planned and designed thing—to an inevitably existing, unplaced, and snowballing phenomenon. And in a way here is the key, sustainable by design will never be enough if just put in place; it needs to happen, and it can't all happen at the desks of designers and planners, but must equally at the hand of doers—in contradiction with deniers, passives, and negatives. Sustainable development—it

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develops, it just isn’t.

I’ll conclude this with the elements presented here. Sustainability doesn’t lack methodological approaches rather it suffers from the lack of a proper philosophical basis where practical outcomes can grow out of it, for them to be true to the cause. By not having that as the background for us to compare our actions, we have to either fall into bickering over the always-deniable truth or we can only aim to make things somewhat better. The philosophy never needs to be universally agreed upon, but, as Kuhn says, and social theorists agree on, we need to have a concept of it in a form that is universally understood enough for us to talk about it, develop it, and, most importantly, share it. Undeniably, it is a trade that needs all on board. If not, then it isn’t needed—and this isn’t to say that it’s not, but by the current status one can only agree with me, that it is not here. What could then be the concept? For a few decades we’ve been talking about it through disciplines, through spheres of existence and have tried to approach it through behaviour, technological solutions, global treaties, and where are we now? What can we say that is in all honesty truly the shift-changing power of our transition towards a more sustainable world? I say only by the fact, the fact that we’re starting to get the concept of it together. Not through technological innovations that are sold as better options, not alone through LaTouche’s R’s or Papanek’s simple, yet devastating, choice of ‘is something needed or not’? But by the sum of these openings, by stating what could be in order to reach what should be. All these phenomena are only artefacts, totems for the development of sustainability, although, upon examination—they’re all good methodologies for the philosophy, without which they are always going to be alien to us, not part of us, and thus not needed in our lives. What needs to be designed foremost, aiming for anything sustainable by design, is not only what you have at hand but what is left out and how these two correspond to the surroundings. Sustainability by design is achieved by designing something that is a contemporary version of its own future, for some other self, and with the rules of a symbiotic planet that has never existed. None of this will ever make any sense, unless we all share the same madness. But all this is too near the next chapter, for me not to jump to it.
One of the basic questions in philosophy of science is the inquiry for the truth. Since nothing but the past exists to prove us yet wrong or right—the whole idea of truth has to be radically put aside and the fact that humanity as a whole is the proof of our future trusted, i.e., a collapse of society is inevitable and for the first time ever we’re talking about it on a global scale. As science only exists when you can and need to ask why, we're facing the same question—why is the world as it is, to truly understand what should be done. But this kind of linear causal thinking, as logical and effective as it might seem, has also put us to where we are, in trouble. Surely we've gained more information through the natural sciences and such about how we affect the environment, through human sciences how we act and how it affects us, through economics how we produce and consume—but thinking about the whole of it, sustainability, why do we act in a sense by our nature but in actuality against our nature. Why won't we breed the animals but we eat the last of them? Why are we okay with the status quo? It's often said that the world won't change in a day, but past events, the world shattering ones like the Oceanic tsunami, like the Air France plane crash, like the 2008 stock market crash, have. They did not happen only in isolation with the people who were directly involved, but by the news—by the fact that it is now possible for these kind of things to happen, the unexpected that now suddenly exists, this changes, if not the whole world at once, but at least the perception of it for the majority of the world. In good and bad. We then perceived that the unimaginable is not only imaginable but doable and thus very real. And there is a perspective that always affects this, whatever we think about is the ontology of the composition at hand. Where we look at things from and where do the things lay that we are looking at, and what is the tension in between that is somewhat framed through the positions.

This complicates sustainability even further—there is no absolute truth to be shared, meaning that sustainability, like society, is an element that only exists as an aim from multiple perspectives, thus it'll never exist as its own core that will, or could even, give us
answers, feedback, iteration—it’s not a mirror nor a guide book to reflect or follow. If this is how sustainability is, then to ask why, we need to figure out the position to all and any of the answers that can be seen to apply. This is why, I do strongly feel, that sustainability suffers first of all from an ontological problem. The ontology of sustainability is foremost metaphorical, as it is conceptual, so to acknowledge the tensions, we need to look at it from both where sustainability is to us looking at it, and then again who looks at it—who is it with? Lakoff and Johnson (1980) write in the book *Metaphors We Live By*, “We use ontological metaphors to comprehend events, actions, activities, and states. Events and actions are conceptualized metaphorically as objects, activities as substances, and states as containers.” This means that a state of sustainability comes from within something; typically divided into one of these—for it to be *in* the state of sustainability; the ecology, the economy or the socio-culture. Though to be *in* the state, one has to transition *to* it—since, according to the baseline, we’re not in the state yet. But as said previously, to be able to project the state to be in, we need to backcast to determine the transition—though through backcasting it is never fully true. So the only concept of the state of sustainability is in the transition. We cannot know for sure what it will be, we can only be sure of what we’re making it to be. The complex, and even more importantly, nowhere to be seen future state of being *in* sustainability, is conceptually incomprehensible since as it’s spoken in no-position, there is no transition—but an end state to be *in*. Transition instead then again is comprehensible as it can be seen to exist through direct simple manipulation of things—our actions. Transition is less philosophically challenging since it mostly requires action, over a strict aim that can and has to be iterated through the process. Past is the evidence and perspective, present is the position we are looking at things from, and future is the state we aim to be *in*. These positions can be universally shared, at least we seem to experience time in a shared way. We are talking about the future—time though, which is not ontological in itself, is ontological through metaphors, the concepts we have. But since none of these; ecology, economy or socio-culture can really be talked about from a position, or as a position—nor are they in a state that can either be *de facto* defined but in past state nor manipulated such that simply for it to be *in* a certain state, sustainability seems to have

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an ontological problem. It cannot be defined as a destination, nor can it tell us, the actors of it, anything about our tension towards it. Sustainability cannot be defined metaphorically as a state to be in. We can only define what we do towards an aim we chose and reflect on it as a past act. Also, on the other hand, we can redefine some of the elements at play, to be able to make sense out of the target state.

Sustainability derives from sustainable development. Development is not measurable in time or in quality of change but merely in the quantity of change. To have the chance to assess it through the quality of it, we’d need to have pure morality—which of course is an oxymoron at best, or universal ethics—which unfortunately falls to the same category as thoughts. McIntyre writes:

‘To answer the question, What kind of actions ought we to perform? is those which will cause more good to exist in the universe than any possible kind of alternative’. We are thus brought to ask what states of affair are good, what kind of things ought to exist, for their own sake. . . . How do we know what is intrinsically good? . . . Propositions concerning what is intrinsically good—as contrasted with what is good only because it is a means to something intrinsically good—are susceptible neither of proof nor of disproof. This is because good is the name of simple, unanalyzable property, which (Moore calls) ‘non-natural’ because it cannot be identified with any natural property.’

Development happens in retrospect, or planned but unconfirmed, and everyone has an equal right to the development in action—for the lack of pure justification. Though there are powers in being that get to direct the development, perhaps present the strongest in politics, and with it mechanisms that try to ensure the quality of it—like democracy. Though even with democracy, we cannot prove by practicing it, whether the outcomes of it are good or not. Only that the mode of it ought to be good with respect to the aim—in theory. And even with politics, the blunt tool of directing our development, what we use to draw the big guidelines that guide the development—the philosophy of politics and democracy, we have to negotiate, allow, and require. Allow individual freedom and right and require responsibility. All this presents us the age-old philosophical debate on politics: “Although freedom of expression is important, not all expression should count

for the same.” We all agree upon the fact that there needs to be a freedom of choice, although with the contingency that the chooser choose right. If not so, if we’re willing to negotiate over the right, then we have to admit the right to make poor choices as well—like choices that are unsustainable. Unsustainable as to each individual person, right to substance use or right to eat unhealthily, unsustainable as to the environment, right to buy new and discard old or right to luxury over resource smartness, right to unsustainable economy like scarcity and underconsumption or promoting grey economy and, further, right to unsustainable socio-culture like racism. The problem is that sustainability as a principle, overarching existence, are contradictory—smart personal economy might be harmful for the shared economy, like smart ecological top level choices might be harmful for individual socio-culture.

McKenzie (2004), defining social sustainability, said it right, that one of the key elements of it is the knowledge of its existing—meaning, that one of the most and first things to further social sustainability should be education about it. And the same should go for the whole principle to be furthered; we need to educate what sustainability is but as we do so, with sugar—or the vinegar of freedom of choice, we leave the gist of the message to be self-reflected and thus there is neither the assurance that the message is received accurately nor if there is actually a message to deliver. Except make up your own mind if you choose to act upon these facts or not. The fact is that the debate, whether sustainability should exist, is beside the point. To fully accredit the change to the liberal market economy, I could say that we, the human race, especially in the western cultures, have sold our active citizenship to become passive consumers. This has left us lost in the ocean of incentives and impulses that used devious methods to force us to choose, not whether we believe and then act—but rather if we act and then believe. The same goes with the phenomena of knowledge and science, in scientific proof—why should we act upon it? To believe would require us to know more, to be active. To believe and act upon the fact that, in our passive-reactive consumer behavior, we ruin the context of our existence. Passive reacts when needed and simply the impulses guide

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us to be unsustainable, because we tend to follow our nature and nature becomes more and more passive, less and less in charge of our own actions. It requires more time and resources of our own to transition to become more active, since the parties that benefit from our reactions know well our nature—they’ve done more research on the subject than we. But more importantly, why is there a chance to have this contradiction and still serve one purpose, sustainability. Because the philosophy of the science of sustainability tries to be a mix of principles of soft and hard sciences, of different perspectives that leave it ontologically non-placed and to work as a whole, to serve the parts but for the benefit of the parts since there is no absolute or natural whole and furthermore, because of the past, in the present, for the future. Something needs to give in this equation; the scope of what sustainability can be or its framework. The current triple bottom line might well describe the construct of our modern societies, but to serve as the enabling map for sustainability—it might not be the best. Unless the initial idea of it was to showcase the juxtaposition of sustainability. There are several points to change it: empirical proof of the complexity of aiming for multi-win situations across scales, scientific challenge in making decisions based on current truth or generated schemas and predictions, philosophical challenge in addressing and iterating the issue with ontological non-placement in scales or parties or time, the education of sustainability in a puritanical way can only be either counterproductive or paradoxical; if the evolution is teleologically plastic—the transition to sustainability, if needed, can happen passively effortlessly, and so forth. Why not?

I’d again claim, that sustainability is almost nothing but a social issue, and what we make it to be through our social—societal spheres and phenomena, our experience of the existence, our perspective to this all. If it was evolutionary, without us being the only part understanding, planning, or guiding it—it’d be teleologically sound to sit this one out. Well, not sit this one out, but if the society only has something as a part of it, that is needed—the evolution of thoughts, or values, or aims and goals, then the behaviour—micro or macro-level is going to be teleologically plastic—goal-directed, which will remain in action until the goal is reached and ceases to exist when it has. And, as previously stated, if needed, it will find its way to become. Woodfield (1976) writes:
“Plasticity is linked to persistence in an obvious way. If one route to the goal is unavailable, a plastic system may be able to capitalise on a different route, and is to that extent persistent in its journey to the goal.”

Surely we’ve reached the age of anthropogenicism and now understand that our actions affect not just the context we live in, but that the dialogue between our actions, their effect and underlying reasons, are systemic, not necessarily linear but stochastic and reach peripheries beyond what would make sound sense to us. In short: we’ve begun to know what we don’t know. Another important aspect to goal-directed behaviour is that clearly we need to see where we aim to go: “the rat whose goal is to reach the food on the other side of a river will swim across for that reason only if he sees where the food is.”

This said, simple as it is, sustainability—the state of sustainability in the future, since to step into the stage needs a transition, a development in quantity that takes time and scale, needs to become something we see and want to swim across for. Why should it be like that? In the case of sustainability, it’s not the food we see across the river, but an unknown state that we have to imagine in the future where we’ll then be able to see the food—though there’s food around now too. The desire is an internal state, but: “There is indeed a problem about understanding what it is for a desire to have certain content, but it is not specifically a problem about teleology. It is a part of a much wider problem about what it is for an internal state to point outside itself and to represent symbolically.” Why should we desire to be sustainable? If not for the sheer responsibility, doing things right? Ethics, morals, values and so on we’ve touched upon, but perhaps existentialism, the deepest thought of being, might shed some light on this.

Although I’ve made it clear that sociology should play a major role in sustainability and written much about Habermas, who actually rejected any philosophical point that depends on ‘philosophy of the subject’ and thus opposed the true existentialism—for the sake of human beings being social beings. Although existentialists were the first ones to acknowledge, emphasize and theoretically register it. And to continue, existentialism has been criticised for failing to acknowledge interaction—like the importance of

language. Besides these issues that can be easily brought into the sphere of existentialism, especially when we are talking about existing, and the reason, not to but of desire. Existentialism, differing from other lines of philosophy aimed at emphasising the uniqueness of the experience of mundane things, sex, love, death and such. And the truth being—nothing in the lives of any of us, is unique in any other way except it is us experiencing it, and no one else. Though this makes existentialism to be more of a methodology than its own philosophy. Giving significance to mundane things makes them appear more heroic—living a life that is meaningless is an unwanted thought, which is why it’s not difficult to see why we need to make these things, our existence unique. But how do you do that in this world, where we at the same time achieve more in cross-generational sense but share more of the same globally? Perhaps the modern times of abundance have left us a bland mass, to which then the logical counter reaction is to individualise ourselves—and in doing that polarise, or radicalise by seeking a periphery of meanings. We’re so much the same that the only way to make a difference is in the extreme. Or for the less polarised one, the solution might be in finding meaning beyond this life—beyond our own existence, but not in altruism by helping a fellow, but in even more heroic triumph, an a martyrlic expression of one’s abilities to matter—to make the future better. Heidegger, being one of the most influential existentialists deserves a notion, when thinking about thinking, being, action, and desire. From his 1967 published Letter on Humanism:

We are still far from pondering the essence of action decisively enough. We view action only as causing an effect. The actuality of the effect is valued according to its utility. But the essence of action is accomplishment. To accomplish means to unfold something into the fullness of its essence, to lead it forth into this fullness—producer. Therefore only what already exists can really be accomplished. But what is above all is Being. Thinking accomplishes the relation of Being to the essence of man. It does not make or cause the relation. Thinking brings this relation to Being solely as something handed over to it from Being.  

This further opens up the elements of sustainability, both in concept and action, in their problematicalness. On the other hand, viewing sustainability in action only by its

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19 M. Heidegger, Basic Writings, (Oxon, UK: Routledge, 2010).
effect—its systematic and prolonged effect—can only be done from the point in projection. But on the other hand, if the value of the effect—a sustainable state which to be reached requires time and scale, is in its utility, sustainability makes even less sense since its utility is contradictory, even in symmetric opposition to the valued effect in the projected future. To do something now that is counterproductive to the well-being of society in order to be able to secure productivity in the future is a paradox. But both ends, now and then, have to be treated as untrue—there is no solid now which in all logic means there is an unsolid then—which creates space for the third line of thought from the quote: accomplishment. The accomplishment of sustainability is both—in the making and the result, so, in this sense, accomplishment falls between now and then, between action towards an effect and value behind the action. Although it only accomplishes, at best, what was set to be accomplished—plasticity—and thus really doesn’t necessarily prove, nor does it disprove, that it is sustainable. Except in projection. Unlikely as it might appear, sustainability doesn’t seek to exist at two different ends of action and effect—but seemingly in the accomplishment of the moment, and in hope in the effect. Which then justifies the action. So why could be shaped and if not sourced at least reinforced here. Not as a philosophical base, but as a utility to the action that is the stage-by-stage analysis of the why. And it does direct us to ask why, thinking of the right mechanism of the reasoning behind, it might not be in the act or cause, but in the simple case of accomplishment. And aren’t we all the happiest when we can act and accomplish—able to think.

A few words about values, before bridging all this back to the beginning, the initial inquiry towards a concept for the philosophy of the science of sustainability. In the suitably named Environmental Values, the introduction to the book takes a quite philosophical approach to the values part of the name by stating:

There are no such things as values. There are rather various ways in which individuals, processes and places matter, our various modes of relating to them, and the various considerations that enter into our deliberations about action. Environments—plural—and their constituents, good and bad, matter to us in different ways. First, we live from them—they are the means to our existence. Second, we live in them—they are our homes and familiar places in which
everyday life takes place and draws its meaning, and in which personal and societal histories are embodied. Third, we live with them—our lives takes place against the backdrop of a natural world that existed before us and will continue to exist beyond the life of the last human, a world that we enter and for which awe and wonder are appropriate responses.\textsuperscript{132}

First of all, one could imagine this as talking about sustainability as a whole, not just from the environmental perspective—we live \textit{from} the environment, which we exploit and harness to serve our economic and thus societal well-being, perceived. We live \textit{in} the environment, which is the ground for our societies—and in them the economies. We live with them, well—this means that we do actually live with \textit{all} of them. But is this all equivalent to us also living \textit{for} it? Even if we though to do so, do we really have the right to make that decision? Does it matter—does that action have an effect and, if so, is it only to be found in the uniqueness that is our perception of it?

The original why was: why should there be sustainability? Why should we further it?—and perhaps at this point beyond that—why should, for example, the economy both become more sustainable and in return itself further sustainability. Chalmers ponders the same in \textit{What is this Thing Called Science?} through contemplating whether there is a single science, or different fields that shouldn’t even be put under one category: “\textit{Each area of knowledge can be deemed acceptable or 'scientific'. Each area of knowledge can be analysed for what it is. This is we can investigate what its aims are, which may be different from what its aims are commonly thought to be or are presented as, and we can investigate the means used to accomplish those aims and the degree of success achieved.}”\textsuperscript{133} In sustainability, especially, the investigation doesn’t concern what should belong—go under—the definition of sustainability, as a science, but the scope should be sustainability itself and the aim of the whole has to be abstracted from the fields within. The fields aren’t important, the aim is—which has to be analysed, assessed through the accomplishment of the different fields within. In this light, sustainability is not an ideology that functions as a source of information, or reference for us; it is what we should strive for and nourish, it is the aim, and whatever field is used to further it has to


\textsuperscript{133} Chalmers, 1978.
be only used if it does accomplish something, as it works for the aim. But no field alone, no scope or scale of societies; rather our societal existence should be thought to be the one to do so. Sustainability gives us nothing, but receives what is fed—if the feed has the right aim. The experience of the problem, which by Popper is the base of all science, in sustainability is external—and is even intentionally externalised heavily, for no other reason perhaps than the origins in natural sciences that do see the world as an exterior, the living room to our lives in all the flora and fauna we acknowledge to exist and that now suffers from the injustice we as humans exercise in the relationship we have with nature. It might not be the sole issue we need to consider in furthering the cause, but it is a physical manifestation of the natural system that does indeed require a symbiosis for it and us to survive. It is our home and our nourishment, it gives and fulfills us with everything we need to survive—as physical beings. But existence is not, fortunately and unfortunately, not just something abstract tied to physical being; rather the experience of existence is an abstract one. As Heidegger says, “being is not something like Being”—to exist is not fully described in just existing, it’s in the experience and what we do with the experience. To exist sustainably, or for sustainability to exist, is not just about nature, society, the economy—the context, process and aim. It is in all actuality only found in the whole that they create, which is the existence and much, much more. The science of it can then be thought to be broken into parts, by the specific aims those fields of science have, but none of them are the science of sustainability, but are it for sustainability. The science of sustainability is plural and many, but most of all it is a science of humanity—for humanity. All this, for the uniqueness of our existence.
1.6. Fore- and Future-casting

- whomever claims to know the future is a liar

An integral part of sustainability, sustainable development, or planning is the future projection of current actions and decisions. Trying to foresee the future is surely not a new trade and no matter how far back to the past you go, you can find evidence of people trying to predict the future—it is innate in us, it’s in our nature, like the automatic dialogue between two halves of our brain. It’s basic planning, and planning in its simplest state of pondering cause-effects, actions-reactions—prediction-precaution. Futurecasting, though is highly a methodological trade, an actual trade and soft science of methods, with most often factual proof, which comes in time. Although, it needs to be said that most probably the actual term to this trade, from an academic perspective, is futures research—and important to note is that it is futures, in plural, there’s no sense in predicting just one, if you think about it. In my personal view, there is no real grand theory behind it all, since time has proven—at least until this point—not to be cyclical, although often events tend to resemble the past. Teleological or not, or factual just by the theory of truth in its existential and intertextual manner, it seems that what can happen has to happen by the rules, by our knowledge of what can happen. Nothing that can’t happen will ever happen. I overheard a conversation between two entrepreneurs. They were basically talking about the hard times followed by the 2008 stock market crash and the recession it lead to. One said: “This recession can’t last forever—there’ll be better times ahead, if we’d just all believe in it.” This made me think the following: (1) it’s very human to think that the recession can’t last forever—but at the same time expect economic growth to be limitless and (2) our future(s) are very dependent on our beliefs. For the fact that they guide our actions and thus shape the now, which is the seed for the future, and (3) we’re desperate, on a daily basis, to know what lies ahead for us to plan for it—to get ready for it. In this sense, most things to be predicted in the future, at least the ones meaningful to us, are also very human, the meaning of it being that in any future that we try to study, we’d better begin the study by studying people. Not for the fact that we, as humankind, are the omnipotent beings directing how all this goes, but for the absolute fact that we are the sole, the only, the single, conscious beings that care about
the outcome. Does nature care? Does the economy and the money care? No. We’re the ones who’re observing, assessing, and living by the outcome of time. Time doesn’t care. Going back to the claim that the only thing that can happen is a thing that we know to be able to happen is like the paradox of Schrödinger’s cat. In the end, aren’t all results, no matter how complex, are about if something(s) happened or didn’t? The paradox of the cat, stated concisely, is that by the theory of quantum wave function—it’s measurement problem, where there are two states of one possibility, which is only determined by the measurement of it. So a live cat is put in a box, irradiated according to the rules of quantum physics, which is that if an atom is shot through an impenetrable plate that has two holes in it, no matter which we look at it from to have gone through, it has. In other words, the result of it going through the one we look at exists—when we look at it from there: Unless we look to see where the atom is it does not go through one slit or the other, but must be regarded as having gone through both at once. And the paradox then goes, if the radiation is shot to the box, and the cat died because of it, is the cat alive in the box—until we look inside? Are our predictions self-fulfilling prophecies? Simply, no. More complexly—yes, but of whose prophecies? Future is plural, and individuals have futures, so the prediction is not single or linear—it’s not a multiplication equation but an exponentiation.

To say whether a prophecy is self-fulfilling, if we can learn anything from behaviour and predictions, it is that they do in actuality tend to be self-fulfilling. Nate Silver, in his book “The Signal and the Noise,” talks about the importance of human analysis of data and decision making in the process of predictions. The role of the calculating power, for example, in physical matters like weather forecasting, is better left for machines—computers, that offer us speed and strength when it comes to tasks such as these, but still, the meta or macro analyses of it, and decisions made with these analyses, is best left to humans. For now at least. “According to the agency’s (National Weather Service) statistics, humans improve the accuracy of precipitation forecasts by about 25 percent over the computer guidance alone, and temperature forecasts by about 10 percent.” and interestingly “… as much progress as the computers have made, his (Hoke) forecasts
continue to add value on top of it.” Though with human decisions, biases come into play—which might not be that bad in all cases. Pham, Lee, and Stephen in their 2012 article “Feeling the Future: The Emotional Oracle Effect” present an interesting case: it actually pays to be biased. Stated succinctly: “individuals who have higher trust in their feelings are better able to predict the outcome of a variety of future events than individuals who have lower trust in their feelings.” There are multiple explanations to this effect, of course, that in a sense open it up to demystify it more than diminish it. One is that typically, in simpler predictions, like which team is going to win a match, the oracle-effect is less emotional per se but derives its power from the fact that people more into sports, like fans of certain teams, know enough about data to be able to better predict the outcome. In another study, this was found true, especially in horse track betting, and taking out the data, the facts that the professional ‘gamblers’ have—they make no better guesses than those of us novice to the trade. Embedded information becomes almost like an instinct. Another reason suggested, in the article based on eight different tests on the oracle-effect, was that the ones who cared about the outcome that was to be predicted took the task more seriously. But the article accredits the most probable reason to be that the people who were able to better predict the outcomes, as such: “... it is possible that people who trust their feelings are better able to attune themselves to the collective sentiments of the broader population and thereby predict various outcomes that eventually rest on the aggregate behavior of the population.” Meaning that people who tend to predict the outcomes better are stochastically minded.

There are several different methods to futurecasting that vary hugely by their origins, meanings, and purposes: from Bayesian statistics, Box-Jenkins modelling, curve predictions, data mining, and its outliers, simulations—and the more suited to this context, scenario building and Delphi-method. Although they do mix and blend in some of the named methods, they are separate—though basically, all follow the same logic of previous-current-future path that, as stated in the previous section, is the only logic we

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136 Pham, Lee and Stephen, 2012
can use. What is to become, has to come from what exists—for only after the first, there can be others. Like sustainability. We have the elements here already; it'll come from nothing new but from reorganizing the existing, and in this case by predicting the order. But before we go deeper into the two mentioned methods and how they could be developed for sustainability's purposes, it's worth pondering why do these two fields futurecasting and sustainability go along and how could each benefit from the other; how should one be used to further the other. What first comes to mind is, of course, the state of the world, the natural world that is. The climate crisis is upon us in prediction. Although natural disasters and unusual weather changes are already here, now and to be seen if looked, the current state isn't yet such a globally grave disaster—as the future is predicted to be, if the status quo is kept. It's a deadly future in the making—based on predictions. Though much of them are probably linear or growth path curve-like estimations, they are still analysed and outlined by professionals of the highest degree. Curves based on data, mined from multiple different sources which then most probably go through Bayesian theorem by three quantities: "(something) as a condition of the hypothesis being true ... (something) conditional on the hypothesis being false ... (and most importantly) prior probability", justified by Harrison and Stevens (1976) as; “The spirit of Bayesian statistic is to describe uncertainty in terms of probability distributions and to combine these with utility functions in order to reach decision”137. For example: The climate is going to warm 2 degrees Celsius by 2050 because we're emitting 9.7 billion metric tonnes of CO₂ per year—the condition of the estimated curvature to be true; The climate is going to cool 2 degrees Celsius by 2050 because the emissions will be cut down drastically by 2020 to 0.97 billion tonnes per year—the condition for the predicted curves to be false. But most importantly, prior probability shows us that emissions have since measured only grown. Either of the cases in this sense could be true: the curve could go up, down—or it could do something else. Thus we can either project three different scenarios or choose one and live by it. Needless to say, that when it comes to the climate crisis, the emphasis has always been that if the status quo is maintained. The condition if is strong in the conversation. Although the curves become

more realistic if they’re dynamic: "It has been demonstrated that reformulation of the growth curves ensures that the forecasts are consistent with the monotonic behaviour expected in a measure of market" (Meade, 1985)\textsuperscript{138}.

So to build a doom-and-gloom scenario and to hold it true at least serves one purpose well, that is the exposure of possible mitigation, mitigation being the suppressor of all outliers. Malcolm Gladwell uses ‘outliers’ as examples of brave change-makers that stick out from a mass of common trade—as Hans Rosling uses it as a term that sticks out from big data, to tell us something new from whichever phenomenon the data was sourced from, or for. Curvature predictions are effective in visualising the path we’re on, which we could consciously take and sometimes, what might actually happen—which is a mix of the two. Rarely do things go as planned—though they might go even better. These outliers could also be called weak signals, which is a futurecasting method as well, which tends to the statistical or phenomenological flukes that could be predicted to gain meaningful mass at a point and make a change to the status of things—it’s a surprise with a potential to become a fact: "a weak signal is an idea or trend with potential impact on a business or its environment, which may be new or surprising from the signal receiver’s vantage point (a perception which may differ for others), thus making it difficult to identify and isolate from other less relevant indications."\textsuperscript{139} Though with it, there is always doubt present, whether the followed signal is a signal or noise—hence the name of Silver’s book. The other two curves of predictions, the conditional ones, are bound to the condition to be either true or false and are thus significantly less interesting—and, I must say, in complex matters like climate change, less probable as well, than the third—which is the true Bayesian theorem, the outcome of the first the second and the third, added by human gut feeling which is shaped, by signals, noises, trends, calculations and insights. These in a way build the basis of the scenario-building technique of which Peter Schwartz is somewhat a guru. Though his neatly explanatory book, a guide to “The Art of the Long View” is surely worthy of its own book, for my


206
aim's sake, I'll condense the method of scenario building to a very brief outcome-based form.

Scenarios are based on neither the condition of being so or not being so—the outcomes of these we know well and do not further affect. Instead, we look deeper to the 'other' outcome: "If this possibility becomes a fact, what scenarios could it set in motion?" Schwartz says that every prediction begins with a driving force—and quite often a feared crisis, like global warming reaching levels which'll make the planet uninhabitable to some. Driving forces themselves are highly complex variables too, since they come as a group of subparts—underlying drivers, and from different areas of existence, for example: society, economy, technology, politics, and the environment—as Schwartz structures it. And to understand the meaningfulness of each driver one has to consider the likelihood of each to happen and the effect—the scale of the happening to have on the issue at hand. And again the trinity of things seems to follow, as it's probable that one will end up with three different scenarios: more of the same, new, and something completely different, meaning that the simplest scenario would be to predict the climate to warm less, since there are emerging technologies, enough social movement—eco-consciousness—trends, political action, economic downfall, and environmental pressure to predict that by following, not what we had but the direction we have now, we will avoid the doom that was predicted and pecked as a trend a few years back. So crisis avoided, if we do what we do now, just more of it—more of this kind of good, and if not good then at least better. The second scenario, the new, needs more investigation—a sharper ear and a sharper eye to see what is the new that will emerge to become the future's same. It'll mostly come from broadening the scope of what data is used as the source of information, to look at the structural elements in their interconnections and as dynamic beings. Rendering the future, much like a ray bounces in a rendered 3D model, for other happenings to bounce off the other surfaces multiple times. Whatever new things are thought to actualise in this scenario will comprise the whole of it, simply put. It'll determine not only the end result of the scenario but also the mode. After all in this, it's

not only more of the same, it’s more of the new—which then will become the same. It should be easy enough to construct this one, since nothing that was meaningful or decisive in the first scenario has room in this one. Thus we get to the real meat, the third one, which, in my view, if not the most probable, is the most meaningful to the trade and goals of scenario building. The third, in my view, tries to be something unthought of—something that cannot be said to come into existence either from something happening or not happening, but somewhere in between. The first two being the more probable, a third (or more) would be the wild cards, the less probable—but only to our current sense. Less probable is that something world changing happens, something that makes both the same and the emerging useless and leap-frogs to somewhere unpredicted. These scenarios are the most detailed in a sense, since to be able to draft them into one comprehensible scenario, one must be able to construct it of details and then see, or even leave it for others to see, what sort of a whole it creates. As there is a hierarchy to the probabilities, there is a hierarchy to the details: the more of the same, the more general the scenario is, since less needs to be painted in people’s imaginations—the more improbable, the more detailed it needs to be, since in that uncertainty one cannot draft from a general whole. Individual, meaningful and impactful things need to emerge, to give the direction, shape and name for this future.

Why is it, in my view, that the most uncertain, the most out-there and improbable scenario is the most important for its inside impact. I do believe, just as the curvature predictions are visualisations for knowledge sharing, the scenarios serve the same purpose at best. Scenarios are concepts of the future; they’re supposed to offer either paths we do not want to follow, paths we want to enhance, or paths we never thought of—each way, they exist for action towards. Towards for something, as an alternative direction, or to be avoided. Quite often though, that we do—on a very general democratic level—know which path we should take, though there are obstacles of reality, barriers that tend to block us from moving towards—like well-being now contra well-being in the future. But the barriers exist only because there are no shared scenarios of how things could go, only singular views of how they should. A scenario, drafted well enough, to a concept that offers enough reasons to get interested in, becomes—
gradually a self-fulfilling prophecy. Just as explained in the chapter on social sustainability, one thing purely of existence is that nothing unnecessary does, and things that are needed, do exist in our societies. This is to say, that at best a scenario, offering something tangible but unthought of, is the essence of a world-changing idea. It is the initiation of something new. No idea worthy of the term, innovation, unless it is given appreciation by its audience—and the only true appreciation is implementation. But to get the idea out there, one needs to create it, voice it, visualise or storytell it, and trust that intertextuality will flow it forward. As soon as it is created, it in a sense does exist. It exists enough then, to become true. And in this is, to me, the true meaning of scenario building. And to follow on this, to kick it up a notch, take it to next level—and in a sense, gather feedback and iterate the scenarios, one can use the Delphi method, which is heavily based on scenarios, different futures, that are—again simply put, presented to a selected group of individuals that are either polled on the probability and impact of different elements within different scenarios or comment and further develop the things within. This is resources-mart. It asks for insights from different fields of professions, of professionals, to give their input—to send their significant signals towards the scenario: which then makes it plural, and also shoves the ripple to move it forward, if the idea is to ripple the concept further. It makes it true to an audience and leaves it for them to have the possibility to make it true. This is the seed of intertextuality and teleology—it then exists, for this moment to be ready for the next.

What is futurecasting for then, if not just for us to present ideas about it—to tell how things are going to go, how they could go—and how we anticipate them to go if they don’t got the way we can think of them to go? Perhaps, it’s as easy to assess—what it isn’t for. It’s not, to me, to be used as a tool to backcast. No predicted future is certain enough to plan accordingly, not as a fixed set of plans anyway, or as a long-term detailed plan. The problem with that is that the scenario is built now, with these elements and these brains to this situation, which is alas, dynamic. The plans built based on the scenario needs to be iterated, as the scenario itself and so on—which puts the whole cast into question as to its purpose. There’s been much talk in the field of the implications, the applicability of the casts, since, in actuality, they are only useful if made real, but then
again, are they worth the trouble? I'd say they absolutely are, when alternatives are the only sensible options. When a planned future is needed as a concept to be the center of our development. It can give us the direction, the roadmap, to something we aim for. And the reasons for us to do so, by presenting the less wished scenarios if nothing is done, if no conscious direction is taken. It's also not to be used to justify one's decisions, since to be used for that, would be like the carriage leading the horse—backwards. Decisions can be taken by a scenario, but a scenario or a cast cannot be built on a decision, solely because it fogs the reality of the decision and can bias it too positively as most of our plans are built on best-case scenarios. Even in crisis, the doomsday prediction, the prediction is built on the best version of the doom, meaning that it is the best version of itself—which might or might not be true, but just because of that, shouldn't be used as a basis for a decision. This comes through in the teleological theorem of scenarios and planning accordingly in two occasions: teleology is subjective, and also it is the epiphany of predictability. It's subjective, since it needs an observer or an evaluator since the happenings in a teleological path can be too separate to be an interlocked continuum. It is the essence of predictability since teleology is in the condition of an event: in order to this to happen, things have to be like this. But why aren't we then, the masters of our future? What is left uncertain, even in our plans for it? Plurality, as previously stated, but also the fact that we make mistakes that lead us to either try to correct the present or plan differently for the future—either way, it makes our past predictions to the present, and thus the future, obsolete. Joseph Hallinan wrote a book on the subject, conveniently titled Why We Make Mistakes. Just a look at the titles of the chapters of the book gives us—not the reasons why we act against the truth, but what are the common mistakes that are taken in order to fail, either in predicting—or in our predictions: 1. We Look but Don't Always See—we seek to find what we want, like in our ability to forecast to backcast our plans in order to make them valid. 4. We Wear Rose-Coloured Glasses—we tend to believe what we want to believe and plan to the best-case scenario, to the setup that fits our cast the best. 10. We All Think We're Above Average—meaning, that we tend to, to us objectively, believe that we're right, the most right. And 13. The Grass Does Look Greener—we believe that the past is best

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14 J. Hallinan (2009), Why We Make Mistakes, Broadway Books, New York, NY.
fixed with the future. In a way, that's a beautiful thing of our cognition: we can never seem to settle the internal debate if we were right—was it only in this time, in this occasion? But we seem to be darn sure we will fail. Or, it's not us, it's the others. Clay Shirky writes: "Means and motive are the how and why of a particular action, and opportunity is the where and with whom"—this is to say, that our own actions, according to predictions, would probably be sound—especially by the realisation that we're the ones assessing it, but that's only on the level of how and why—not in the tangible probability. We make mistakes for what we are, but we propagate them only in actions. This is why futurecasting is a bipolar virtue.

To sum up, in this context, we most likely need to think of what's the benefit of futurecasting to sustainability. The answer is quite simple: sustainable planning, or design, lies along the reality that is futurecasted. The trade of sustainability is already part of the same game. How to benefit from it though, is of course in the assessment, in the methods used by futurecasting to help us plan systemically, strategically. It's there for us to also understand that decisions echo in the future—the how, why, when, whom of tomorrow to the decisions we make. Though the futurecasting, specifically for sustainability planning, could be adjusted to its cause—and to the field, level, or length of the plan. What new could be brought to the tools at hand? Not to criticise their effect, but to think of it—they're all highly logical, maybe even too logical to actually make sense. Curvatures present a complicated way of visualising data, and one can extend the curve based on the previous behaviours, projections, guesses however. Scenarios come naturally to us, in any case; either something happens, or it doesn’t—or something else does. Delphi then again is just a rendering of the future done with a farm of computers—professionals from different fields. Weak signals, the data—even surprising one, is only found if looked for. And there are those weak signals that do at least offer information from not just the core but the periphery of our aim. And all this has the same ontological problem as the whole principle of sustainability: looking at it from a general, passive level it shows us something like a map view on google maps, a layout of things, but from no one's perspective, and of things that have a perspective—or taking a perspective

Shirky, 2011.
blocks the view from being on the level. Though the Delphi method tries to brush off this problem by bringing in multiple perspectives to the scenario. On ontology of anticipation, on the example creating an equal, symmetric, setup for decision-making: “... happiness perturbations across a population, subsets of the population that can be said to have “agency” and possible rankings of priorities. Agents can be individuals, but also groups of individuals, e.g. companies, groups of companies, people sharing an ideology, communities. In all these cases, the richness and abundance of elements as well as the roughly uniform relational structure between them make the geometrical approach a compact, expressive and powerful one.” There is beauty in a multiple-perspective view, for its dimensional properties—meaning that it does create more absolute space, more cracks to fit different things in and more hooks for people to grasp, to understand the concept—a plan is not functional if its unapproachable. But then again, the participative part of a scenario scheme should perhaps happen in an earlier stage of the process—to be precise in all major phases of the planning. To me it would make sense to co-collect the data to be used in the initial stages of framing the area we’re casting on. Either way, the effect of the scenario, the ripple, starts already from the extended group: “Building multiple scenarios, with broad organizational input, appears a practical way to stretch people’s thinking collectively and individually. If the scenarios are presented as possibilities, rather than firm predictions, they become psychologically less threatening to those holding different worldviews. Regarding their impact on individual beliefs, the experiments suggest that scenario building can expand people's thinking”.

Sustainability is systemic and interconnected—a casted model of a complex problem can only be even more so. Epistemic risks, as Habermas called them, as is of course acting upon the projections—and this is probably the biggest downfall of the whole trade.

Put aside the fact that these are projections that probably in their milder, i.e., softer form find a level of change, but familiarity makes them appear truer to us. Not all the way to utopia, but not fully the same either. Topped with the fact that we probably want to

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145 J. Habermas (1975) Legitimation Crisis, Beacon Press, Boston, MA.
minimise the risk of action accordingly, which makes the effect of the scenario milder as well. Then one could ask, what’s the worth of it all—thinking that: “the discipline of forecasting derives its reason for existence from its practical relevance.”\(^4\) The article by Mahmoud et al. makes obvious on multiple occasions that there is a gap between—firstly the theorists and practitioners—and, secondly, between researchers, educators, practitioners, and decision-makers within the field of futurecasting. Academic work done on the field does of course enjoy the freedom of being on the theoretical end of the field, meaning the works done more in the name of science, education, and experimentation, which does make it less risky than those of practitioners, whose work is to guide tangible actions by their predictions, much like working on the field of sustainability, which is often blamed too theoretical, impractical. The article presents a group of peers to comment on the topic, bridging the gap. There’s multiple comments on co-creations, better relations, theory-to-practice iteration and building trust between the different ends of the field. Surely this is the first step to be taken and perhaps Delphi is one way to go. The great Makridakis writes:

\[\text{Forecasting users must understand and accept the advantages and limitations of forecasting. Quantitative forecasting should be viewed as the best way of identifying and extrapolating established patterns or relationships. Its biggest benefit derives from frequent forecasts of a large number of items. Its biggest disadvantage is that it cannot predict systematic changes from established patterns or relationships. Furthermore, it requires data on which to base its predictions. Judgemental forecasts are complementary to quantitative ones and effective ways of integrating the two must be developed. Forecasting users must, in addition, deal with problems of implementation so that forecasts can be effectively used to improve planning, strategy and decision making in general.}\]

\(^5\)

Though I personally feel dissatisfied in thinking that better communication alone should be thought to be the solution to the gap—though it could be to that particular problem. Or that the other solution towards the problem of the whole field and its practical use is to manage one’s expectations. The problem lies deeper in the roots of the trade; it’s in


the theory itself that we can predict the future events if we just have all the right information. Like if we could ask every single thing, *what are you going to do next?* This would be of great help, since it would rule out the problem of judgmental forecasting. Though in a sense, we don’t have to predict the future; we have to find out in which part of the history we live in at the moment and which version of the different scenarios. Every moment is still just to be otherwise in the next. Sustainability suffers from the same problem, the predictability of things to be avoided. It is a game set on a move by problems. If there was a grand theory of everything, a force that binds us all together, the problem would be less in both cases, since a centralised system is easier to predict and control. Are our attempts in developing the world to centralise it to ultimately make it predictable? The theory of us being able to know what happens next, based on the assumption that we could have all the information possible, in a form that is unbiased and delivered in a way that is effective, is still faulty in more senses than one. A vast blind spot in predictions are the things we don’t yet know we don’t know. How do you work around them? How do you find something new that doesn’t yet exist? The problems are surely out there just as are the solutions, but since we’re unable to look for them—we’ll simply never find them. Though we would find what we look for if we’d know what we are looking for, and from where. Then again, are those things yet meaningful to us? A system is a definition that we give to it. If a system, be it ecological, economic, or social exists by our definitions, then the issues troubling it, as well as the possibilities for it to act in time, are all defined by us too. So it’s not about just knowing the future; it’s about knowing the things you work with.

To conclude. The issue of different methods and which to use in what kind of casting is all about the purpose of the drafted futurecast. A simple curve might be just as effective as planning a detailed scenario—if you look at what Al Gore was able to do with his forklift and one red line presenting the rising global CO₂ level, or the life work of Jacques Fresco and his Venus project. To me these are the real uses of futurecasting. They are stories we use to paint a picture of the reactions to our actions, the echoed repercussions of actions now. They exemplify the mitigated information and enhance the outlying information, this being said from the perspective of sustainable planning. Sustainability
has futurecasting embedded in it. Whether it is particularly appointed as a part of the process or an undertone to the whole project, it is undeniably there. As in a way is scenario building in any strategic or systemic design. They are designs, things that can be changed and done, implemented and existing on a timeline too. So to further enhance the collaboration of these two trades is more of a methodological transformation. Knowing what you work with is the most important element of drafting a cast—and accepting the fact that the world is dynamic. For the dynamism, it in a way makes it less dependent on what you source your information on—or better, at which elements one looks in the scenario. More important is that there is a mass of things that are looked at. Not for it to validate one’s cast but to be able to see the nature of the change, the patterns that emerge. One has to just keep taking steps back and forth to be able to abstract what is the effect of the changes included in the scenario. The well-being of a straw of grass in Finland, the Pacific Ocean, an industrial factory in Nantes, and the youth of Shenzhen are all part of the global problems we have. They react to the same problems and solutions, giving time and scale to it. Even if your plans are happening on a smaller scale, that particular scale is not in a vacuum. Futurecasting is surely an intriguing way to get to know the past, and the present.
1.7. Systems and Making Sense of Them

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Systems thinking is surely one of the most oft-repeated buzzwords in the field of sustainability, that are interdisciplinary perhaps. Suitably enough, they derive from the same origins, the theory of integral knowledge. I've spent my fair share, actually a lion's share of my studies with systems thinking, perhaps leaning more towards systems philosophy and theory, but still in the area. Based on it all, reading a couple of dozen books and about a hundred articles, that ended up being several tens of blog posts and essays. This isn't to say I'm an expert; just that I'm at least a serious hobbyist of the field. I want to clarify a few issues before I delve more deeply into the topic, just to take a position and to avoid any claims that I speak on behalf of whatever systems thinking could be, since the field with its subfields and moreover, disciplines that have systemic thinking embedded in them are multiple. I need to make one major distinction as a first division of the soft term for soft science that is systems thinking: thinking of systems can be systems theory, systems philosophy, as well as systemic thinking, which is closer to strategic thinking. Systems philosophy and systems theory should be somewhat of a clearer division, whereas both require thinking of course—philosophy is more or less what any philosophical field is, about the nature of the element itself, what is a system, why is it, and what are the uses of it—to whom is it? That being said, it's still not at all the case that whatever's left outside would constitute systems theory, not at all—system theory is then again methodological, concrete, and at best practical; it is system specific. Though systems philosophy could be that as well, though decisively and outspokenly from a non-perspective, where systems theory is innately always from one, a particular one. Systemic thinking—or strategic thinking, is perhaps, if looked at the same spiral, further down it, on a very concrete level where the aim is to deliver a scheme of it. Could it be that there is the key, how one could try to explain the difference between systems philosophy, theory, and systemic thinking—could it be that they tend to flow on different domains of masses, wholes of things we try to comprehend with. From meta to meso, or macro—to micro level of systems as a subject of our attention. Philosophical, theoretical, and practical—a scale. All are needed for sure and all have different features, though all
come from the same perception—a human one. Perhaps systems philosophy as a part of sustainability was the shove that I got to find my direction and own core of beliefs in the world of sustainability. This is the realisation that everything we experience, we perceive—everything that is, whether it makes sense or not, we see it or not or know it yet, is that only through our own perception. And this is a fact that makes the whole trade of sustainability a social one to me, it is something we will ever and only understand on a human level, as a social phenomenon—like any science, hard or soft. This is to say, that surely systems thinking can be applicable, it can be useful and in most cases of course it is—but it's a grave matter of what is expected from it, just like in futurecasting. Inspecting it from both sides reveals what are the limits of its capabilities and also what can be expected from using it.

A few of the biggest insights I've gotten out of systems thinking as I applied it to the sphere of sustainability are worth mentioning as a part of this chapter: collapse, systems of systems and their scales, importance and interdependence—and most of all social systems and systems of cognition. I'll start in order. Tainter and Diamond, as cited earlier, both talk about collapse. Collapse of a system, though, rarely means extinguishing the elements of the system, but rather a reorganisation of them, as Hollins teaches us with the theory of Panarchy.\textsuperscript{148} The thoughts that arose from this theory were first of all multiple, but also of the philosophical and some part theoretical kind, meaning that the applicability in human-scaled abilities are limited—though surely comforting. As systems collapse, and like the title of Hollins book says, we are talking about natural systems—it's banal to me to say both natural and human, as humans are natural and even if they create unnatural systems they should follow the natural logic—right? The point being, that collapse is a series of events, of course—like all systems they exists in action, thus in time, on a timescale. The series that creates the system of action in cases of collapse should be looked at from several points of view, not perspectives alone but from views. But why is collapse an important behaviour, a model of a system feature then? To me a collapse is never the end, but a transformation of one. Transformation is important

since it is transition, which in turn is development, sometimes even evolution—if evolution as an action of a system is something that we want to give high value. And surely we do, as long as we understand that evolution is not passive or mindless, nor is it pre-planned; it is dynamic and reactive. It itself is transformative and open to inputs from all surrounding it, sub and domain system gain. Pointless to explain why development, i.e., progress, is a virtue we all want to support—but it is important to understand that it’s not necessarily a democratic nor an ethical game. In transformation—in collapse, no matter how slow or fast paced or inevitable it is, keeping in mind that actually all the features listed before do exist in all systems’ DNA, the point of influence is in the regrouping. As the panarchic system disperses and releases complexity, the strings attached to it parts for one reason or another, the regrouping becomes less specific. If the reason and the point of the collapse is an autopoetical one, abandonment of an existing one to prove its uselessness, it’s not given that the regrouping is as organised as the collapse. As a system collapses, the dominance of its parts is in hiatus, or—stated better, is at a distance, left in the hands of the surrounding systems, the parallel subsystems still in effect. Parts, and as a reminder—we are talking about social systems, are still representatives of the society as a cognitive sphere whether individuals, organisations or any institutions, release themselves to the bazaar of systems—all looking for an entry and offering a hook to another surrounding system to regroup with it. In any transition, there needs to be a push and a pull for the distance in between to be gapped. The worrisome feature isn’t then the collapse itself, but the regrouping of the system. Speaking truly hypothetically, since no system should be preferred from a non-perspective—meaning that regrouping will happen, no matter our moralisation. But let’s say, that we’re just interested in the resource. Resources won’t collapse, since they’re not internal parts of the system; they’re inputs—or we’re talking about a different system. Inputs though aren’t necessarily the defining elements of the system, though the system might be tuned to a specific input, and the depletion of a resource might make the system collapse, but only as such—input attuned. So the importance lies not within which the system is to collapse, but to observe its trades-offs—the features of it that have meaning to the parts but have to, in the whole, be let go. This is to say, the features can most probably be found from another system, which helps
us to predict which light they seek. Another thought on the collapse is a safety valve, meaning an intentionally implemented weak-point within a system that fails like a fuse. Fails to prevent the whole system from failing, much like a fuse in an electrical appliance, but also much like the human psyche, which according to Shulman,\textsuperscript{149} protects itself by letting go of destructive structures—meaning that the inner psyche is saved by going pathologically insane, but only according to others outside that psyche. Any system will inevitably fail at a point, fail—as in adapt and transform—systems are of part of other systems and as interconnected wholes are always in flux, as long as there’s time and us to observe them. Any developing system that grows in scale—the scale being complexity, will at a point reach an overbearing capacity, not for its own stupidity, nor necessarily by its intentional acts, but for the sheer fact that it is prosperous enough to do so. Anything that can, grows. Though this makes me think, that there’s on both ends deeper holes to be dug on the subject. In a sense a system is only as resilient as its parts—which would make the parts the important elements of the system, not the whole. Unless we’re talking about a closed system that needs every part to be functional to be able to function as whole. So as long as the acts of the parts are replaceable, or the parts themselves—the whole system has the importance. This sheds another perspective to the whole topic of collapse. If a part fails and the system collapses, can we even talk about the system’s collapse, or is it transformation? And if the system as a whole fails but the parts persevere, then we’re most definitely talking about a transformation—but are we actually talking about the same system, that now has a different order? If the parts are the same is the systems the same as well, even if once collapsed and transformed? Let’s say if there’s no people, most definitely there is no society. If a society fails, but the people stay, there will be another society. However they decide to organise or disorganise themselves, it has to be called society. If the economic system fails but there is still any kind of trade we have an economic system in place. Even if trade stops, we’d think in possessions, livelihood, stock—so, economy. There is much resilience in a system, that is adaptable as a whole and systems that have parts that are replaceable—like a society—ut little in systems that are centralised, strict and uniquely defined. Chaotic systems by judgment

are perfect until defined—since only when an output is looked for, or input regulated, do we have to justify its existence. Mindless systems as a whole, like the eco-system—surely it contains minded, even mindful systems, but as a whole is mindless, is a resilient one. It'll surpass as a whole, much more than we humans, as its parts. As I've said before, we're lengths beyond and past the point where our efforts were about nature, and try to preserve our livelihood instead. It's not saving the planet but us on it. Even in this noble action, we're willing to transfer well-being from the planet to us, the humans. Surely we're willing to make compromises; slowly we're getting used to the idea, that the spending spree has to come to an end, but we'll never sacrifice anything on behalf of the mindless system as a whole, which is the eco-system. We're much more interested in the other part of our living context, the part that we control—or think we do. It serves us better. Ecological resilience is the fact that we age and die, as well as social resilience is, that we put up a fight not to. Trade, or tradeoffs, are the in between. The exchange of the ecological well-being to our social one, has a tool designed to do just that; it's the economy. Every system has a tool of control, if not an absolute one—an effective one, that correlates to the language of the other systems. In the relation of economy to social it is the ecological; in the relation of politics to social it is power, and so on. Systems don't just co-exist untouched or uninfluenced by others, larger or smaller, but are affected by actions and tools and modes of actions to others. Luhmann, through Parsons, talks about it, and so will I, but it's an issue of systems relations to others, not of resilience or it's better half, the collapse.

This makes me think that we've used poor judgment in setting up our systems, not necessarily as planned, but at least in their definitions. Of course there isn't just one system that is the whole society. The societal system has, to me, everything socially—and partly even existentially, experienced. From culture, to knowledge, from politics to marriage. Thus the system has multiple, if not even endless, content of sub-systems that then again create systems of systems. These different layered systems of systems constitute our reality and place us ontologically with respect to the social system that we perceive. We place ourselves in the non-structure of society by understanding the

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systemic distance between us, other parts, and, yet other, other parts. This creates structural distances but as we get to redefine individually what are the structures like, the output might resemble a process map from a top b; it might look like a mind map with clusters hanging about, or it could be seen as a three-dimensional matrix of things where distances can be nonlinear and even stochastic—several and dynamic. Like the human race, single mind, or a mobile app it has connections that build the structure and the complexity in it. Scale of the system is of importance. Systems grow in complexity, as previously stated, not in empty distance. There is nothing physical about structural distance; thus the distance can only grow by adding something in between—and emptiness doesn’t constitute something—empty is nothing. A void is something—if a vacuum is added to the in between, there is space to build something. Empty in systems structural distance is a space that is defined to be occupied with nothing. What’s the importance of this is the connection between parts or near systems, whether they’re surrounding, internal, or parallel. The connection has to be drawn for the systems to make sense in the largest whole. They have to be connected for it to be necessary and thus have a reason or means to exist. Nothing that’s for no reason, really is. We haven’t looked or found it yet—so it’s unnecessary. It really is the void, the vacuum, the space that is not occupied with nothing even, but what is a ready ground to be built on. So these connections are what counts, when looking at the scale of a system. Not its physical scale—if that could even be ever truly defined, but according to its complexity in structure, which is the connections, the relations of effect, which does not exist necessarily only by the tool that can be used to direct the system, unless it is designed to be such. The effect can be a receiving one, with the only possibility to react. For example, one part has the power to add distance by implementing a structural change, where the reaction of another at the end of the connection becomes an equal one, even passively. There is a dualistic view of the symmetry of this distance growth, for even if the counter reaction is to add another notch to the distance—it counts as an equal reaction; if it passively accepts the initial addition, the structure is still symmetrical. This is to say, again, that there is no emptiness in social structures. Nor there is an ultimate zero point, like in the known space of the universe. Nothing is in the middle, though it might appear so, because of the ontological point of view we have to take in mapping
out existence. For this non-place nature of the society we have to think of a few things, and I am repeating my previous thoughts: Built distance is always twice the initiated, for there is no ground zero, no middle to move away from and the equal reaction is symmetrical to both ends. Though how the distance is perceived by the receiver is, unique as it might be, symmetrically received in the first hand—that can though lead to further reactions and sequences of action that are initiated as a reaction. Needless to say, all systems that make sense to us, the systems that we can observe—are interconnected, they're interlinked if not for any other reason than profoundly through us and our perception. Of course, the debate whether there are real systems that we then observe, or are systems defined only by us—that our definition makes them, is worthy on a detail level, but theoretically speaking both come to be to us only through our observation. Bacteria has always existed, but to us and our pool of truths only when Leeuwenhoek looked at one. But back to the issue of growth, development, and overall changes and movement in a system. Ackoff, whom I'll cite later on claims that in the sense of systems thinking there's a difference between growth and development—very much so, this is true. Development can happen, when we're talking about the complexity of the structure of a system, theoretically, through downscaling as well. Streamlining, simplifying, and cutting out the unwanted complexity is development, but rarely in prosperity. Evolutionary learning, which ultimately is death or surviving through adaptation makes the adjustments not in prosperity but in necessity. It's problem based. It solves something that disturbs, contradicts, and prevents the ideal that the system has. Though growth is more of the same perhaps, development is furthering the process through different means. Not only strength but compatibility to the challenge. With change, with what to the system has to adapt we get to control. What is the controlling part of the system, is it internal or external or both and is the part understood by both the system itself and the exterior or is it another overlaying system? Ackoff, one of the original system thinkers said: "At least one subset of the system has a system-control function. This subset (or subsystem) compares achieved outcomes with desired outcomes and makes adjustments in the behavior of the system which are directed toward reducing the observed deficiencies. It also determines what the desired outcomes are." 

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Although this is said about managerial systems, there are sides of it that apply well, when talking about general systems theory. Firstly, the notion that there is control, either mindful control where there’s decision making, authority, sovereignty, and governance—or it can be mindless when there’s only reactivity, infrequency, and vulnerability. In a mindless system, it’s not really a system-control function as much as it really is an ability to react by endurance or adaptivity, the other options being avoidance or partial collapse. In a mindful system, we can talk about function(s) surely. It is a function put in place for several different reasons, abled by system acceptance and most interestingly—a tool. How the system-control is allocated depends heavily on what sort of a system we’re talking about, but following the line of this chapter I’ll try to describe it in a general manner. The control is surely placed, simply, where it can be—the power is in the system structure, how it is built and connected, which really offers the leverage point of the system. So, in a sense, it’s there where it can be found if looked for, and in this void there has to be a chance to implement a part of the system that then occupies the system-control position, and with it possess control. Control is in a sense no higher position than any—though we somehow seem to think so. Basically any part, groups of parts, or external inflectors have some control over the system; thus the question is what constitutes the system—meaning, is it the same if the parts change but the process remains or is it the same if the parts are the same but the process changes? According to Luhmann: “A system must itself bring about a decision as to whether in the course of history the changes of structures have altered it to such a degree that it is no longer the same.” In an interdependent system (which they all are to some extent), the control position is multi-placed, as in some systems it’s non-placed. Ultimate control is much harder defined than its position once the true essence of what we mean by control is found. “An element or a system controls another element or system (or itself) if its behavior is either necessary or sufficient for subsequent behavior of the other element or system (or itself), and the subsequent behavior is necessary or sufficient for the attainment of one or more of its goals.” Control or influence—control is direct; it

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152 Luhmann, 2002
requires the system to act accordingly to the request it is given from the controller’s side, where influence is left to decision. In a way it could be said that control demands, even leads to, reaction—where influence requests it. Influence, and the fact that power lies in no necessary position of the system, leads me to a claim that looked at from a sufficient perspective, every system is ultimately stochastic in nature, stochastic meaning, that there is no absolute right order to the sequence that makes the system whole. Surely a system can be defined by its process, structure, or aim but every system has to also have a combination of these that draws the real picture of what it is, the system whole. And if this is thought to be the true self, the existence of it is surely stochastic, based primarily on the fact that the system is open to perception, influence, and control—inner and outer. Stochastic systems are the most natural ones; they exist undoubtedly—though the definition, especially a strict one, of how they exist is nearly impossible to have. How so? Just for the reason that the views of the system are point-based, the mechanism to comprehend it are concept bound, and the tools to map it are too linear—they must follow a narration. To me, this is the reason why all systems are ultimately defined only by us—though incompletely, and they are all then logically chaotic—thus stochastic. Whether we talk about a leverage point, a point to penetrate the system membrane to be able to observe it, be a part of it, influence it—can be multi- or nonplaced in the structure and be different momentarily, meaning both the system, and us observing it, change in time. Since systems—all of them exist in the same space of existence, they all do—defined or just observed by as, they all are interconnected. Again, I’m not for a unified theory of everything, though Laszlo does make it sound enticing, but for one specific theory of connectivity—especially in our cognitive system, I am for the theory of intertextuality. In literature, intertextuality describes the connectivity of some newly produced text in its resemblance to existing ones—a contemporary movie might have the same general storyline as a Shakespearean classic. But as a social theory, it’s closer to the communicative nature of a societal structure, meaning that we’re connected through communication but intertextuality goes beyond the connectivity in both scales, time and distance. Communication binds us together both now and in time. Through communication things come to exist, as we observe, define, and conceptualise them. Something only really exists when the possibility to observe it is shared. I can know
alone, but that doesn't make it true. To be able to agree or disagree makes something be. We share the being now, and through communication as well we reminisce over the past, and make it true; we plan the future—latent and between the lines sometimes, but nonetheless what and how we communicate does in all actuality build the future. How we communicated in the past built what we have now, and so shall the future be as well. Sustainability and all is only achieved through and in it. Though of course, the communication alone does not construct the whole of what is society, it is the tool of control or influence—one of them. On a humane level. There are others too, like money, authority, and such that go beyond the system’s borders, but on a meta level as the surrounding whole of what we need to be able to coexist and codevelop—communication, understanding, and using the power of intertextuality is the natural way of control.

Sustainability is typically conceived with three interlaced spheres of system wholes; the largest being the ecological, second the social—which in turn withholds the economic sphere. In a sense this is true, perhaps in magnitude of materials or how we share them, but it has to be argued—again and again, that this kind of a map is inaccurate in its incomplete form. From one perspective, the economy comes between us and the ecology—not in the sense that there are two opposite poles that have to fight for their existence, but the economy is the tool we use to allocate resources from the surrounding system to be brought to our sphere—make the natural unnatural. Of course, we are the ones to do so—so we deservedly fall to the middle: as the ecology created us, we create the economy—though this isn’t true either, in the abstract sense of economy—wealth, since the more grass in the field, the more rabbits the field has, the more foxes and the more hunters, and so on—meaning, that the economy does exist in the ecology as well. Either way, as I’ve claimed before, how we perceive it all places us not in the middle, nor in the center but either as an overlaying bridge—or presented in the middle, as a society—with the ability to exist, the economy surrounding us—which is only the middle part between us and the ecological system, meaning that ecology, the context we all exist in, is the ultimate one, for the grace of it—and economy is the gradient between it and us, economy is the process that we’re all a result of.
But the largest whole, not at all as abstract as one might think—should be cognition. Because it is shared, it is universal—though the images drawn with and on it are different, and it is the sphere that holds all things inside—concrete, imagined, past, and future. This is why I urge the audience for sustainability as a principle to consider redefining the pillars of sustainability itself: Context, process, aim. Context is not just the ecological system, nor the social or economic—it is whatever context we are talking about, which is the surroundings of the issue at hand. The background of actions. Process is not just development or growth, nor downshift or collapse—it is what we do, in interrelation to other acts and of course to the context. Aim is the ultimate aim of the aim itself but also of the process and context—what is the aim of the process, what is it to the context. They together make more of a unified and self-feeding combination of requirements together than do the ecological, economic, and social—though these three are embedded in it. So, to begin again with the social, human, and cognitive systems—systems of existence, we need to get back to sociology for a bit—though this time in the world of systems, which is to me, as well as sustainability, the most important sphere—since the recognition of any system is somewhat of a social phenomenon. Though instead of social sustainability, or the social sphere—I should talk about the social context, process, and aim. For "Methodological holists insist that social phenomena be studied at their own autonomous macroscopic level of analysis. Moreover, they claim that theories which explain social phenomena are not reducible to theories about the individuals which perform them."—there is no reduction in the existence, in the being. Once again, as Heidegger put it, "being is not something like being"—meaning, that nothing else is to describe it, partially or wholly. It is the ultimate system of all: A society is not possible other than as a system.

To sum up, while avoiding repetition or engaging in to the same rant concerning system do’s and don’ts—I’d say the only worthy aspect of it is, what is the use of systems thinking then? As Luhmann says: "systems theory is seen as rather abstract and thus

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154 Fay, 1996.
perhaps more capable of depicting macro-structures.\textsuperscript{195} Though surely, on a detail level, systems thinking—in the sense of strategic or systematic thinking, is a good tool to form a checklist of things needing to be taken into account. As the theory and a philosophy—there’s multiple uses for it, in my view. As a theory, it helps us to explore the nature of things, the connections between them, and thus the dependencies and tensions between systems. A single system is rather uninteresting; it’s often direct and alone—put into a somewhat reduced description of itself. A system alone is rather an isolated technical formation of things that function between the context and what is the aim of itself. Thus, no system really exists without being a system of systems—an overlaid, interdependent whole in an endless sum of other wholes. Reductionist views of systems, though neat and comprehensible, are almost never useful. Not that a set of selected data and observing it to understand a whole are wrong thing in and of themselves, but a simplified version of a complex being becomes rather general, more than abstracted, meaning that a general view is an untruthful one, for it is a version of something, blended to our views and capabilities, biases, and abilities to observe. Where abstraction is not a reduction but an isolation of a feature of a system that has very different reasons to exist in the first place. Abstraction, to me, is an inquiry of a trade that a system has, which is only looked for to find a resemblance from another system—perhaps better understood, that can work as an angle to understand the system under observation. Any system has the feature of failure, a collapse embedded to it—it’s how all things are, how we are. Adaptation, resilience, and reformation are trades of the parts—not the systems. Parts decide if a systems is needed, and the system is built based on what parts are needed—though the system will never exist empty. Complexity of a system is a natural feature of it, nothing else would make it possible, but just the complexity. This feature, the complexity, is a useful one to anyone thinking about or wanting to affect the system since they do offer us the points to affect. Sustainability is a system of action. It has to be that, but through thinking of the context, process, and aim. This combination would constitute a system of action that feeds into other parts; it requires attention to all of the others and it assesses the being in more of a truthful light. More truthful than the typical triple pillars of sustainability do. Societies, our perception of being, is a system. It’s a

\textsuperscript{195} Luhmann, 2002
complex system that seeks for a place to matter in time. Psyche is a system that is reactive, innately and lawfully so—it'll never fail to react, at least somehow. That perception that paints the picture of reality for us and constructs the being is there for us to be worked with, just like in any other system and systems of systems. The only fault we have is that we're structuring our solutions to the very problems themselves. As we solve a problem, making the solution an opposite of the problem, we're sort of casting a negative mold out of the problem; by doing so we actually embed the problem in the solution. This will make the solution carry an image of the problem within and make it by its existence vulnerable to the problem—the solution will never exist without the problem; thus the solution is a reminder of the problem. Stochastic thinking would help us to avoid this problem, and the fact that we have to think and accept the complexity of a system, and with it the double-distance we unwantedly will always achieve when implementing a change. Whether this is about systems, or society—makes no difference, still, for all systems are social as they're socially experienced. Sociology or psychology, quantum mechanics, and design thinking are all the same in the fact that they try to describe a system. Knowing this helps us to understand anything we're willing to observe closely and far enough to understand the abstraction of them. A bit more detailed than just stating that they are systems before describing their parts. A system is how things exist.
2. Methodological Background to Practice Sustainability

- What is it, or is meant to be?

As I’ve probably stated already and will again, as sustainability stands at the moment, it is more of an emerging industry than a science. I, as a CS student, should know about sustainability through its methodological aspect—as that is what the CS programme teaches and revolves around. Methods and methodologies of sustainability are, as one could guess, several and large as it is in its principal form almost a philosophy to being—existence and existentialism in a responsible manner, this being one of the reasons why it is so close to being a religion, a philosophy of life—to a conduct of code to structure our lives around. Law is one form of it, policy one, education another, and discipline and trade too. Sustainability though, is becoming pretty close—in my perspective, to being a perfect religion: meaning that it makes us gods, or demi, instead of just us being images of a god as the hierarchy usually goes. That’s not to say that, as a philosophy of life, religion is any good. CS as a programme is an inquiry into the methods and methodologies, as is the whole field of sustainability practice—and to some extent even the science, more than it is a developmental cohesion of different fields. At our end, at the application of sustainability, it is all about how to practically further the issue—which leaves the rest of the scientific fields, which are brought together to compile what is called sustainability, to be the developing sciences. For example, an ecologically sustainable design project leans on, but does not give birth to, the data that direct the decision whether the effort sincerely furthers the issue of sustainability; meaning, twofold, it only aims to make something sustainable, rather than openly asking what could further sustainability—and it only tries to prove itself as an effort to match the data that it learned when initiated, not to validate the data itself. Sustainability, as is, is a collection, a reformation and reformulation of skills put to use in a new field; it emerges from the efforts of others and all and is put into action by people who claim to best know how to do so. This vividly reminds me of old descriptions of the profession of design—which I think should at this time be generalised as design-thinking, which stated that a designer is not an expert of anything except in combining fields and skills to make one whole. Whether one is a designer or not, but basically uses designer thinking as a
process could claim to be a designer or a sustainability planner—it all just depends on adjusting the data and the aim; the process is all the same. In this sense, it's probably also critical to ponder during the next pages of methodologies that what makes them unique to the trade of sustainability, if anything.

And not that it needs to be said, but perhaps at least mentioned, that this chapter, as is the whole work, is from the perspective of social design. Not just responsible, or at least reasonable and sustainable design—but systematic or systemic and coherent, whether it means that it's user centered or need based or life cycle assessed, and of course as an overarching element, they are designs experienced and implemented in the social sphere, whether this again means an individual, an institution, or some other social system. These, with the mixed group of theories brought to bear on what is socially sustainable, formed a list of principles that are going to be looked more closely in the second volume of this book. The elements under inquiry being social design principles, inclusivity of design, and change, serving a need, design-anthropology, and finally—a subchapter aiming to explain why most of all there needs to be a blend of theories, which lead to methodologies and methods to even aim for, let alone reach, change towards better social life or sustainability. Social design principles have been, in one specific concept, already well enough defined and thus in development justified—so perhaps it's more meaningful to suggest another perspective to approach the whole issue. Not as a list of issues to be taken into account, but as a process-based approach—though it can be deceptive to choose a direction over another, but it surely is useful to weigh the available options, for surely there is a time and place for every different kind. All this meaning that, instead of a list of issues brought to bear upon the process and helping to think of things designed for the social sphere in systematic and strategic terms, one could look at, for example, the initiation-(re)action-implementation process, meaning that social design has to be firstly thought of from the perspectives of the social sphere—whether we are talking about an individual, surrounded by a systems of systems, or if we try to design to the level of systems whole and ripple the implementation to the individual—bottom-up, top-down, middle-out, people-private-public collaboration—and so on. Though a solution is always designed, of course, to a best-case scenario and to a described process
but statistically in the moment, there are differences in the approach and planning, depending on the social aim. In short, the level of the social sphere should rule the methodology in use. And as implied by the previous line, another aspect we should think of in our plans is that society, as proven in the social sustainability chapter, is dynamic and *de facto* exists only in change. The social design principles, since the equation of social and sustainable—sustainability being the aim, the social element has to be the mode, have to come from social design primarily, and the theories we have depending on the level of the same social system, whether it is of behavioral theories or macro-level social movement.

The second subchapter addresses the issue of inclusivity. As in any social change, as stated in earlier chapters, the tension between elements changing—moving, has more effect than one might think for the stochastic nature of the system and for the distance things have to move apart in a social structure. This might create unintended counter reactions, for example, if one group is preferred to occupy a space, it might displace another group. Or if system complexity is reduced through streamlining the structure, it might alienate a whole section of connections in unexpected areas, the system structure being multidimensional. Inclusivity is not a simple concept, especially in sustainability, which should mean that with inclusivity there is equality or equity but not in universality. The same for all is not necessarily equal, nor is it all inclusive. Though inclusivity has to be based on the same theory of social structure, which only exists in change, that with sustainability in it, becomes a question of equity not just among people, but all earthlings and with the context surrounding, allowing, and passing down to us our well-being. Design, or planning in a multi-stakeholder system, which almost always directly leads to a multi-minded situation, is a precise game and thus highly methodological. Inclusivity is at the opposite end of the process aim, mode, and scope and then any biases; thus co-creation and such methods are effective in pacifying the role of the process facilitator’s ethics or morals. So three different elements, or trades of social design and inclusivity, are addressed; tensions and their systemic behaviour, in social mental or mental-physical spaces, and how to address or avoid ethical—moral and other biases in doing so.
The third part of the methodological chapter concerns the reflection between the abilities of the actors of the process, or the overall ability of the process itself to answer to the inquiry that itself sets up—and the true need that initiated the process. It’s unfortunate how often the actor(s) in charge tend to lead the process in a direction according to their capabilities, to their principles and disciplines, which vitally narrows down the possibilities to seek and find the most suitable solution to a problem at hand. This isn’t to say that any should be perfect, nor considered the best, but there is a difference in directing the process by its elements, and natural steps—and moreover how the actors react to them. This meaning, that instead of the actors directing the process based on their selfish needs or capabilities, the process should be considered to be open and educative to the opposite direction—teaching the actors how to act based on the elements at play. Why empathy is mentioned in the topic is based on empirical experiences in some design cases, which led to a profound consideration of the topic of human-centered design, and what it is to take up the challenge of designing for a real need to its full extent. To be true to the nature of the issue is to be humble in front of it and to let it direct you, not the other way around. As they say, you can never direct a living system, you can only disturb it. So in this chapter the issue of human-centricity is addressed through methods of letting the humanity sink into the process on multiple levels, meaning that as the aim is human, so should the process and the actors allowed to be too. Although a deeply personal and very much intangible, immeasurable element in design empathy is an intriguingly human feature that in us reaches heights that are unprecedented in nature and should be used to benefit both the actors and the aim of the process. How though, is worthy of a chapter, in an inquiry concerning the topic of social sustainability, if there is such a thing in the true sense of the word.

The fourth essay in this collection is my take on anthropology and/or ethnography in design. As a research method, ethnography is not a new addition to a design or planning process—though the available examples of how-to are to my view a piecemeal approach to a whole field of soft-science that shouldn’t be condensed or concealed from being almost the base of some processes, surely depending on the aim. Ethnographic and
ethnomethodological approaches in design create a good reflection of social design, with the addition of anthropology, the basic human studies. Quite often, because of both personal and professional biases that stem from the position we inevitably take or have in any process, the actor (us) willingly assumes a role that suits the process and, in a sense, reveals to us what we think we need to find. And this is fundamental in almost all planning. We see things from a human perspective, through our experiences of existing as a human and we can take the top-view of the thing observing how issues appear on a societal, passive level, a non-actor-perspective, both of which are partially, and undeniably, true, they need at least a third perspective to achieve the dimensions needed for a good view of the issue, and thus ethnomethodology comes into play, where the point is to have a view of how the subject of the aim experiences the same things that us, the actors, have a personal and a top-view of. Not to again say that the tick-box methods suggested typically as an ethnographic addition to a design process are fully nonfunctional, but as this sentence already beholds the attitude towards such a mode, it serves the purpose of some, but not at all of what is the purpose of ethnographic methods. The why and how-to, then better them—this is the aim of this chapter.

A mix of principles and methods are, to my view, and surely to everyone reading this as well, the best and only way to go about social design, aiming at sustainability. There's little new in this idea, but perhaps the mix of the perspectives that I have on the common theories and methods might offer a new approach that is highly social sustainability specific, but not restrictive. At this point, I must hold firm the paradigmatic hard core of knowledge acquired along the way of my too long extended studies of the field. Social change, an age-old idea, is still and fortunately so without a foolproof equation, and will remain so after my work on this topic is done—but fortunately is that the more we look at the issue, the more ways and modes we will find to it. Learning is sustainable, as it is infinite. And the more we draw conclusions, addressing old with new approaches, the more we organize the whole that is existence that is ultimately social. The more we study how we are and function, the more we know how it affects other things that then again affect us. This is to say, my approach is not necessarily the best, but I at least try to be original in it, novel even. Though there will not be an equation as to how to make the
world sustainable, socially and all, there should be a view of the system, why it functions and how it can be disturbed.
2.1. Social or Societal Design

– A process-based approach

Social design principles can be approached in several different ways. One simply has to take from the principles of what is social/societal and what is design. As design is truly a word that is as much correctly as it is incorrectly used—and social or societal can mean different things in different contexts, it's worth defining social design and delineating its principles. 'Social,' as used in this chapter on a general level, is simply human centered—which then again can mean anything that is used, created—understood by humans, e.g., special needs based solutions or social awareness campaigns. What makes this kind of design and plan social, since social can't infer solitariness, is for there to be either a direction of our actions that is social or just simply that there is a receiver, an audience. Social can still be personal, and it quite often is, individually received, assessed, given value to—based on individual morals and needs, sovereignty. We can at best wish that there is reasonability involved in it. What makes it then possibly societal is not necessarily differentiated on scale, but rather the aim to achieve a societal impact through it. No design or plan can be societal if it is not intended to make a change, even a small one. Societal change though doesn't necessarily need to be social, as it can be mainly directed change via an institution, a regulation, and so on, which of course in its systemic nature does in the end share the effects with the social sphere. This alone is not a complete description of what social design is, as it needs the element of design to be merged with the process that guides its thinking, theory, and methodologies. Design is a process more than an end result, especially in a case of societal design, where the process isn't necessarily at all about the end result but the process itself or what it evolves to be, where social design can still be more about the end result. So where the societal design has to be valued by its acceptence and impact, the social can be valued by just its applicability. Krippendorf talks, through Herbert Simon, about design scales in trajectory of artificiality by placing products at the one end of the scope and discourses at the other—goods and services, interfaces, systems and projects falling in the middle. This, to me, talks directly to the aim of the design process, where, for example, product

157 Krippendorf, 2011.
can have a social aim in the sense that it is directed to fulfil individual, though possible shared, needs, where discourses and projects aim to affect a mass primarily, over the individuals, though compiled by them. Krippendorf elaborates: "Along this trajectory of design problems, each progressively creates new challenges that need to be met by new social or technical inventions, new attitudes, and even new institutionalizations."\textsuperscript{158}

This social to societal path can be put into terms of centralised-decentralised design as well, where centralised, intended, and fully planned is at the social end of the scope, and open decentralised plans are the societal ones. Centralised design is exclusive in the sense that it is a rigid plan to the extent that it is intended to be valued as such, where then again decentralised design is inclusive in the sense of being built on a construct that beholds things that are included and it is not defined by what is excluded. Along the path to change, design is only a certain series of steps taken on the way to the solution. From initiation to (re)action to implementation—and, if needed, the assessment could be one way to roughly lay out the process. All these different steps that of course include multiple other steps and actions can have a differing social scope too, clear examples being bottom-up, top-down, and middle-out approaches. Where the initiation might come from any level that urges action in any receiving societal sphere, the aim can also vary: top might govern as a reaction to middle functions that then again create a change in the bottom.

This process of initiation-action-implementation—or actually reaction-action-effect—within the existential spheres of bottom, middle, and top—or social, institutional, societal—can be put together in the form of context, aim, and process—when the aim is to be sustainable, systemic, or even responsible and reasonable. All these create different approaches to the coherence of a design process that is intended to be valued, or at least acknowledged—thus overall to have an impact beyond the actors themselves. True to the societal action theory, any action can be read to be a reaction. Any action is somehow connected to a previous action and thus all this, all that we can do is to react. This initiation-action or action-reaction leads to implementation, which sounds at first hand

\textsuperscript{158} Ibid.
much more intentional than it should be understood to be. Implementation in this sense should be understood to happen already though the receipt of the reaction and thus is the result of it, what the reaction comes to be, when received. Much like an idea becomes an innovation only when it is given value on a social or societal level. What difference this then makes is that every sphere has its features that, under inspection, depending on what we aim for, have different entry strategies. Whether we’re trying to affect individuals in a shared social space or institutions in societal sphere and what the aim of the effect is, the result of the reaction we’re seeking, there are several and different paths to the system that groups together the needed connections of the complex structure. And here stochasticity becomes an issue. The process follows a curve, a storyline in a drama, though the real aim might not. It could have intended effects that happen simultaneously, in a ripple-like way, or be stochastically repetitive—phenomenon like. Why would it happen stochastically then—why in organic systems and systems of systems stochasticity, chaos is often a closer description of the action sequence than a linear one, is because the social that constructs the societal is above all a dynamic audience and is multi-minded. However the action is received happens through different connections of the complex structure, which means that it occurs with a different force, pace, and impact. As hard as it is to plan on a situation that is only to be changed, based on events that have in a sense just happened so that the effects of them are undeniably unknown—with the fact that quite often the connections in the complex structure that social existence and society have—only appear when they react, and this reaction is then left unintended or unnoticed in the plan. The reactions couldn’t be planned, since the connection wasn’t at our disposal at the moment—it was an unknown unknown. A plan has to work in reaction to the planned action too, or it has to be accepted that it is incapable of doing so. This brings me back to further develop the theory that quite often our solutions are faulty, as they are linearly represented to be the negative image of the problem. Done so, the only connections and the only reaction planned are the known ones, though directed to work the opposite way. These kinds of plans will unfortunately always carry the failure of the plan and so a re-occurrence of the problem inside them, since it is built upon the same structure that had a reason to be ill-functioning or symptomatic in the first place. The problem of problems are that they appear to us in a
context that we know how to look at and thus so does the solution. No wonder Einstein said that it’s impossible to come up with a functioning solution with the same mind that created the problem, though in this case—I’d take it even further and say that it’s hard to come up with a solution with the same mind that looked at the problem in the first place, unless we learn a new way to approach a problem. And with that, I’d start with the process, its spheres and time—where all actions and reactions happen, as time, for reactions, is stochastic. Stochasticisms aren’t to be considered just as another name for chaos, first of all because it is not chaotic; it is just differently causal than we typically think of causality as acting. Also what it brings to the table most importantly is its ability to bring up those peripheral connections in the problem system at hand—peripheral meaning of course our perception of it, not the reality of it.

In most of the cases where there is a need—or a chance, for social design, there is an experienced imbalance, a perceived wrong that initiates an action to be corrected. This initiation is in this equation of the same breed as is the outcome of a process that aims to right the wrong. Something has been done, or left undone, for the imbalance to be apparent, so even the initiation is a reaction, as previously stated. Thinking of this, in the systemic manner also in time, which the theory of panarchy well describes, an important realisation in a social project is to understand any project as a continuum of something done or left undone in the past—and that whatever the project strives for is just a tool to the next project over the same issue and the reactions it brings about. So most of all, the principles we’d need to consider, as the basis of social–societal design or planning, aren’t just the principles of responsibility and reasonability, sustainability and strategy, but most of all, they all exist in the same brainspace—that is us. They’re all modes of our own cognition, and so most of the principles should root from the process of the humanities. And humanity has to be unbiased to any discipline—or in actuality has to be biased to all of them. The principle could simply be that social design is the deliberate act of continuous iteration in creating and disturbing the balance of the society through the actors in it, not to fully agree with the fact that societies should be developed in such means. Honestly speaking, whether the impactful actor has been a god, a caesar, a printing press, an information network or artificial intelligence, one
should agree that it’s all about the stature that the society decides to give it and it seems like—on this day, that design has received some trust, although it has to be said that design, as well as anything to do with sustainability, should most of all be trades that seek to make themselves obsolete, when otherwise, we seem to just put them on a higher pedestal. We’ve failed to do what we were supposed to and instead only managed to create importance around this phenomenon that merely mystifies what it is to solve problems. Stephen McKenzie lists some key features of social sustainability in his paper “Social Sustainability: Towards some Definitions,” of which one struck me the most: “a system for transmitting awareness of social sustainability from one generation to the next.” Though it is found in the latter part of the list, it could as well be the top principle of what it first of all is to be socially sustainable and also, what it is to be a member of the society. It’s the awareness of each one’s position in this system of society, through social existence, meaning what comes with the position, the abilities, and the responsibilities, this system being, of course, education and a continuous one at that.

Social design shouldn’t be thought to be just human centered—as in designing for the people as the people, single, solitude. Social design can be anything, and it ultimately is anything for, by, and with the people, meaning that institutions, discursions, acts, and phenomena are all tools to affect the social sphere and the other way around. Social design cannot then just be user centered but rather is social-centered—thought to exist only as a whole with the nooks and crannies it comes with. Anything reductionist is and will only with coincidence ever mount to be more than it actually is. To put it in other words, a part is just a part—it has hard limits, even in an organic system and anything that makes it more than it is comes from the interaction with the receiving audience that in its organic ingenuity adapts it to be more. To design with a human function in mind, for example, is just for that and in it one has to consider the methodology to follow the function and the space it fills in the social sphere, in positive meant-to way, and also in the surprising adapted-to manner. Societal design though could be thought to come the other way around; though people are still the center or the aim, the audience of the

\[16\] Ibid.
outcome, there is a tool in between; it is a design that comes via something, where in social design human is the via. This should change the methodologies considered to be used in a particular process. Shana Agid writes: "An increasing number of media and scholarly articles discuss the application of design to "social needs." However, the terms "social" and "needs" frequently go undefined other than to name populations or generalized phenomena, such as "ageing population[s]," "climate change," "crime," "the poor," "the underserved," "the disabled," etc." The author continues to ponder whether social is understood in the right amount or the extended amount of context design, as a method can reach. Surely design-thinking can mean that whatever can be changed can then be designed to change, but I'd see the galore of possibilities to need first of all a division in social-societal and design-planning and via something or via the social. Of which social-societal and the difference in the phase of a process planning to design have been touched upon already in this work. What is meant with via people—through the people—is that whatever is the subject of the process comes to exist by the people. As Agid's article attributes social design back to several times mentioned Victor Papanek and his design philosophy, design for the real world, these artifacts, whether material or immaterial, products or concepts of elements in the social sphere, are designed to be given purpose in function by the people. When one says that they're designing for equity—fairness, by designing for accessibility, they are in fact thinking of a solution that 'ables,' that levels the efforts for us all, as an artifact that is in use, might bring about equity. What it cannot mean is that equity itself is designed. For that, there needs to be different kinds of tools and methods that go beyond the scope of what design is, as it is just a process. The best kind of design would be a process as an empty shell that can host different elements within itself, in just making sure that whatever is put into it, the knowledge, the need—preceded with the initiation, which puts forward the motion of the process—is then processed towards a solution. Design then as a process is not a guarantee that a good solution is the outcome of it, it is just an assurance that it is an outcome. I think there's much misconception around this idea. But social design itself doesn't necessarily shape what the collective, the cognitive real world, is for the ones experiencing it. Actually it is hard to say if anything is. Though it does shape the real

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world and perhaps, via it, what we consider the real world to be, the metaphors we live with. Krippendorf assures us though, that even in social design, the object is more of a vessel for something than just an artifact itself, which is very true: “*Human-centred design is concerned less with assuring that artifacts work as intended (by their producers, designers, or other cultural authorities) than with enabling many individual or cultural conceptions to unfold into uninterrupted interfaces with technology.*” Still, even if concerned less, they are user intended, they use the user to showcase something that has an expression in the social sphere, which does not mean that it uses the social sphere as a tool to impress something on the users that could be called societal design. Either aim at hand leads to a different set of methods, and that leads to whether we’re looking for an outcome to fulfill a need of the people, using them as the motor to fulfilment by an artifact to be designed—or are we looking for an expression of the need that is to be fulfilled and planning something that might affect the impression itself. Social or societal.

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2.2. Designing with an Aim for Inclusivity

- be true to the nature of the Issue

Design, as an assured process for an outcome, has to have a philosophy, a fertile growing ground set beforehand. Before the process unfolds, the aim actually feeds to the initiation and that to the process itself, which also explains why it is natural to have rounds of iterations in the process. One clear philosophical aspect to social and societal design is inclusivity, which, in this context, means no universality, but rather equity and fairness. Equity over equality, which unfortunately often despite our best efforts, obtains the features of universalism at the end—the same to all is not necessarily at all equal and even less equitable. Equity should be understood to have equality and social justice in one beautifully utopian concept. I've said it often, equality is a finite resource and needs as much loss as it can ever have gain which, too, might not be actually equal, meaning that the mode to equality is not easily or simply equality itself. Where equity relies on the whole, equality forces itself to play with the pawns of parts. Inclusivity is to be considered as the mode of design to achieve equity. Inclusivity in design is the human-centeredness in social scale that brings about the inclusivity in societal scale. Inclusivity itself sounds like a high enough representation of morals and responsibilities we'd need to consider when shaping the society through our abilities to piece it in functions that can be designed and planned, which fortunately and unfortunately is not an simple case—as previously stated, of same to all. Inclusivity, for example in social change, brings out interesting complex interconnections in the societal scale. As previously stated, before social change, movement, happens always in reflection to itself—the movement can only be self-fulfilled and against something other, in society. There is no movement in solidarity, as there really is no societal solidarity. When something is moving, distance has to be gained away and towards something. One could think that moving into one social sphere from another has to either mutually host the movement or passively ignore or even worse, negatively disagree with the movement, which will then again set in motion a whole sequence of ripples. But even thinking of it, one move at a time, one has to consider that inclusivity is perhaps an impossibility in its purest extent in change, movement, no matter how planned. It can only be planned to be contradictory.
Accepted by its limitations and side-effects. This too, is a part of the problem of problems—an element in one domain can only change in the same, if that change is the actual aim. If the change is an act to change something in another domain, there is more room, though perhaps less particularity—it becomes fuzzy.

Solutions will always only bring out new problems. The never-ending complex ripples could perhaps in time reach the point where the effect of the ripples has expended itself—though new and new modes and domains of the ripples emerge and surely enough, seem like the backlashes are forming to even higher waves. Not to say that the new problems require new solutions at all times; in actuality much of our needs stay the same throughout time—we just find new artifacts to fulfill them, which then become the objects of our desires. And another good thing in this, why even old trick will sometimes work for new setups, is something we’ve learned from existentialism—we’re after all very much the same. Take out socioeconomic status, class, language, and gender, appearance in all senses—and we’re all just human. It's the one thing that we undeniably are the most, though it's the thing about ourselves we seem to most disregard and even hate at times. And that helps us to understand that there’s nothing unique in us—except the fact that we are unique in ourselves. No one else is us, expect us, and we cannot be anyone else, since those people exist already. So anything that seems unique to us is that in actuality though not at all in factuality—all other things except ourselves can be repeated, replicated for someone else too.

As in many of life’s decisions, one should pay more attention to what is the gained good out of an action and is the action actually directed straight at it, a needed change has to be backtracked by its symptoms to its initiation as well as thought—is the planned reaction and its chosen design rightfully directed. This can best be done by systematically mapping the problem as a process. No problem exists but in a system and in motion, so the map has to represent the problem as a whole to the extent that the suggested solution can and is meant to reach too, meaning that the things that are in play have to be apparent for the solution to be able to affect them. The time scope can also be extended to encompass the past and the projected future in the solution—in the
making. A problem system map emerges not only from the stakeholders and elements, but from the context also—the physical and mental surroundings the problem exists in; a problem has it all: an aim, process, and context—like everything. This systemic, even stochastic, thinking should ensure the inclusion of the needed elements to at least cope with the problem-whole. Whatever is missing from the picture can only be found in practice or in looking at the problem from a different angle. It’s not that the unknown unknowns aren’t there—they’re just staying invisible to us till the moment we understand to look at them and thus become known unknowns. Inclusivity should in this mean that, first of all, all the aspects are taken into account, but also that the perspectives of the same concept of an artefact are known. There shouldn’t be signals too weak to be taken into account, and as something is framed out intentionally, it should be done in the full understanding that the solution will only become partial too. This inclusivity goes beyond the information sourcing process in the prototyping phase, where one can simply—in the smallest scale—just reflect the resolution within the stakeholders. But to be able to do this, we need the artefact, the object to be enough for the participants to communicate over it. Much as in developing a society, or actually the society in action, we need to share some understanding of a concept of an institution for us to be able to develop it. And even further down the pipeline of the planning and design process, we need to ensure that the subjects of our design, both in positive hoped-for effect and negative-unplanned and even the neutral-stand-puts are taken into account.

The hoped-for effects are the best-case scenarios built on those that a solution is intended to work for. The planning includes these participants innately, since they are the subjects that initiate the planning process. Not to say that all the bases are automatically covered in just serving the original initiators, their needs, since often the fault of the process management is the biases they see in the case, and the ones they bring in as parts of their being. This is one of the reasons why often when talking about sustainability projects, the vocabulary changes a bit and planner designers become facilitators. This subtle change potentially eliminates, and is intended to eliminate, the biases by shifting the competence core from content to process and from perhaps even discipline to management. When facilitating a process, rather than executing a design,
the planner takes a position where the possible biases and tradeoff patterns give space for the process to be a learning one too, the difference being that the competence relies on understanding the needed process to reach a solution or a resolution and the content of what is the knowledge to complete a plan, and a design comes from the project and process itself. It is a learning process, not that it's just for learning—for the project executors to learn, but that itself learns from the knowledge and shapes itself according to the inputs, this is to say, that one should think to ever be in the position to teach the problem how to behave, but to learn from it. But of course, like any plan—the intended outcome rarely solely produces outcomes that were meant, but it comes with surprises and byproducts and effects that were perhaps not a part of the plan itself. Thus more aspects of the same problem need to be included. The negative and unplanned effects of any solution on movement, either in the structure of the problem, in time or just among the parts that receive the solution, the changes it makes in their existence are bound to happen. If not, a change probably didn't even happen in the scale or magnitude worth the effort. In a sense, if something doesn’t go wrong—then the plan didn't work. This does indeed happen by the rule of reaction, that can be equal and opposite but not only. Meaning that it can't be taught to happen like a Newton's cradle, but more like an implosion-explosion, where several parts meet and have to react—some overpowering and maintaining the motion, some meeting an equal mass in resistance and stopping, some being overpowered and stopped. And there will be those unknown unknowns, but the more the topic can be explored through different lenses, perspectives, and scopes—the more of the peripheral information can be brought to the project. The good thing is that nothing at the end can be a total surprise to us when it comes to social change, action, behavior, and so on—since they actually are the most known elements to us, the elements of humanity and the real surprises are basically limited to the realisations that we overlooked or misjudged something. There's no foolproof way to do this; there's only labour beforehand—or the chance to iterate is used beyond the project, as previously stated, by prototypes or by putting the solution to use and take it as a plan in motion. Like cities. A city is a working process of a plan for a perfect city; it's never finished nor ever still. And even though designers love to joke about designing one more chair for this world, perhaps it is so that we haven’t yet found the perfect medium on which to sit,
and every take on it is actually a take on the exact same object, just by using different sources of information. How the neutral are the outliers in this case of one’s failed attempts isn’t all black and white. Not to say that there needs to be an overarching butterfly effect across the society by every change one plans, but there is a grain of truth in it. Firstly by what I stated before, that by having the hoped-for effect, one must prepare to observe the counter-effects and, secondly, as the society has no middle ground, no empty space in that sense where anything could happen in absolute vacuum, but every motion has to be observed in the social sphere for it to even constitute as a change in the first place, thus meaning that there needs to be a reaction to every change, even if it is a still one—the stillness has to be decided. It has to be decided that there needn’t be a reaction to it, though this most probably happens the most in the mental space of change, since the physical reaction of not reacting is surely an invisible one.

Inclusivity is of paramount importance to sustainability. Sustainability is surely one of the most coherent plans we’ve ever tried to cope with, concept, and execute as a global society. For it to ever work, or moreover for it to ever find its shape even for it to be ever changing, the subjects’ minds, perspectives, needs, skills, knowledge, and all need to be taken into account, for us, as the global society, to be able to reach a shared aim, to plan the process to sustain the context. Physical and mental. This can be done by accepting the fact that there is no right or wrong information to be brought to the process, but the only differential in different pieces of knowledge is the distance to the apparent subject knowledge sphere. And this information is best embedded in us, the people—in different perspectives of what the collective understanding of it amounts to, which is the passive top view and the different perspectives we impose on it as the personal view. There might be an inside view as well, but rarely since to be able to have a perspective, one has to be mindful and, for now, there seems to only be human minds available, especially when it comes to the social sphere and its sustainability.
2.3. Empathic design—Being true to the nature of the issue

- Soft-sciences as the missing link

There is a growing interest in the mix of soft and classical hard sciences. In the first place, of course, the claim that that design, for example, is a science has to be judged quite post-formally. Aesthetical values that have been attached to the field of design have perhaps even now passed, and human aspects of design (i.e., usability and ergonomics) and environmental values (i.e., resource-smartness and recyclability) have pretty much taken the lead on what could typically be considered the end product of the design process, with social and cultural values like peer-media presence and attachment added. Still, though economical values pertain—though probably in different forms than the typical for-profit, as much of modern design originates in crowd-funded projects and things are perhaps more shared now than they have ever been with open-data and crowdsourcing. So it's undeniable that design has grown from being the afterthought of art to be the artefactual image of what existence is. One might say that design is now more human-centred than ever, and all the aspects of how we value design, including environmental aspects, still are mediated by social acceptance and value attribution as a social phenomenon. This isn't to say that design has become truer than it ever has been. Decades of marketing bombardment in the culture of hedonistic individualism have rendered both sides—the ones creating the demand and the suppliers answering it—lost. And even that statement has to be taken with a grain of salt; to be able to judge efforts based on urgency and by its role in a hierarchy of needs to be fulfilled would require that we share a global common morality. However, that would in all actuality take much out of the process that is the society. Society is not built on empathy; selfish needs and the resultant individual achievements have given us both progress and perhaps to some extent recession of human values. As said previously, in my view, equality is a finite currency. But in this unempathetic vein, an undeniable leap of progress has occurred, and slowly perhaps the benefits of it are spreading, though as in every mass-adapted practice, even the good news travels slowly across the developmental, social, and economic boundaries. And as the global society is saturated by one innovation, the benefits associated with that specific artefact are shared globally
as well. I’m not sure if anything can be as beneficial to some as it would be when shared among all—in the long run and in the systemic sustainability whole. Needless to say, why the global society would benefit from including more empathy (i.e., in design, especially social design), why sustainability should include empathy and even adopt it as a methodology, and how the sciences would broaden by merging with the softer sciences to become more post-formal perhaps require some elaboration. And I don’t mean pseudo-science, new-age thinking, spirituality to extreme extents, or anything like that—but simply that we do need to recognize the human element in all of it.

Whether or not the actual aim can ever be judged as truly right, i.e., righteous, the process initiation and the execution through empathic methods can be put to work according to it. Empathy is not a new trait in design but is perhaps as an intentional spark an unexplored one. Again we could go back to Papanek and the concept of design for the real world he was advocating and see that whether it is empathy that makes us turn to the area of design or the simple ability to be able to help the ones in need. I firmly believe it derives from the sense of shared humanity, since in it a mix of altruism and sense of skills find an intersection. Empathy is undoubtedly strong in us, as Robert Sapolsky, a world-renowned neuroscientist says; one of the most unique features of us as a species is the lengths to which we can take empathy. This characteristic surpasses the genes, group behavior, and hormones we share with other inhabitants of Earth—It manifests in our abilities to still, after all this progress, understand that, excluding all socio-economic features, language, gender, and age, we are all the same, humans, although ironically enough we seem to believe that those in a sense very unreal things make us the most human. Unreal except for the fact that they don’t make us at all unique. Echoing the statements on existentialism, only the fact that we, ourselves, get to experience what it is to be the specific humans we are—and perhaps there is a reason why empathy and similar innate, natural emotions are strong in us. We experience them not only as just us but also as only us—to that extreme, as humans, and experiencing them is initiated by observing, sensing another being. This sense though only alerts us and attracts the attention to the moment, which then leads to more logical functions.

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61 R. Sapolsky, Class Day Lecture (video): — The Uniqueness of Humans (Stanford University, 2009).
Sapolsky continues to say that what in the end makes us the most unique is the ability to want to do something that we know cannot be done. The more seemingly impossible something is to achieve, the more we see value in achieving it. The more we see a need to achieve something that will benefit the world, the more we will, I hope, endure in trying to do so. Like a sustainable world perhaps.

What empathy as an intentional element ensures then is the truthfulness to the process itself and to the subject at the receiving end. Empathy should be put to effective use, especially in sustainability projects where the emotion should be extended to fulfil its own gains that are perceived to come from the execution of it, to the receivers, and hopefully to the multiple benefactors of a successful project—in the environmental, social, cultural and economic context. Empathy is a shared feeling as even though it is felt in us, it is initiated by another entity in need that we feel responsible to help. Since the feeling is shared, it leaves us less room to interpret it as furthering our gains or even suiting our abilities. Serving an issue that you need to, that you feel compelled to, should evoke those feelings of achieving the goal by surpassing your abilities, growing to meet the challenge, since we cannot compromise or leave the job half done. And empathy isn’t the sole super-glue we need to bind together our efforts with the ultimate goal of sustainability but it is an element that we should willingly explore as the cause and the tool with which to assess the process. And this is, of course, empathy beyond what we as assessors could feel towards the failed attempts of someone else, but empathy in the process of conscious selection of our levels of effort to fulfil the need to fulfil someone else’s need. It should by this equation become less of an issue that it is in us, but we feel it, and thus donate our skill, ability, knowledge, time, and effort to serve the issue. This is surely what is meant when it is said to work with passion, but even with less of the fierceness that comes with passion, we have the ability to be at least true in our efforts. What's the worth in being true then to the issue comes from a chain of thought—logical ones, that being true to the issue is the insurance of the efforts allocated to the task at hand. Empathy probably isn’t the only emotion that can ensure the motivation to perform and go the needed lengths to achieve the task, but it is a very human one and one that we can intentionally evoke. How, then, is a methodological choice. There are
easy enough ways to experiment on how to as well as a world of so-called hard-science in the neurological and neuropsychological fields, of which I am not at all an expert, but I am rather a facilitator and planner of a process that aims to solve a problem, and I will surely find good use for these tools.
2.4. Ethnography in Design and Design-Anthropology: What, Why and How?

– *Old and novel in a mix of both*

Ethnography is being used in design, more and more, but based on the examples I’ve seen of it, it’s been employed as a tick box part of the process.\(^{164}\) And as in any science or discipline, I’d say that its actual purpose exceeds being able to execute some of the methodological tasks, as it is about the overall understanding of the science itself. In any coherent understanding, there has to be a presence of the meta—the *why* of the science, not just the *how*. And surely there are explanations as to why ethnography should be part of the design process, though I’m not fully convinced it covers the most useful aspects of the science, which is the finding, exploration, and understanding of different human perspectives with respect to the issues at hand. Ethnography in design seems to suffer from the same flaws as does design in human use, which is that it seems to ask only the questions it wants answered and thus draws an image of the case, based only on the abilities of the designer—the one who proposes the questions, which might not be the relevant ones at all. It uses the users themselves as the source of information, but only through the lens of the designers, the scope they can cast on the situation. By this, comprised of, observation, questionnaires, recorded happenings, and so on, the designer aims to find an overall explanation of the phenomena or the situation they aim to work in. This, I’d say, is the designer’s effort to find that overview, reflecting what the subject has expressed, then merge it with their view of what should function as the key elements—that they later on try to affect and thus ending up with an overview, a top view of what is the situation. But this top view, I’d say, is no more true than would have had been just the designer’s own view of the situation, gained even just by second-hand information or by observation—and surely observing lets us pay attention to specific details, whereas with information that’s heard or read we can only pay attention to details that someone else has paid attention to first.

\(^{164}\) For example, Helsinki Design Lab’s Ethnography Field guide literally has a list of tasks that you tick: (http://www.helsinkidesignlab.org/pages/ethnography-fieldguide) accessed 9/2014
As ethnography derives from anthropology, the study of humans, the use of the results, as well as of the science and its methods, should be more human centered and less process centered. It seems that, in the case of design ethnography, the melding of the two fields has become biased—it is the design process that borrows from ethnography but not on equal terms, meaning that it uses it for its purposes, pushes it to be a part of its selfish process structure, and, I'd say that with it, renders the actual use and purpose of it banal. Ethnography has to be viewed as a part of anthropology, though rarely do you hear anyone talk about design anthropology and not as research design as a part of social studies but rather melding social studies with design, according to purpose, methods, and, most of all, aim. From another perspective though, design is human research as well. Design as a process is usually motivated by human need and for sure from a human-perceived need. The ideation and context is always shaped to fit the human understanding, social sphere, and so on—for example, we probably could never design anything for a forest, from the forest's perspective only. Whatever information we pour in to the mix that makes the end result, is obtained, processed and understood by us. And, as design seeks for new grounds from physical solutions to immaterial, undefined, and fuzzy coherences—like discourse for example as the far end of Krippendorf's projector, we get even closer to the fact that design is not only very much human led—it could reach the meta-levels of what is this human life. Design thinking by the concept of anything that can be changed purposefully can be designed to do so and even how and for what. And here design has to be understood almost as a part of human sciences more so than of artistic, economic, or even ecologic sciences. Design is a process, but it's also found from the process of the process—the making of our existence. Design is the action of being and the aspiration to better it, change it. As Sennett said, if ultimately a human is a making being, then most of their makings are meant to bring about something good. Though it's human to interpret the view of what is good. As this is just as human, it is, of course, only natural to have a reflection, a mirror, at which to look when conducting a process that aims to bring good. Even if selfish. This mirror, working for humans, with humans, and as a human can never be an assumption or a non-personal view of things. Even on a societal level, a passive actor, subject, or object cannot function as the source or direction of reflection. It can only be a human, personal
one—and most often the more multiminded the better. Here the human sciences and design clash, but not in terms of aim but rather in the perceived right path to achieve it. Simply put, the one uses a method true to the process, and the other a process true to the method, meaning that where human sciences sources nuances in the simplest yet most challenging task of understanding us, them, all—humans it looks for the best ways to reach that specific aim in the parameters that a process can have, though this process can be seen as the whole science itself. Design has stricter boundaries in how it is conducted as a process, and the process itself is the aim that then sets the parameters that the methods need to fit to be able to serve the aim. However, this process is the true definition of design, so without it—it should cease to exist as design and seek for a new definition. This isn’t to say the other is more right or just than the other, but quite to the contrary there is a point to be proved how these two should benefit from some merging. We’re, in the end, ultimately bound to design for humans and as humans, regardless of our struggles to master or even truly step into any other perspective.

Ethnography in design cannot be any less than a seamless extension to the process of human studies, of which the outcome provides the basis for the process to change what were the findings themselves. Whatever we can change, we need to first observe. Whatever we want to observe, having the integrity that gives us to right to acknowledge a finding as a true one, has to be observed from more points of view than a fitting one for another process that we want to execute. And not only from one point of view or perspective, and in a sense most definitely not our own, unless we are designing for our individual selves, though this shouldn’t even have to be pointed out for the whole topic of the work. This isn’t to say that there’s anything wrong with an individual perspective—it is in a sense the most and only true one, but to say that our perspective seeks, just like the fitting findings, in a given task only a set of observations that by our reality actually fits only our reality and so ruling out what shouldn’t be done. Human studies as a part of a design process shouldn’t be used as such. They can be integral and they don’t have to be separated from one coherent process, but one cannot intentionally lead the other. And though individual perspective is the only one we can ever have, there is importance to truly observe what that individual perspective is, openly and again not
intentionally directing the process. And this brings us to ethnomethodology.

Ethnomethodology, as I see it, to work at its best is the inquiry to see how things are to a human, not how we see things or how we see that someone else sees the same thing. Nor is it about how the passive top view experiences or interacts with the surroundings. Rather, it is how the subject of our process sees the world, how they experience their own existence, what is their perception of the situation they’re in. This is the most important perspective simply because it is the only true one. How people see themselves in a situation can be, and quite often is, totally different from how it is observed by anyone else outside the situation. This being true—what would ever be the point to design or plan anything according to any other perspective and view, than the only true one? Here ethnography differs to me from ethnomethodology, which tries to be a true prescription of the situation _de facto_, which done with integrity is a painstaking process and a neverending iteration of what is only observed and by whom, what was missed and why—whereas ethnomethodology relies on observations by the person actually experiencing the situation. That isn’t to say that they construct a description of a situation that is wholly true, but that in this case is absolutely beside the point. Since we’re not trying to plan or design anything based on the unreachable absolute truth, but for the people in the situation that observe it from their perspective—that is to them the only truth. “To analyse the methods, or procedures, that people use for conducting the different affairs that they accomplish in their daily lives. Ethnomethodology is the analysis of the ordinary methods that people use to realise their ordinary actions.” To be able to design for the people and with the people, isn’t the only truth that we’d better obey the truth that lies within the individual, rather than an inquiry for an absolute, passive, and non-actor truth that might not make sense to any of us? Since a system, as a passive actor whose parts only act to run the system but seem to derive no benefit from its outcomes, has no meaning to us in the social sense, it must cease to exists, or it will naturally die. The same should then be true of explanations, outcomes, and solutions that we try to implement that are estranged from the perspective that is to use them, to benefit from them. In other words, implementing or even suggesting a solution to

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benefit a social system that comes from a perspective that isn’t its own makes no sense to the social part of the social system. Systems have no actors, the social does, and although the social and the system are the parts that create the whole, the tension between them is the perspective itself—thus it makes all, and the only sense, to observe and obey that. Or we’re in all actuality talking about a very different project.
2.5. Social Change through a Mix of Principles and Methods

– It's alive! So treat it as such.

Social change is something that happens, by the theories on which this inquiry is based, naturally. Social and societal evolution is in the core of our development, no matter what state we are in. Development is, too, comparative. Compared to the old, we tend to walk towards the new, and, in this sense, a developmental standstill is rather unnatural and thus is a specific act of its own. Whether the standstill occurs under oppression or from the lack of vision, where to commonly walk towards it is unnatural since the base reason for the standstill is restrictive. The social sphere creates and brings about a large part of our existing context, arguably larger than any other element of our existence, meaning that, in masses, not only individually, the social experience of our existence has the power over other domains in a normal status. It explains and receives our explanation of what it is to exist. These two elements, that we exist socially and that it is natural to change the perception and try to direct the feedback existence returns to us, should bring us to the realisation that no one principle could ever cover and cater to the need of the change in action. Surely one can try to be precise, try to match a need with a process that leans to a method and that again to a theory, a theorem. But none of these directions, diversions, or interventions can happen in a bubble, in a vacuum that excludes the other parts of the social experience and thus from the theories arising from influencing that sole action. We need an understanding of the different scales and scopes of social change to be able to promote it. Though it has to be remembered that one can never direct a living organism; one can only influence it.

This thinking focuses the attention of our efforts not only on the execution phase of a process, where social change is the aimed outcome, but to the whole cycle of the process. The right kind of thinking has to be employed for the process actors to be able to understand the philosophical basis of a project, which then leads to the correct selection of theories and methodologies to be used in the process, and that in turn leads to the right kind of process and to the needed end results. But this base has to be created early enough to actually serve as a base, not as an undesired intervention. Though after the
whole cycle of the process, the end result can and should be brought back to the base to see if the philosophy actually carried through the process. If not, the end result should be pushed through the loop again, with an adjusted base. This base is best built by understanding the needs of the source, the subjects of the task, and by extensively exploring the problem system. The problem and the system surrounding it, in context with the affective parts and in time, create the duo of physical and abstract outcomes of the problem that need to change, and the ethnomethodologically sourced perspectives of the problem system cause the tension between the parts. Although this can be adjusted as well, if the problem lies more within the system itself, the system around the problem could be thought to be the tension between the physical outcome of the subject and the abstract view of the context as a whole. So we need a very human touch to build the base for any planned social change, and we need an extensive overlook and analysis of the systemic kind to the problem system at hand. And we need to extend the equation to fit the need that directs the aim and a process that learns from the process itself—and does not only try to teach or direct it. Social change comes about from either reshaping the context or from the process—the system in action itself—or by adjusting the aim, the aim of course being the most lucid one, as it is hard—even on a theoretical level, to conclude what is the aim of any society, except to survive, by any means. In actuality these can be devastating ones, such as an intentional collapse, which then again secures the survival of the more important parts, the people. Any and all of these can only be changed by the specific rules written and ruling in the three different domains, which are the context, process, and aim—though they are ultimately intertwined. Changing the process changes the context, and this has to fit the change of the aim as well.

The topic is social sustainability, or perhaps it should be more fittingly described at this point of the inquiry as a social phenomenon, which in a sense is the only sensemaking way to best explain it, unless we mean something totally different, like sustaining the social life. However, as it makes very little sense to treat it as a separate issue, that is not what we mean at all here. Rather, what we do mean is how sustainability is experienced in the social sphere and also what sustainability means to the sphere itself. So we could talk about the social theory of sustainability, or theories of social transformation towards
sustainability—or even use the more commonly used buzzwords such as social and societal innovation. “Social” has to be present, as it is the existence in action, and “societal” as it is the scope we hope to change in order to reach the aims of sustainability, though it all stems from the parts that create the system of society. Not people only, but metaphors, symbols, the things that create the context, and the process that makes the context—and again the aim that has to be pursued, in order to have an action and a context for the action. Looking at the mass of what we have for now, as my personal selection of the methodological reasoning behind what aims to employ, my own definition of sustainability, what is social sustainability and how to achieve it, and on top of it—how to educate in it, we’d need to review some of the synthesis presented thus far.

Sustainability has to be inclusive. There is no one-size sustainability, no good-enough compromise or a momentary adjustable or lucidly effective version of sustainability. No matter how much we’d like to have the cake and eat it too, to conclusively define what sustainability should be without some restrictions and exclusions would ultimately only render a truncated version of sustainability that fails to capture the original concept that we in all actuality need. In short, we’ll easily end up with a principle that has all the good intentions but no tangible actions. This does not at all mean that sustainability is an impossibility, given that it has to be inclusive but also restrictive; rather, it only means that we need to better define what sustainability is to be able to capture it inclusively. If in the end it is most about responsibility for our actions, not only to ourselves but to existence as we get to experience it, we get closer to the fact that sustainability is not a principle in action but is a philosophical basis which we try to form and base our actions on. And that is, at its best, the aim of being sustainable, whose aim further defines the process that is then directed—in the end, but for now only disturbed, to achieve the context that is then also sustainable. And the aim is only experienced as a social phenomenon. The aim of and to sustainability is socially understood and put into action societally. In any other shape or form, what we have is not sustainability. The aim has to be evoked, to be disturbed out of the status quo unsustainable world which in transition is the process. The process has to be modified by interventions, by experiments, by assessed and explored different realities not exclusively based only on the success of
some but openly understanding the different modes of how sustainability, i.e., the sustaining of something, has been achieved in different contexts. This needs to be done, not for the history of it, but for the adaptability, the heuristics of the abstracted trades and truths that are so human that we can all see them to be true in any context. It’s not about what works for sustainability, but all about what works for humans. This perhaps is the core of my thinking as to why sustainability is nothing but social. And perhaps if we for some discursive reason want to continue to further elaborate on what specifically is social sustainability, we need to restrict the definition to different boundaries of the concept and would with it perhaps only end up with a different definition of a society, which surely is—as we’re about to hit 8 billion people on this planet, one of the most sustaining things under the sun. Though we have to allow room for the short sightedness of the actors in this inquiry—we humans are by the factor of millions much more finite as individuals than is the individual planet and social context we get to share and shape. Then again, some principles and ideas have been successful in extending the attitude of responsibility beyond one’s individual existence—life, like religions and others such proportion like heroic acts of patriotism. And what is the difference then between sustainability and a religion, a political principle, any plan ever made and actually put into action? The difference could be the inclusivity; it could be the empathy over each actor; it could be the understanding of each’s perspective—though very similar to inclusivity, but I most believe that the difference is in the action of sustainability, which cuts across our existence in that it becomes true and real in the process and exists in the context. But all, the path of it, the analogue to the utopia of sustainability, all grow from the aim. For without the aim, the underlying thinking, we can only achieve randomness.

What then gives one the right to influence and the right to assess something to be worthy of being influenced? To aim for a change with the distraction is the plurality and the inclusivity of the aim, which is not necessarily sustainability per se but rather responsibility. Responsibility is innately shared. It is the analytical part of empathy that is one of the most human, the most raw and real reactions of responsibility to us humans in the only reality in which we exist—the social one. For without the boundaries of society we do not truly exist; we can at best only think we do. The aim then is not an
element that we can evoke en masse but rather in individuals, and it comes not through the ruling of the process for the best of the context or from the analytic knowledge of our actions and the effect it has on the context. Instead, it comes not from the simple bargaining of the aim over the costs of achieving it. The best we can hope and achieve is that the aim is mutually shared and understood. Whether the aim becomes the mode of the process and the perfect image of the context, the true effort that we have at hand with sustainability is truly all about achieving the common understanding of what the aim is. When that is achieved, the rest will not necessarily follow automatically, but only by it can the rest be correctly acted upon, viewed, and understood, that is to say, in short, that neither the process nor the context will make sense unless the aim is understood.

For this we need to understand humans, the minds and motivations of a human. And this is fully beside the point of sustainability and what it really is—in action might I add. And as the aim coalesces, we can open the discussion of what sustainability is in action, in practical terms, in the form we need it to be at specific times. And to me it seems that, in these early stages of a principle, we'd need it to be an extension of what it is to exist as a human and not as the judgment over how we at the moment do exists as humans.

What would then be the theory leading to methodology in achieving sustainability as a social aim? A reasonable aim is an outcome as a realisation of possibilities in the imaginable reality that is given a priority—efforts, towards achieving it. Aims are undeniably something that we tend to try to achieve. It is the direction of our actions. An assessment of what is reasonable relies heavily on how we can adjust the aim to our own scope for the aim to fit possibilities suiting our size—in which tangible points it makes sense to us. There are several theories and methodologies wherein the aim is to reset the aim of our actions. The base theory, in my view, is that sustainability, or whatever is the aim that one's trying to promote, has to become something that is well needed. It has to resonate to the needs to be fulfilled in all areas of life and thus become a latent undertone to all things at hand. The aim has to be individually understood and shaped to fit the other needs that it as a base philosophy can direct without contradictions that may force people to go against its basis. It has to become a need, since nothing that is needed can or should exist as a part of our existence, of our societies—or of a single global society.
Nothing that cannot be understood, which makes no sense to the actors of sustainability itself—which needs to be the whole global community, is even considered to be practiced. Though of course the change itself needs promoters, people like us, to bring about the conversion through a concept of the principle of sustainability. But as stated earlier, if the concept seems to be static, it’s naive to blame anything else but the concept itself for this. I have offered a suggestion of what the concept of the principle could be in the sense that at least it could be better understood—that at best leads to it being even further developed. As stated before, that is development and at the same time that is society in reality, in the action of the development of it. The society will be sustainable as long as it exists, since it only exists in common action—whether it is the opposing forces that do so, but as long as there are those forces the society sustains; it remains. What then again makes that society sustainable in other areas of existence is that it, aim first, understands the contingency that the aim has to the process of the making and which then again affects the context. The aim has to be then again set for sustainability since the balance, which we have irresponsibly made labile with respect to our well-being—the process, which takes from the context and feeds back to it something that the context can only disregard, is highly unsustainable, since the context is, for now, finite. Taking something virtuous and turning it into a byproduct, which is then fed back to a system built to function only on virtuous or natural input, is simply and undeniably unsustainable. It works against the very nature of the system that we depend upon and which then again depends on its own self-efficiency. The context then again becomes ill when the process makes it so. And of course the process can only be unnatural if the context so allows—after all, opportunity promotes action. This opportunity has to be created then for the society and its parts to reinvent the aim of it all that contains sustainability, the aim being to have a sustainable, responsible process. The rest will follow.
Aalto Creative Sustainability

– An example of a Post-formal education on Social Sustainability

VOLUME III – The Synthesis
1.1. Developing CS and the Recipe for the Mindset

The CS programme has to evolve, as does any field of science or practice—and as does any programme that educates with respect to topics that are themselves still evolving. The next chapters present a few suggestions as to what social sustainability could contribute and, it is to be hoped, how the perception of the whole field of sustainability at CS could be changed. The next chapter concerns future sustainability education and attempts to make some predictions as to what will happen in the field and how CS could react to those changes. What is its role in the post-industrial, and perhaps even the post-capitalistic, world and how does a field that aims to become obsolete develop itself—or should it simply perish? The next chapter is about the recipe for a CS student, if one can be conceived. It's about the right kind of student mindset and, more importantly, what comes after the studies. The last subchapter concerns the development of the programme itself—how to develop it and what in turn can it give back to the source from which it draws its theory and practices.

Perhaps what differs the most in educating students in sustainability versus many other disciplines is that sustainability aims to be multi-disciplinary, or, as I prefer to state it, non-disciplinary. To this end, with respect to each student's unique educational path perhaps a recipe as to how to educate or re-educate them could prove beneficial. The debate as to whether sustainability is a coherent principle bringing together all disciplines, almost, or it should be on its own—based on all, has been present since the beginning stages of the principle. The criticality of deciding which is true arises from our current situation; thus, though the problem probably is only circumstantial, the past has inevitably led us to our current situation and its problems, should we try to introduce a new mode for the old disciplines and so attempt to better them—hence make them more sustainable, or would it be more effective to abandon disciplines altogether and concentrate on the aim? This depends primarily on the aim of the CS programme—meaning, that it can, and surely should be, inclusive by allowing the programme's approach be chosen by the students themselves, though it can and, in my perspective, should promote sustainability in the form of non-disciplinarian thinking in input to
students and, of course, in its selection of students.

Either way, the mode through which to achieve this is the education of not only specificalities—technicalities and adaptations, applications and such—but it is in the overall mindset that it wholly supports. This thinking forms, in effect, the philosophical basis to all the following acts and actions. Much like in setting up a proper process, the system’s parts must understand their basis in order to move towards their aim. It is the structure of what can be taken under the same aim and what should, even if inclusivity is one of the aims, overruled.
1.2. Recipe for CS Students

- Post-formal science in post-normal times

Observing closely the CS programme for the past five years, which is in actuality the time of its existence as a full master's programme, I have seen some archetypes appear and reappear among the students. Besides the characterisation of typical CS students, of greater importance is what kind of students and professionals they are shaped, or supported, to become. As stated earlier, at the programme level there is an ongoing debate as to whether the programme should be educating professionals or activists, an issue I've addressed earlier—meaning that, is the programme about adding the responsibility aspect to the students' previous background or is the aim to educate them to be sustainability professionals, as described in the previous chapter. On top of this, as the programme is very young, some of the courses and modules on different scales get revamped every now and then and perhaps with this different topical tensions of sustainability are taken up with more detail—whilst the questions already somewhat answered move to the background, as surely is typical in any programme. And, best of all, the programme does really encourage the student, and I say this not only based on my own experience but also by knowing first-hand the study paths of others, to engage in projects around the world and to undertake studies in other universities and so on. So it's fair enough to say that the programme itself does branch out—although a bit exclusively, but only for the practical reason of limiting student numbers in CS courses because the students from the programme are given priority in enrolling in these courses. One thing that should be pointed out is that the collaboration between CS and outside society is still, surprisingly, in its preliminary phases. For now, the collaborations are usually based on individual cases. It's understandable why this is so, as the programme has to be and stay inclusive, and stay clear of any allegiance to parties that could be or become 'questionable'.

I've documented my own path, along this meta-university experience—the official curriculum, the unofficial and off-curriculum, self-started and steered projects, activism, the founding of the think/do-tank all the way—sort of closing the loop by bringing in
some projects and getting a chance to facilitate the Creative Teamwork course. Every CS student, perhaps because of our small number, has a very individual path as to how to maneuver through the meta-university, but as said previously—characterisations can be made to try to see how students are at the moment and what could and should be abstracted from those analogs to conceptualise a typical, and beyond that, a ‘designed’ CS student. Not to at all hint which is better—to approach the programme as an addition to one’s previous professional background and adopt sustainability as another tool in their toolkit—or to rethink the whole profession to place sustainability first and discipline second. There is no quantification in this, since the programme takes no stance to promote one or the other. The programme offers a plateau of opportunities, from which each will take his or her own to shape it to fit his or her own aims. Here I do think, however, that the programme fails to strongly promote the discipline in its own right, which if stronger, would hopefully lead to the industry to emerge from the university sphere, which is badly needed—and in all honesty should be something the programme aims at. Either way, I believe there is, if not a proven but a method, to educate the right kind of CS student. But in order to suggest anything as such, it then needs to be conceptualised what is the right kind.

The right kind of CS student, in my personal view, would understand the application of the principle. This has to become the backbone with which they work no matter the level or scope of their project. It has to be the philosophical base of their thinking and doing, so that it is innate and embedded in the way they think. It’s the lens they see the task through. When rightly positioned in the aims of any project, this has to happen on all levels of the meta to the meso and to the micro philosophy—the connection of it to the project—the detailed decisions. And the less bias, to a discipline at least, the actor of sustainability has, the better he or she can carry out the multi-minded task that is the plan and all the compromises inherent in it. So in this sense, I do believe that promoting sustainability as an addition to a profession is surely effective, but I personally think it is the most effective if an actor becomes an actor of sustainability as a whole, and these are the right kind of students the programme should attempt to produce. What can the programme offer to get the students to be non-disciplinary professionals that understand
the multi-mindedness of sustainability? I honestly think it is found along the represented set of theories and methods of this inquiry.

What of course is the basis of all of it is the true understanding of sustainability. This comes not only from exposure to the subject or the impregnation of knowledge in the students, but most of all from their opportunities and growing ability to think critically. As said before, there’s much to be said for challenging and criticising, with critical thinking the concept of sustainability becomes the better for understanding it, for the positioning one’s self to it and for the opportunity to develop the science itself. For if we don’t challenge it, it’ll get—or actually remain, in the stagnation it unfortunately at the moment is. Critical thinking doesn’t of course only mean thinking critically, but it is more of an inwards process. There is the thing we assess, be it a piece of knowledge we want to learn, a concept we have to gasp, an idea we need to break, which is the input to our own thinking—the spark and the initiation to our own thinking, our sense-making process. This kind of challenge to the mind has to be met with the best possible tools and, to my recollection, when it comes to issues of sustainability, there is no room for a narrow view. A reduced view of any information or solution to sustainability issues would, if it would even work, be beside the point. There’s no achievement in resolution if the problem itself is not grasped fully, which takes a divided and cautious mind to wrap itself around. Even if a resolution or a compromise is the end result of the thinking process, the long road has to be taken to lead to it. The most beautiful design decision, in my view, is the kind where something gets left alone, not for want of effort or the tools or capability to approach the challenge, but when something so well analysed that the one in power can appreciate the beauty of the state that had evolved. This kind of end result surely isn’t the case in most of the sustainability challenges, but why it appears that magnificent to me is the ability of an observer to assess the state and status and think beyond his or her need to affect it—the ability to function fully unbiasedly. And critical thinking is unbiased. It accepts nothing and is willing to challenge anything, big or small—and even itself. It can free us to think about things as things, not as concepts or prejudged images of things. Critical thinking is also a gateway to autodidactic learning. The point of any learning is to ready ourselves for the next thing we need to learn. And
to critically think, to learn the mechanism to do so, can lead us to critically think about anything—no matter what piece of input, the mechanism to see the abstracted being of the thing, the micro-levels of the thing, and the meanings and tensions between those. Once one knows how to know things, one learns how to learn. Anything that comes after, the ethnomethodology, the cognitive approaches to social change, the social theories, the futurecasting—is all the same; its knowledge to be brought in, stated more precisely, to be acknowledged and observed as a piece of the knowledge matrix that now is, through thought, connected to the thought at hand. Critical thinking, the unforgiving exploration of a thing, connects the dots to the recognition of what we know—and opens up any possibility of what we need to know. Without a structure, provided by the critical analysis, we would never know how to pass the level of knowledge which can only be described as learning something by heart.
1.3. Platform for CS development

In this specific chapter, I take a more concrete approach. There are, to me, three clear paths in the process of developing the CS programme. We need to keep developing the methods on the practical side of sustainability. At the same time we need to, of course, develop the curriculum of the programme to better match the needs of the issues of sustainability—and latently to better cater to and groom the students in the programme. And we need to develop the theory of sustainability beyond the application and the practical side of it. This theoretical, and soft-scientific development of the overall principle, is our best chance to add to the field of sustainability. Surely design or action research over the applications of sustainability add to the field as a whole, although any of these tend to actually add to a different discipline, that then has a sustainable approach to it.

When developing the methods, the toolkit we need to master to plan, design, create, and facilitate the progress towards sustainability are the core of a professional of the field. There’s all the glory in a professionally and darn right well-conducted plan that has an effect and can be assessed as an act that has a forward motion towards sustainability. It is what we need, now. How this is then attained is the endless iteration of things to get done correctly. As said previously, every city is a prototype of a perfect city and every project, even if it is about designing a chair, is a new attempt towards a perfect concept of seating. Every take on sustainability on the right scale, as a prototype, will bring us something new about the topic. There’s of course a fine line between being novel for the sake of novelty, but wouldn’t it be fair to say that the best practice for how to live a sustainable, responsible, social, and context-aware life hasn’t yet been found? For us, jointly, to ever find it, we need to keep trying, prototyping. We need to prototype the project initiations—where we source the needs, which noises we take as weak signals, which things we need to observe and which things we can’t observe, though we should—and then we can predict. We need to prototype the planning phase and the design phase both as well. Nothing is set in concrete in this undone world that we could ever lean back and be content with our progress. As soon as we can dream of better, we
need to get up from our recliners and take a closer look. We for sure need to prototype the execution of our plans, and this is the phase where prototyping usually kicks in—but as we all know, whatever prototyping can be done at that point has power only over the phases that come later, that is, whatever came before has been set to guide the process fundamentally. Prototyping, as an act of critical thinking, has too to be embedded to our practice, as critical thinking to our theorisation.

When developing the curriculum, the aim has to be to serve the true purpose, sustainability being the best. The programme, as an education in sustainability, has somewhat trapped itself in the value proposition, the essence and the purpose of which is to serve a need, and an urgent need, a grave need that has priority above all else. It is still a university education, but, even so, the priority has to be well sorted and communicated out and in. Whether there is yet an industry of sustainability, as paradoxical an approach as that is to the issues, the fact is that a university programme employing many resources to educate a stream of enthusiasts cannot do it according to any specific standards or biases. There can be no allegiance to economy, ecology, or socio-culture to specifically place the people involved. There has to be true inclusivity, inclusion, and equity in the education, which, if acted upon, will disregard the selfish well-being aims of any individuals over serving a purpose. Though this again might sound like there's only a group of activists brewing under another buzzword in the university silos, the turnover can also be found, and very effectively, in creating the needed, truly unified sustainability industry with the programme and the sheer fact and public acknowledgement of its existence. The curriculum has to reflect the needs of the many—meaning the topicality of sustainability issues, the needs of the society at large, be it global or local, and, as stated earlier, those two exhibit very little difference. The curriculum has to be open to input, in the name of inclusivity, whether it comes from any of the predicted partner sectors in sustainable development: public—society, private sector—the industry in the making or the people—the real need and the students. And the programme has to take a facilitator role in adjusting the combination to a multi-win resolution.
Most of all, the curriculum has to aim for developing and giving back to the science of sustainability, beyond applications only. A bold stance has to be taken in the theorisation of the principle as well. The application, the practical side—the design after planning, has to stand on a ground that nurtures different acts and is in its all-inclusivity still a shared structure. This true being of the programme, as the academic approach to such issues, cannot take a free-rider’s position and just simply seek for the applicability of what the global community of sustainability-affiliated institutions and initiatives share. The students, staff, partners, and all other parties involved should bring in and take out also those bits and pieces of knowledge and ideas that are, for now, without an application—are born out of the iteration, and hope to find a theoretical form. It’s quite often said that sustainability is too theoretical, but what I’ve come to realise is that only the methods to its applications are in all actuality too theoretical, and instead the actual principle suffers from a lack of theory. There’s an abundance of methods that stem from other practices of planning and design and execution that well caters to the process, and there’s a scarcity of theories that actually combine the principle of sustainability and at the same time allow their practice to appear. For this, the true task of the programme’s development—as an internal actor in the field and the science, is the development of the theory or the philosophy of the science of sustainability. And surely this too is an iterative process that will take more time than any one student should spend with the programme.

To collect the efforts of developing the methods and the theory—and the curriculum that educates and seeks to apply them—should be developed as a whole. For the whole to be grasped from enough perspectives, the development body of the programme should involve individuals that represent the student, the academics, society, and business, but also the passive cohorts that can as a commune represent those same scopes—so there needs to be collective presence of the public, private, and people sectors as, for example, the government, an innovation fund and associations. A method needs to be planned for this kind of steering committee to communicate its stance on the direction and a stance that the programme takes. Whether it is through active outside-the-university sphere probing, annual meetings, or joint workshops, the programme would by these kinds of acts of active inclusion strengthen its role in the field, help to
promote the industry, and, most of all, serve its purpose and aims, both from within the programme and through the students attending.
1.4. Educating Sustainability in the Future

– Value Proposition Reconsidered

Having gone through CS studies, to me, within sphere constituting the meta-university—meaning not just the official curriculum but that mass of other things that it included, I feel I’ve most of all studied the field, not just the programme. The time spent, the approximately five years it has taken to finish my masters, has a lot to offer for anyone interested in sustainability. Now that, actually, we are living in interesting times, the global society has offered more food for thought than ever. The connections we’ve managed to build, ironically with the shared cognitive surplus, has brought us to a point where we need to act and, best of all, can act. Sustainability, as probably is most of our development, is somewhat about the ability to observe. It’s an intertextually connected everlasting and iterative process that feeds and requests our efforts. Education as a phenomenon, and as an institutionalised extension through which to acquire knowledge, has to go through the same development. Education most of all should not ever be treated as an institution that shouldn’t be in process. Learning itself is a process whose aim is more learning.

What CS as an education gives us is somewhat exceptional in this time and age, where it, oddly for an institution—for example qualifying our education, tries to radically break at least some of the typical barriers of institutional education—for example disciplines. From the Smithian factory line education, though the criticism to call it that is less directed towards tertiary education, we’ve at the same time fed the problems—sustainability issues, and with this failure it has put itself under the wrong kind of criticism. Criticism of destruction more than construction. It has alienated much of its potential audience and somewhat failed to fulfil its purpose in the society. From the founding of a place of knowledge sharing in the commercial mockery that the universities sadly often are now, it’s no wonder that the role of tertiary education is changing. Though it’s probably more about the fact that the world around has changed and so the institution needs to also in order to react. CS is one of those reactions. It’s in its own right a better answer to the needs of the modern society than could almost even
be expected from an education institute. And because the challenges of the society have changed, it’s probably less surprising that the multi-disciplinary programmes popped up around the field of sustainability. Well, in all honesty, that and new business. Another oddity about the CS programme is that it educates its students as professionals in a field that doesn’t exist. Sustainability is surely part of many different fields but is sadly not an industry of its own—yet. And perhaps here lies one other issue to consider within the programme.

CS is not itself a programme that necessarily develops science or the principle of sustainability. Surely it seeks for new applications for the findings, data, and issues of sustainability presented by the global community around the issue, but it doesn’t by that specifically develop, challenge, or hypothesise what sustainability as a concept is. It doesn’t further the meta-level of it, though it is seemingly effective and professional in applying it. This participation in the issue develops the applications themselves and does of course serve the purpose. The application part is crucial to sustainability, as it is only found in action, for now. This action, and the research associated with it, fits to the best the abilities of the disciplines that revolve around the issues, and importantly—that are found at Aalto University. These alone of course aren’t the only needed disciplines but they are, as said previously, effective on the application side, the practical sustainability. Thinking of Aalto University as the combination of the schools of business, technology and sciences, and arts and design makes it quite obvious why it is so. But at the same time, it is suitable to ask on whose agenda with respect to sustainability it answers the best. It fills the purpose of a university CSR programme, as it does add to new business creation and Aalto has on its agenda at least at the School of Arts and Design, that every graduate does take at least one course on sustainability issues. Which brings me to the next point, the positive saturation of the skills.

Thus the aim is for sustainability to be the mode of nearly everything, if implemented true to principle, so that in every action, trade, and decision we make we incorporate the sustainability of the choices. For this to occur, the skills and the knowledge of sustainability would have to become a part of every professional’s and citizen’s toolkit.
Every educated person would have to have gone through the sustainability issues pertinent to their own field and, probably during their studies, even have had to work on applications of it. Every citizen would have to live a sustainable life and make responsible civic decisions in order to implement sustainability. This is the end result of a profession that at best renders itself obsolete. And it has to be taken as such, at least in the context of a university education with integrity. So one has to ask what the future of CS as a programme is and likewise the future of any sustainability programme in tertiary education.

One clear trend one can see happening is the exact path that I’ve followed in my reasoning, that the trade of sustainability becomes so well understood and implemented from within the different fields that the niche of having an education and experience of sustainability, implemented in a different field, becomes old and meaningless. The other fields will take up the challenge of sustainability and implement, merge it with the specific fields so that the only reasonable angle is to educate multi- or non-disciplinary sustainability and professionals become just that, the generalists of the field. In my view, this is not an inconsequential effort. Those professionals then should become the ones who continuously develop the concept of sustainability and seek applications, adaptations, and new merges for it to be even further expanded. This group of generalists actually become the experts in sustainability as a whole and would deservedly take their position in leading sustainability—as a new science, not as activism in one field or responsibility in another. Although then again, one would need to decide whether sustainability is to become the philosophical base of all other actions, if education on the general view of sustainability should come before learning a specific field—that then adds to sustainability, or should it stay as it is now—adding to a field?

Considering the aim of obsolescence and the commonly forecasted futures of tertiary, institutional education, we can find interesting challenges that could suggest it flow towards both aims, depending on what, very biasedly thinking, would be the best for sustainability itself. In the upcoming decades, it is projected that the higher education institutes have few options to move to—or to stay as. One is that they stay as they are,
part business, part public service—serving circumstantially the needs of the scientific fields and also adding to the surrounding society by educating professionals and thus help society in general develop, i.e., offering some behind closed doors and opening some to serve the public. In short, they stay the same and react slowly to the change, as passively and on an as-needed basis, although their funding-base have to be reconsidered.

Another projection is that the institutions heighten their stature as the cathedrals of knowledge—though not anymore so much with respect to knowledge itself but the qualification and certification of knowledge, meaning education. By becoming even more elitist, the institutions strengthen their position on their own, even though this further alienates the surrounding society. They become even stricter institutions and compete on not necessarily the quality of knowledge but the validity of their specific certification for the knowledge attained. The need for these kinds of institutions depends on how far will academic inflation will go—i.e., will certified education remain the only proof of validity with respect to some specific knowledge in some fields or will it evolve even further to a point that every profession needs education and experience or else compatibility is less valued. In either scenario, the society as such gains little nor does the general public—but then again the institutions and the ones who have access to them do. The third possibility is, and surely there are hybrids of these, that the institutions become more like the bazaars of knowledge, that is, they become more lateral and the quality of one’s knowledge and skills comes to matter more when gained from the combination of schooling and experience—as another means of attaining tacit knowledge. The institutions would thus break the classic mold of a university and in the long run become cathedrals of knowledge. In each case, the fact is that knowledge is now at the core of the global society. There’s close to limitless amounts of it. It’s ready and accessible to anyone within walking distance. There’s more learning points and more capacity to adapt knowledge than ever before, and surely we, as humans, will not only want to save what we’ve gained in the development of knowledge—but rather accelerate the speed of this process. Also in sustainability issues.

Regardless of what will, or will not, happen in the future, the dilemma remains. Sustainability is contemporary in its own true existence. Surely sustainability is not a
momentary campaign, and there will always be challenges that are best met with sustainability thinking, but as it stand at the moment, using CS as the bright light as to how it is organised at the moment, CS will cease to exist. This does not mean that programmes as such will cease to exist; there will always be a need for programmes that promote the emergence of new needs correlated with new fields. But as sustainability becomes more and more embedded to other fields and disciplines of study and practice, the programme as an addition to the other fields will lose its importance, although as the field develops, there will be an even greater need for a programme that nurtures the overall—the overarching—discipline that is sustainability itself. But this will only happen if it becomes an industry, a science, and a discipline in its own right, which is why, and perhaps unsurprisingly, I would recommend the programme and its students abandon the discipline of thinking and get on board with the post-formal science of sustainability, where the aim is to serve an aim more than a mode, where we learn to answer why instead of just knowing how.
2. Social in the Core of Sustainability

- What is understood between us, humans

From its beginning, the main theme of this project was the ‘social’ part of sustainability, the inquiry as to what it could be and about how it should be thought. Taking as an example my own path as to how I’ve viewed my studies and finding the suitable mindset so as to identify the appropriate application for systems thinking, ‘social’ has always been at the core of my thinking when it comes to sustainability. In a way I see every possible outcome as having a social element, since it is ultimately understood only in a social context. Surely we can measure and use nonhuman parameters and language to see the effect of our actions, and there exactly is the key—we are expecting us, the people, to provide a cause to the effect, and we are the ones assessing it in such a manner. The social sphere is where sustainability is understood—and made. Everything to us, whether it is science, technology, symbols, institutions, currency, or government, is social. Science is a social phenomenon. Science is one mode of our social and human development, just as is sustainability now also. Sustainability is a theory of sociology, as it is a mode of technology—the relationship between us and the resources we need to extract from and expend into our surroundings for us to have well-being, although as such it could also be a mode of economy. For the global society ever to reach sustainability, it has to become a social institution, or equivalently it has to be embedded in the core of our values, to become almost innate in us. We are doing beings, and the doing has caused the problem—and can bring us out of it. We’ve lost our way, the proportion of our doings, with the proportion of us. All of us doing this, on the scale we have been as the human race, is not sustainable; we know that. So there’s two logical assumptions—we have to be less, or we have to rethink what we do and how we do it and why we do it. To achieve the kind of mindset where the answer to all of the above has sustainability embedded into it, we need to rethink what are those things and how would they translate to the concept of sustainability. What we do—the context, how we do them—the process and why we do—the aim—all need to be sustainable for us to have a sustainable existence.
What is the context, for it is what we create, we as makers and builders and shapers of our existence. We all have the right of a say in the development of the surroundings that we develop to fit the image of what we view as being perfect for us. We all can have that piece of heaven—as long as we understand that the context that we create has to be sustainable. It has to sustain and, if not be everlasting, then we must understand that, in the making, with respect to the process through which we put the context, we have to be sustainable there as well. Sustainable is a changing concept; it concerns as well what we've learned about human rights, politics, global trade, and laws and so needs to be at all times evolving to become better. This society that we build, even if we think we're building it just for ourselves, constitutes a shared existence. And the whole of the context has to become the totem of sustainability that we all develop with shared views.

How is the process through which we create and shape, how we develop and talk about the institution that is the society that co-exists with the context—whether the context is physical or abstract. Physical is the world we build and abstract consists of all the meanings we take from it and put back into it. As we are the makers of this world, we need to be responsible not only for how the world will look generation by generation, fad by fad, innovation by innovation, and mistake by mistake shaped it but also responsible for how sustainable the mode is that we use to do so. The process itself as well has to be maintained, sustained. For as long as there is a process, there is development and there is a result, not necessarily an absolutely better one, but at least hopefully one that is shared to a greater extent. The more we pay attention to the fact that every institution has to be in process for it to exist, the more the concept of sustainability will be broadened within the process of making it.

Why is the aim, the why we do what we do and how we do it—to reach an aim. Why we make things is the innate urge and ability to shape, to manipulate the surroundings and create the context to fit our image of perfection as closely as we can and the ability to do so is the process, although of course these two co-develop. The more we can create, the more we can think of what and how to make it, and the other way around. The learning-by-doing-and-doing-by-learning loop has become partly a fiasco in our development. We
have socially accepted the responsibility of this process and, by that, allowed also the harming and the lack of care of the context in its entirety.

If sustainability had to be expressed as a single word, for me, it would be responsibility. If one were to ask “Responsible of What?” the obvious answer would be that one has to aim to be responsible in their process towards the context, although this equation is thought to work in that, if the aim is to be sustainable, the process has to be that too and thus will bring us to a sustainable context, or if the process is sustainable, so will be the context, and that would take us to a sustainable solution too. The most effective leverage point in the chain is the aim, which is why that aim, that responsibility towards the rest of the equation and the zero-ground from which to start the process, is social. Responsibilities are nothing new in societies; they are themselves a concept and comprise social institutions. However, responsibilities, as has been the case with sustainability, have typically been brutally separated. Responsibilities to nature, to your work, to your family. Or sustainable with respect to your transport, or at your home or office. Surely they differ depending on the circumstance, but at the core of our society is the concept of responsibility which is not circumstantial on that level—it exists continually or should, and it should now be put to better use—for the goal of sustainability.

I do understand that this, after all this mass of text, sounds like a very simple version of what the whole point of the thesis is, but for the sake of demystifying sustainability so as to be able to better educate people and also for the field to be able to better involve and share ownership of the change, this might not be a bad idea. Rather, instead of sustainability we could view it as responsibility—and this conceptualisation of course only works when it is also understood that the responsibility is always an aim, in whatever we make—whatever is the process, for us to have a well-being context. A context which itself is well-being can nurture its habitats to also have well-being, and this is all about what we take, and so it’s fair to ask what does the responsibility give back then—what is the benefit of being so on an individual level, simply put in our greedy human terms—what is the reward? The reward is that the aim can be shared, which
helps us all to reach it, but the rest of the equation is that everyone else has a say in what is the aim. Clearly, the aim is to sustain—probably that would attract the least criticism over what it then means so that we're merely nitpicking on technicalities such as process and context. What would one benefit from the process being sustainable? First of all, simply for the longevity of the process—the ability to have the process, since unless that is executed responsibly, sustainably, the context will cease to allow the process to exist. And we should be responsible for the context because it both feeds the process and receives the end result of it—either good or bad. In all actuality, the aim is the mode with which we treat the context and thus the mode is the process. The process has a mode, and it happens in a context. And the aim then is the process itself. The context allows it and receives it. The meaning of life is the life itself, and so is the process of sustainability about sustaining the process itself—the life.
3. End Discussion

There are a few main things with which to conclude this inquiry, though it poorly serves the four to five years of my studies, or the decades of development of the field that I have now a lucky chance to criticise, or the 200 pages I've written down as my thesis—not to even speak about the several thousands of pages I've read as background material. Nonetheless, everything imaginable has to reach its end—every process and project is finite to us, in time and resources, although it is important to be concise as to what is important in this thesis, to ensure that they are important and why they are so. I set myself to inquire the competence of the CS programme as an education in social sustainability. So simply, these are the key points—and my wished-for future developments.

I looked at the assessment process of what the CS programme aims to be, of course, based on what is communicated in official materials. The assessment was about how sustainability is viewed in the programme sphere. And surely there's nothing disturbingly wrong about it; it's what the general public seems to view sustainability as. And the fact of the matter is that Aalto, from within the disciplines to which the university caters, is quite suitable to be an actor of sustainability—for if the view of sustainability remains socio-cultural, economic, and ecological, the school gets quite far on its own, although the main argument from my side is that sustainability, as an accepted principle—in this role fulfills its potential only partly. The programme for now seems to take what the principle of sustainability is said to be, although from very trusty sources, but the fact of the matter is that the principle as is, is incomplete and sometimes too contradictory to, in my view, be left alone. There's room for development, and what better global player to be active in the development of the principle itself than a programme of an esteemed university that truly has the capacity, knowledge, and credentials to stir the pot a bit. No to say that the programme itself, as a non-actor, should take a strong stance on how the principle works or is at the meta-level but hundreds of thousands of hours are spent on the applicative end of the principle year after year, and it seems like we keep hitting the same walls with most of the projects.
Not that there's anything wrong with the true essence, the core elements of sustainability; just that the layout has been set for us in a way that is somewhat dysfunctional.

From the personal study path, with respect to the analog to my time spent in the meta-university that has brought me to an education in sustainability, it is important to extract the main features, regardless of how I personally see the balance between the official curriculum and the rest of the acts of students that all aim at the same result, education for qualification and above that the skills acquired for true knowledge—which together form an image of professionalism, internal and external. This realisation duals the role of a tertiary education, perhaps even more so in a field that is non-disciplinary and for now emerging. On one hand, one has to appreciate the structured and prescribed storyline to the knowledge which is attained, and the certification of that knowledge in the form of a degree. But, on the other hand, the voluntary informal, non-formal curriculum which adds much to knowledge becomes equally meaningful. It is the dialogue between these two where the actual learning occurs, from being impregnated with knowledge, like a good pupil—where the aim of the educators is to plant information on a one-way basis, to the chance to test the applicability and ability of the knowledge in another context. If and when the knowledge penetrates, knowledge turns into knowing, which could be called true learning. The dialogue between what's acquired through the formal and how that applies to the outside and the other way around is the basis of the real learning experience and of the real learning context, which is why I'd claim that the university, especially a programme like CS where the real benefactor of the programme's efforts is the surrounding society, needs to strengthen and better acknowledge the fact that what they offer is only half—if even that, of the meta-university in which the students exist, but with it and the activities branching out from their cathedral sphere they also build a better gradient between the border of them and the surrounding society.

The theories picked for inclusion in this thesis were, in a way, generalisations or abstractions of the issues we keep bumping into, the ones we keep dribbling with when working with sustainability. Some of them were probably of the more predictable,
deliberate kind but some, I feel, condense the aims of what we're trying to pinpoint. We're circling around some issues that we're not directly addressing, especially with respect to social sustainability and educating. As I've said, it seems that social sustainability is at the core of all of the sustainability topics and courses—but it seems to constitute the main topic of none. From the different theories of education and the path one follows in attaining education fitted to the reasoning of why do so. The core of this thesis is the social theories and their compatibility with whatever is, or should be, the concept of social sustainability. Most of all sustainability is found in action, which I tend to believe is society itself. Society is the endless development, co-existence in action, which leads to co-evolution of the surrounding institutions and concepts that we hold to be the structure of a society. All this is, is the artefactualised version of how we tend to structure our existence. We need the structure and the reflection of the structure to even find any comfort in the ontological position we put ourselves in. This action, all of it—the search, the inquiry, the teenage-like discomfort in what we are, what's our role in all or any of this, is all found in the action that is to take part in the surroundings one has or acknowledges to have at arm's reach. Whatever in a society we observe to be at our effect becomes the subject of our development—even in passive mode. This belonging that we innately assume and act out has to be found in sustainability as well. Sustainability, no matter how much any other actor other than the society itself wants it to be embedded in, will never be so until the reason for it is commonly found. There'll be only those things needed, understood—and beyond that those things that the society, and its parts, are willing to develop. In this sense, the line between sustainability and society is not only thin but drawn to water—there is no difference. For a society to commonly aim to sustain itself, which should be the actual and only reason for it to exist in the first place, is for the society to embrace sustainability as a core value and for it to grasp the very meaning of the concept. And perhaps, if this would be so, the only thing left for us to worry about would be the mode, the application of it—how do we get there. Sustainability is a social trade most of all, and it is incommensurable to have it any other way—or to have it but only that way. The approach to reach sustainability by planning or design proved the point that beyond the methodological approaches we have to seemingly reach the goal, we can never do so without the true understanding of what is
sustainability. We need to build a strong philosophical base to it—a base that is the philosophy of the science of sustainability. And this base shouldn’t stand on the current definition divided into pillars that make no sense to any of the actual actors of sustainability—the humans. The current triple bottom definition can only contradict itself even when thought of critically, systemically, with respect to design, or any other way. This isn’t the fault of our thinking capabilities—the sense-making mechanisms, but a fault of the pre-layed definition of itself. Economic, ecological, and socio-cultural sustainability makes sense only from a passive perspective, which renders us thinking of others. It makes us seek for an actor but doesn’t provoke us to become actors, nor does it empower us or urge our taking a position with respect to it. It is for the sake of being. All this, with the ontological, the philosophical, the theoretical defaults of sustainability can be overcome by adjusting the definition not the principle. To me, the principle speaks to inclusivity, humanism, responsibility, cohesion, and coexistence—all features of even the best version of the utopian future we predict never to see. The principle stands correct, but the breakdown of the different spheres we need to approach the principle in the right philosophical mindset is amiss. It would make much more sense, in the ways mentioned above—to redefine the definition to fit the abilities of the right size of sustainability, the human size. And better than the typical pillars, the equation; context, process, and aim describes where, what, how and why we exist. The point is to abandon the non-actor thinking of scales and spheres; not that they don’t describe our societies, but they don’t necessarily argue for any responsibility either. The point is that any actor, no matter how deep in a silo or how high in an office building is a human actor. To make the best use of the principle requires the compatible vocabulary in which to speak. And the right vocabulary to me, when it comes to sustainability, is the human—not the corporate, nor the natural, nor the governmental specifically, but the vocabulary that best describes what it is to be human and what it is to be a sustainable one. Time is the real assessment in any of this, which is at the same time the reason we try to predict the acts, but also ultimately fail to do so. We’ll never be smarter than ourselves as humankind, which is why we will never get the best of us. We’ll never predict fully our acts and their effects. Though we are getting really good at computing and simulating our actions, we can’t for the moment even predict our own actions. We
can though, with convincing scenarios, steer the conversation towards the desired direction. And by the theory of intertextuality, any idea put out to the matrix of truths, or knowledge, is a potential self-fulfilling prophecy.

The theory alone will not make the change. It's the base contribution to the field, the challenge, and the aim. Thinking shapes the world towards an aim, where acting just shapes it. Sustainability in action needs methods—methods to initiation, or better put—for the recognition of the initiations, methods to plan and design and execute sustainability in action. Although, as said previously, these methods are effective, none of them speak directly to sustainability. They can be altered to serve a, or probably with adjustments, any cause and surely that is the source of their power. Methods are about the process most of all; the content is what flows within the process, which is exactly why, for example, there should be a choice of ethnomethodology over ethnography, anthropology in general over user-centeredness—to steer the methods to better serve the purpose, not just the ability of the method or, even worse, the ability of the actor to select a method to serve a purpose. Either way, methods to reach sustainability depend on the actors, the content, but most of all the aim that they're meant to evoke, which is why the base has to be built correctly. For the actions to be right, although along the way of the execution of the philosophy things can still take an unwanted turn. Methods are meant to ensure the process and its boundaries. Inclusivity and empathy have to be kept close to the execution boundaries more than they need to be a part of the base. Inclusivity is not only an aim but a mode as well. It's a turn outwards, where empathy is internal. An important notion to all of the methods is found from the subject they're aimed to work on, or with. Working with sustainability is working with dynamic systems, such as people and groups and other cohorts of people. The systems and systems of systems have a common feature of being live ones. And as often said in this thesis, a system—a live, a conscious and a willing system—cannot be directed but at best influenced. This is exactly why none of the methods aimed to function for social change or sustainability, which is at this time the biggest social change, can dictate but rather has to negotiate change.
From the project reflections, it’s easy to see how many cases fall back to certain methods. Behind those methods are then, obviously, the same theories, which surely all lead back to the very principle of sustainability. The methods with the theories seem to fall though in all of the cases. They, even though they bear little resemblance, are in actuality of course all the same. The sameness which inclusivity, empathy, social action, being, and making has—the strong, and only, connection, that is the humanity in them. Whether or not these specific projects embody sustainability, they showcase the justification of the methods selected and the theories behind them. These again are based on my understanding of sustainability—which of course is social. At this point it seems almost banal to differentiate the social from sustainability, or as a part of sustainability, after I’ve said it too many times that they are in fact are the same. The examples on a detail level have all, I believe, contributed to the execution of sustainability. Their analysis can contribute to the principle itself, and I want to point out that none of my beliefs, bits and pieces of knowledge, would have become a learned knowledge without the cases. This again takes me back to the point of prototyping as a vital part of sustainability, where we seek for better answers but to very loose questions. Prototyping can be used to prove a concept, but also to stir the context of the project just enough for it to expand the vision embedded to even better serve the purpose of the project. A prototype is a talisman of conversation and communication which then, when well-made and placed, becomes the center of development. The end result of the development alters the prototype enough for it to be suitable for a larger scale prototype—which often is implementation. Prototyping is a concrete landmark to a project iteration.

The recommendations for the programme, though leaning in tone toward a more critical recommendation, are somewhat intentionally laid down with emphasis on the contrast between what now is done. The active role that this programme, and surely all programmes like it, should take in the global society as the developer of the concept highlights more than shadows the fact that the practical side of sustainability is in good hands. Sustainability is found in action, and a programme as such is a very concrete, and might I add institutional, core of the action. This role is the thing that also holds together the different casted scenarios of sustainability education in the future as well.
The future of course depends more on the role that tertiary educational institutions play in both, the overall institutional education and the issue of sustainability, though sustainability plays a smaller role in the changes since it is a challenge that keeps renewing its open questions. Sustainability can either be taken, and probably has to be, as it is at the moment, as a trade that aims to ultimately become obsolete—or it can be taken as a principle that can reinvent itself by the challenges of the society. Since it is a principle that in the end answers less to a specific problem but challenges our very being and the interconnectedness of the things that construct our lives—and the development of that, happily and unhappily, is never ending. The social element of sustainability needs to be at times pointed at the programme and what it educates the students with respect to sustainability. It needn’t to be, it couldn’t be a sole issue, meaning that it probably cannot be taught as a subject on its own. Though educating anything of sustainability without it would make no sense either. It has to be understood to be the real basis of sustainability, strong enough to be present at all times. And, in a way, as the base, it becomes the mode and context of it, and it can remain latent. Making it a base of all would probably require more embedded guidance on the topic, especially if the typical structure of sustainability is challenged—relearned. The platform for CS programme development should be formed out of a free exchange of the external needs and responsibilities towards the programme as a strong actor in the field—and the internal aims that follow the analysis of the input from the outside. The communication of the needs of more than the students, the educators, and the university itself—even if looking outside but in honesty rolling out the curriculum based on secondary information. Although the university has the right to represent the source of some possible solutions and stand tall at its post, it cannot be the sole source of its own aims. Casting out an aim—that it knows to be able to call to.

All and all, the main points of this thesis stand best in the context. Everything said has to be put back under the topic which they all are answers to—social sustainability and the educating of it. After the long process, I myself am left with more unanswered questions than I had when I started the journey—though thankfully the questions are not the same as before. Dewey would agree that learning has happened effectively enough that more
learning can happen afterwards. Some claims stand out to me still which I would like to open, and I sincerely hope to provoke a discussion around those issues as well. Firstly, that we need to somewhat abandon the ideology of disciplines in order to better understand, grasp, and answer the challenges of sustainability. This means that we need to go, at least partially, beyond multidisciplinary and move towards the non-disciplinary. Sustainability as a principle stands strong, and as it is laid down to be very, and only, human—the typical definition of what kinds of sustainability there is makes no sense as it does alienate the core of the principle and puts it in a context where the aim is overpowered by elements of the context. The principle itself, if thought as synonymous with responsibility, needs to be put in a human framework. There can, and hopefully will be, other alterations of the typical triple bottom line definition, but my strong opinion is that the suggested equation of context, process, and aim makes much more sense. It suggests, finally, a version of sustainability that is truly wholesome and interconnected in a way that the old version time after time fails to be. In this equation, if social aspects are extracted, or better put—specifically placed, one can see that the social sphere is represented in all of them—as is ecology and economy. There are economic, ecological, and social elements in the aim, context, and process. And it is ongoing. This, the fact that it is ongoing, fills me with trust that sustainability will inevitably be at the core, if not the core of our global society. Give it either time—which we might not have—or a twist where it is more easily understood. And, if not, then we clearly came up with a social idea that never became an innovation, for it wasn't given value. What we came up with, we valued or devalued, or even overvalued—time will tell. We're the actors of sustainability and we're the benefactors of it, as we are the ones to ultimately pay for it, if we do not act. For that wouldn't just lead us to an unsustainable world, but to a world in hault. A world without an aim loses its correct process and ultimately its context too. And isn't this what has happened now?
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