Forms in movement
Strategies of openness for commercial product design

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Abstract

Today's commercial environment is increasingly complex. Globalization, fragmentation of consumer segments and new manufacturing technologies make it difficult for companies to act as authorities in defining the value of their products. In this context, many traditional industrial design practices face new challenges. In a complex system, product—consumer interaction cannot be seen isolated from the society as a whole, the cultural significance of a product becomes an important part of consumption. Through consumption, we are asked to integrate with a multitude of relations, both social and concrete. If a product gets stuck to a rigid set of relations, it can only be accepted accompanied by these relations. To allow a more flexible consumption process, we should find design strategies, which leave a product open for consumer-oriented integration. In this thesis, I examine a product strategy, which leaves products unfinished and waiting for further manipulation to allow a more participatory integration process. I further analyze the product evolution of G-Shock, a watch brand by Casio, to find insights for design strategies, which benefit, rather than suffer, from the uncertainty caused by the commercial context. By examining the evolution of G-Shock, I argue that a commercial design strategy should be seen as a two layered approach, where the first defines a product's identity and the second facilitates its cultural appropriation. Our evaluation of the original design process should not be tied to specific consumer feedback, but should aim at measuring the potential a product has for being used as a platform for consumers to create new value. In the future of commercial product design, we should continue to develop new strategies, which allow companies to become facilitators in consumer-oriented meaning making.

Keywords: Product design, Industrial design, Design strategy, Open aesthetics, G-Shock
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Foreword

The idea of openness, of unpredictability and loss of control, is perhaps the one important quality that separates our era from those that have passed. This development has been clearly visible in a struggle of artists and philosophers to explore, explain and express the new possibilities, or necessities, for human creativity. In the past decades, the idea has reached a more concrete meaning in the introduction of information networks and new manufacturing methods, which are constantly revolutionizing social and commercial relationships. It is then more out of necessity than pleasure that we should consider – as designers – our position in navigating through this new chaos.

I would like to thank Oscar Person and Fernando Santos for their patient guidance through this process.

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Jaakko Nikkola
Part I
where I introduce the subject,
define the basic variables
and frame the scope of the work
Chaos and unpredictability are certainly possible descriptions of today’s commercial environment. Others might be freedom and openness. The perspective varies, whether one tries to stay in control, to resist, or whether one finds a way to navigate the currents. In this text, I will explore how product forms can be used for a more flexible relationship with consumers in a global context.

The inspiration for this thesis comes from a particular product strategy, which seems to echo the general developments towards openness in today’s commercial practices – openness, which has perhaps become most familiar to us in association with ubiquitous information networks or open-source programming. In product design, similar tendencies appear both as tools, which allow consumers to participate in the design process and as new manufacturing possibilities, which offer added flexibility to product forms.

My focus is in the openness that appears through product strategies, which use products as platforms for collaborations with other brands, artists and consumers. This openness appears as an added flexibility, but also as a challenge, which demands a company to rethink how much they have control over their products.

From an aesthetic viewpoint, the practical possibilities that have allowed these recent strategies seem to bring an interesting addition to the rich discussion on the role of products in a contemporary consumer society. This discussion on consumer emancipation and product aesthetics now seems to be given a physical manifestation in these open strategies.

The idea of a “strategy” appears in this discussion both in a narrow sense to describe how a designer should approach a specific design process, and in a wider sense in reflection to the long term influence of products in sustaining a meaningful relationship with consumers. A step towards a more open strategy thus indicates a purposeful release of control, an invitation for consumers to participate, a shift from predefined meanings to consumer created expressions.

To begin this thesis, I claim that a deeper analysis of these product strategies can reveal general insights for commercial product design that can help sustain a deeper relationship with consumers and provide answers for the critical developments in our commercial environment by added aesthetic flexibility – a more open approach to product design. These approaches are what I call ”strategies of openness”.

1.

Introduction
1.1. Background

A modern society is an almost completely synthetic environment, organized by products imagined by companies for our enjoyment. Our stores are filled with new pleasures, new disappointments, new possibilities, often in multiple variations competing with each other for consumers' attention. In commercial production, the question "what does it do?" is immediately complemented with "what does it look like?". To fulfill the demand for new experiences, a Designer molds a new form after another as an answer to these questions.

In the eve of industrial design, citizens in commercial societies were given roles as those who created and those who destroyed, as those who produced and those who consumed. A designer was given an authority to define how we live, to create forms to be multiplied for waiting consumers.

In recent decades, the tayloristic production lines have been complemented with more flexible modes of manufacturing. The ability for a company to define a desired way of living has been challenged as consumers have demanded influence in defining their own environments. In an era of free information, virtual spaces, excessive visual communication and a flood of commercial messages, each product is judged, accepted or rejected, through a social discourse far beyond the control of a single company.

Burdened by the responsibility to answer the desires of consumers, a Designer tries to imagine their preferences. To manufacture a positive response, consumers are categorized by their lifestyles, values, age, size, sex or personality. In a global context, such practices stretch imagination to its limits as they reveal their own contradictions. Each positive response seems to be complemented with another negative one. Categories are defined and redefined quicker than a company can release new products.

While it is easier than ever for a company to expand their influence into an almost unlimited consumer potential, cultural traditions, historical contexts, social practices, aesthetic preferences and symbolic associations offer unprecedented challenges in managing the messages they want to convey. Today's global commercial sphere is a complex and living organism, which a Designer is asked to reflect in a form most suitable for as many of us as possible.

A society which is fragmented, chaotic and in constant movement, asks for forms that are flexible and responsive rather than obstacles demanding consumers to accept their outdated cool. Where it is possible, new quick business strategies have evolved to offer cheap products that offer immediate gratification and ask to be rejected as trends pass by. For an industrial designer, such hasty maneuvers are often hindered by the stiffness of manufacturing and promises of lasting technological value. For a company manager, this issues another dilemma as they are trying keep control of the brand's image.
Image 1. Example Be@rbrick product variations

Image 2. G-shock collaboration with Burton

Image 3. G-shock collaboration with Clot

Image 4. G-shock collaboration with FACETASM

Image 5. Nike sneaker variations in collaboration with Virgil Abloh
Image 6. Apple Watch collaboration with Nike

Image 7. Apple Watch collaboration with Hermès

Image 8. Some Swatch product variations
There is a particular product type, which seems to offer a new approach, a new flexibility, for how their forms are created. These could be called open product systems, or product platforms. One example of such products is the category of designer toys such as Be@rbrick (Image 1) or Dunny, which have gained great popularity both among celebrities and common consumers. The system through which their basic shape is re-imagined as a cultural game tells an interesting version of the surrounding commercial environment. What makes them particularly interesting is how they reflect the popular culture by borrowing its symbols and appropriating them on its surface, as well as inviting popular brands and artist to create their own variations. The "subversive" influence of the designer toy category on today's commercial culture is further advocated by Marc Steinberg, when he writes on the Journal of Visual Culture (2010) that "the field ... suggests an opening whereby the very terms 'artist', 'commerce' and 'consumer' are transformed".

A similar phenomenon can be seen in the current trends in sneaker design, where a model produced by a company such as Nike (Image 5), Adidas or Puma is introduced and reintroduced through variations done in collaborations with smaller consumer brands. These variations are then put under critique through publications such as Hypebeast, Highsniety or Complex, as well as various discussion platforms, where in a heated conversation each model is analyzed and either accepted or rejected.

These tendencies are also spreading towards more technology oriented products. In the 1980s, Swatch introduced a new cheap way to manufacture wrist watches (Image 8). The low costs made it possible to introduce more variation on the appearance of the products allowing Swatch to challenge the existing symbolic associations in the watch industry by creating the "worlds smallest canvas" as it is still advertised (Swatch, 2017). Another company from the 1980s, G-shock, has since become a popular cultural icon with its playful and participatory aesthetics (Images 2, 3 and 4). More recently, companies such as Fitbit are trying to implement similar ideas. Even Apple, which has been known for its strictly controlled aesthetics, has tried to take a step towards this direction with its Apple Watch (Images 6 and 7).

These examples reflect a context, where indetermination and unpredictability define the conditions of our design efforts. In my search for the general implications of these developments, there is another resource, which seems to only gain in relevance. In the 1960’s, an Italian writer, literature critic and semiotician Umberto Eco published a study called “The Open Work” (Eco, 1989). The focus of this work was to look at the aesthetic developments in avant-garde works in the early 20th century to formulate a new aesthetic theory for "works in movement" (Eco, 1989 p. 12). The artistic developments presented by Eco are strongly motivated by other developments in science, technology, commercialism and social organization. It is evident that all these processes have only gained further momentum giving a reason
to believe that they can well offer new inspiration for today’s designers.

In this study, I navigate in the intersection of the aforementioned product strategies and the ideas brought forth by Eco together with other significant thinkers, who have examined these general themes in great depth. I will further take a closer look at one of the previously mentioned examples, the G-shock, to highlight some perspectives in this development and to provide insights for commercial product design as a whole.

Before beginning this task, I will next present some specific definitions for the language used in this thesis to avoid confusion with the possible differences in terminology used particularly in practical design speech and the more abstract discourses on general aesthetics. The following segment provides the main building blocks, which I will later use to construct the argumentation in this thesis and to anchor the following, sometimes abstract, themes into a solid foundation.

### 1.2. Definitions

In general, my focus is in product design. To put this in more general terms, I am interested in creating forms in a commercial context. This notion already displays the building blocks of this discussion. First, we have the question of a form – what are we designing. Second, we have the context, where these forms exist, and finally there is the general question of what are the limitations of the act to design. I will answer these questions in the following segment, after which we can continue to further frame the scope of this thesis.

#### 1.2.1. Form

The practice of industrial design as a whole appears as a large system of processes and stakeholders such as manufacturing, marketing, workers and other personnel. To avoid these systemic complexities, I see design here from a perspective, where a form presents the focus of the profession, and correspondingly an evaluation of this process is seen through an evaluation of the form that is its outcome.

A form is thus the main variable, which we focus on in this text. Before we can start building strategies for how such a form should be created, we need a way to evaluate it, to have a measure, which puts one next to another. Because we are creating products for people, it is natural to select this measure based on our ability to interact with and understand forms. To evaluate this ability, we will first need to
agree on a common meaning for the word "form" for this discussion, and its relation to what something is.

I will begin from the simple recognition that a form is always a form of something. If we take a look around, we can recognize many different things: tables, a chair, walls, paint on those walls. That is, these things appear as a discontinuity in our observation of the world. However, if we concentrate for a moment, we may realize that we are simply observing different colors and shapes and with a mere passing gaze we seem to breathe life into them. We recognize different qualities, put them in bundles and assign them a center those qualities seem to gravitate towards. Such a bundle is then what I refer to as a form: a set of those qualities, which seem to belong to a certain thing – here a product.

Looking around is a good start, but it is evident that our eyes cannot reach all the qualities a product has. In design discourse, we have many approaches, which display a particular way to evaluate a form. Forms have been discussed based on their physiological impact on us – perhaps most famously in the Gestalt Theory (Encyclopedia Britannica, 2017) – on our ability to use them (Norman, 2002), their emotional impact on us (Norman, 2004) by focusing on their appearance (Crilly, 2004), or specifically on their meanings as signs and symbols (Vihma, 1995). Also, we can add to these the ability to manipulate a form, which plays an important role in a discussion on practices such as customization and personalization, or prosumption as such practices are sometimes generally referred to (Toffler, 1980).

To simplify, we can consider three main ways to approach forms: by observing them (by sensing them as images, as sounds, as feelings etc.), by using them (for something, as instruments) and by manipulating them (Figure 1). Each of these practices offer us further understanding of a product and need to be considered, when we try to evaluate it. I will now take a brief look at each of these perspectives.
to illustrate their role in the following discussion.

The first, deceptively simple way to understand things is to observe them, by looking or touching, listening or even smelling. In an effort to find ways to evaluate our ability to observe products and how these observations lead to a certain outcome, I take my first inspiration from the phenomenological tradition – generally as described by Edmund Husserl (1995), as well as later developed by Martin Heidegger (in particular here: Heidegger, 2007) and Maurice Merleau-Ponty (1962) – and secondly, from the specific discussion on interpretations as discussed in the tradition of semiotics or semiology, rooted in the works of Charles S. Peirce (in particular here: Peirce, 1932) and Ferdinand de Saussure (1959).

More concretely as a practical problem, I consider the question of observing as it has appeared in the evolution of visual arts, where it is more or less the primary way one can relate to a work. This evolution is perhaps most obviously present in the period from impressionism to cubism and further to total abstraction and is mainly looked at from the perspective offered by Umberto Eco in his book “The Open Work” (Eco, 1989). For this thesis, my primary interest within this discourse is in how our observations relate to the mental image we create of a product in this particular context, and how this should influence the design strategies we choose.

For the purpose of practical simplification, I will concentrate on the visual domain of products, as well as our ability to physically interact with things, although I will take a look at some examples from music and literature, which expand the idea of forms towards a more general definition.

One critical perspective, which should be noted before moving forward, is the deception of “wholeness” in one’s observation. When evaluating our ability to observe products, it is important to keep in mind the ambiguity of a form. When we observe familiar things such as "chairs" or "cars", we can easily think that we see them fully, which gives us the illusion that we comprehend the forms completely. However, it is good to keep in mind that an observation is always a section of all the existing qualities: an appearance from one angle, the comfort of a chair when we sit on it or a fragment of a musical piece. Through these observations, we combine a mental image of the form. This image consists of the physical qualities – dimensions, shapes, colors, sounds – but also its relation to other things: a table in relation to a chair, a particular color in relation to cultural traditions, an ornament in relation to its historical context. In brief, our observation of a form includes qualities, which are the same for every observer (or more precisely, to every similar instrument in similar conditions), but it also includes relationships, which are much more difficult to qualify. In this text, my primary interest is in the problem of controlling these subjective interpretations and looking at how the ability to manipulate a form can play an important part in managing them.

In industrial design, the idea of observing is practically always complemented, and even outweighed, by our ability to use products for some purpose. In a strict sense, we can see the idea of using as a purely instrumental act. To separate the idea of
using from observing, it is here seen in a Heideggerian sense as being-together, where a form disappears from our senses in its usefulness (see: Heidegger, 2007 and 1998 pp. 26-38 and p. 46). One might imagine a chair disappearing during an interesting conversation – it disappears from our ability observe it, but we still do not fall on the ground.

In practice, we hardly ever only use products. Particularly with products, which are displayed at our homes or our bodies, the balance of using and observing creates an important question for our later discussion.

Finally, we should take a brief look at the third way to approach a form: by manipulating it. A form does not necessarily remain unchanged once we have concluded our design task. Although some forms are conserved from any changes (many art pieces, for example), many products allow at least some room for alteration. This can also be used deliberately. A form does not need to be a static composition, but can be left open for manipulation. This idea of leaving a form less strictly defined is a critical part of our following discussion on how to introduce more openness in the way we both observe and use products.

These three possibilities give us the foundation for a discussion on how we relate to products. Having these basic definitions, we can now move on to examine, what happens when a product is put into a commercial context. As mentioned earlier, our interest is not only in forms on a general level, but rather on the apparent changes that our current commercial environment causes on our relationship with products. This means that we will next have to gain an understanding of what is this context, in which we evaluate forms.

1.2.2. Context

Our general context is that of a global marketplace. Here the two main themes are first global referring to a non-restricted context, and a marketplace as a general description of today’s commercialized societies. The context described here will create the foundation for the following study and thus works as an approximation of the general context, in which most global companies act.

The idea of a global context is here more an ideal notion referring to the general fragmentation of the markets rather than only that of geographic globalization. A global marketplace can be considered a set of consumers, who differ from each other in any possible way, therefore making it impossible to create a single definition, which would anticipate every consumer’s personal qualities to any reasonable accuracy. Designing in a global context means, therefore, creating a product for a group of consumers, who may have very little similarities with
each other. However, this does not necessarily mean that all consumers would be completely different from each other. It may be possible to categorize these consumers into groups based on some criteria.

The other theme revolves around consumerism. It can be argued that a form is perceived differently in a commercial context than it would be in a non-commercial context. The main difference discussed in this text is that in a commercial context every product and consumer is seen as a part of a larger set of relations. The impact of these relations concern both the relevance of the symbolic dimensions of a form and the question of the "usefulness" of the form. For the symbolic dimension, the basic nature of a commercial context is created by the extensive use of communication, imagery in advertisements, television, social media, but also text and music. Here I follow the so called post-structural analysis as it is present in “The Open Work” by Umberto Eco (1989), the works by Roland Barthes (e.g. 1972, 1977) and Jean Baudrillard (e.g. 1981, 1998), and also as applied to marketing by Grant McCracken (e.g. 1986) and Douglas Holt (e.g. 1997).

One of the key questions this context assigns for an industrial designer is its relevance to the purpose of the product. One common approach to design is to see it as problem solving, that is, focusing on what one can achieve with the product. Perhaps the purest manifestation of this approach is described by Victor Papanek in his book "Design for the Real World" (1972), where he asks designers to look at real problems such as healthcare, problems in developing world, sanitation and so on. This is design for a need, for a real problem. A "real" world described by Papanek is a world outside of the commercial motivations of production. We could call this a "naive" world (not in a negative sense). These settings certainly exist and the problems shown by Papanek are not undermined here. However, in our context, these questions are given further complexity.

In a commercially developed society, the idea of a real need is quite different. One could argue that most consumer products are almost completely excessive, created for leisure. Even most of the more useful things – computers, mobile phones, even cars – are often as much entertainment as anything else. This is important to note before continuing this study, as it changes critically the perspective, from which we evaluate products.

Our focus is thus in a context of hedonistic consumption, self-expression and popular culture. One good, if slightly polemical, description of such an environment is the "consumer society" as explained by Baudrillard (1998). It is a society, where information moves quickly, where we are bombarded with constant messages and images in advertisements, which distort the line between real and imaginary. This is not a "real" world, but rather a virtual, a "hyperreal" world, as put by Baudrillard (1981). It is created and recreated in a constant discourse between consumers, where every image, sound, word and product plays its role. In this thesis, I follow the basic post-structural assumption that a contemporary consumer society is not
This is the basic description of the setting, in which I will explore ways to create new interesting products. The influence of this context on our perception of forms will be discussed later in more detail.

Since we now have a basic understanding of what we are supposed to create and in which context, we can next conclude this introduction with a framing of the process, which is here referred to as designing a product – that is, creating a commercial form.

### 1.2.3. Design

As mentioned, I am interested primarily in product design. As previously seen, the term "design" is used to refer to a process of form giving. Design is thus seen from the perspective of the European tradition, where the idea of a form has had a more significant role. Although the idea of a form does not exist in the English word “design”, in other languages such as in the German “gestaltung” and Finnish “muotoilu”, it still remains as the etymological origin.

First, we need to attend to the question of the scope of the responsibilities for a designer in defining what a product is. If we consider a rough division between the process of creating a product into questions "what should we do?" and "how should we do it?", we can then limit our focus to the latter. We will thus let someone else...
give us the general framework for what we are supposed to achieve – the "concept" of the product. This allows us to overlook the value of this concept itself – if it is more profitable to make a chair or a table, for instance. To design thus means here to give a form to a concept. Based on the previous definitions, the design problem of this study can then be put as follows:

Design = to give a form to a concept in a global marketplace

To clarify this definition, we need some further explanations for what is a "concept". For the continuation of this study, the significance of a concept is twofold: first, a practical restriction and second, a concept as a mental image.

A concept should here be thought of first, in a practical sense, as a set of limitations for the qualities a designer is allowed to use in their task. For example, if we have the task to give a form to a "chair", drawing an image of a chair or making a "chair" ten meters high should not be considered an appropriate execution of this concept. Therefore, where I later refer to a concept with a name such as "chair" or "watch", these should only be accepted as a shortcut for a more detailed set of qualities – although we might not be able to exactly know these qualities. The act of "giving a form to a concept" can thus be seen as a selection operation, where a designer or a design team selects a set of qualities from the options described by the concept (Figure 2).

In practice, the concept may define a set of components, dimensions or colors. Some qualities – such as height or a specific material – might be strictly preselected, whereas others may be left less defined. Also, we can assume that a designer is "perfect" in the sense that they immediately know all the available variations.

When a concept does not restrict the selection to only one alternative – which might be the case only in some highly technical products – the necessity of this selection, of choosing some qualities over others, is what defines here the problem of design. This problem is then brought forth by the difference of the concept and the form, a field of possibilities, which defines the expressive nature of design.

A second meaning for a concept comes from the previously illustrated ability to refer to something with a particular name. A concept thus defines the identity that a form should express. A concept creates the center, which allows a product to become more than mere matter. The concept can thus be considered in relation to a hierarchy of meanings. For example, to continue the example of a chair, it is clear that its primary identity has to do with sitting, not throwing or serving food.
In this sense the concept is not so much a restriction, but a point of reference for the design process. The relationship with these two perspectives comes alive, if we consider a process, where a designer finds a stone and turns it into a chair simply by recontextualizing it. Although the stone always fills the physical limitations for a chair, it is not always a chair. One might continue similar thought experiments by imagining how to make a chair that looks like a table or a table that looks like a chair.

With these definitions, this thesis is focused on managing the design process, by examining how the previously described context should influence the motivations for this selection operation. Therefore, we can now simulate the design process as a "design machine", which creates a form based on the given concept (Figure 3). Because this should not be a random operation, we can assume that this selection is evaluated based on our assumptions of the consumers’ responses to a given form. How these assumptions are created is critical, when deciding on what kind of design strategy is used. The influence of the context for making such assumption will be further discussed in the following literature review.

These three brief definitions display the building blocks of this study. With these definitions I will now move forward to the more specific questions of this thesis. In the next segment, I will offer some further framing for the extent and focus of the following study.

1.3. Framing

The previous definitions are here put forward in some detail so that we can now start this discussion on a common foundation. The purpose of this final segment is then to finally frame the scope of the general objectives I introduced in the beginning of this work.

As mentioned earlier, my interest in this study is to look for "strategies of openness" for commercial product design. The critical question then revolves around the word "openness".

In the description of the context, I gave the first meaning for this word as the general fragmentation, unpredictability and somewhat chaotic nature of the conditions, where we are designing. This study is then focused on two questions, which follow from this description: how does the openness in this context influence how we should approach a design process and how can we create a design strategy, which answers these demands. Here the idea of openness defines a problem, to which I will try to give tools to answer.
From the perspective of the design process, the problem of openness manifests itself as a problem of the designer–consumer dichotomy, where the designers’ intentions are at the other pole and the consumers’ understanding of the product on the other (Figure 4) – this can be seen as a generalization of Nathan Crilly’s analysis on how products work as communication between designers and consumers (Crilly, 2004).

The first possible strategy is simply to let the designers use their own understanding as a measure for the form. However, if the designers’ intentions differ greatly from consumers’ understanding, we can imagine a gap between these two poles – for example, if a tall designer creates a chair for a short consumer based on their own understanding of the form, or if there is a major difference in the understanding of beauty between these two. To diminish this gap, we can develop methods to gather feedback from the consumers to be used to guide the design decisions. In the global context that I have described, this becomes difficult. The problem of openness appears as an element of unpredictability, which forces a break between the designer’s and the consumers’ understanding of a product. During the literature review, I will look more closely at different reasons, why this break seems inevitable and how to build design strategies, which answer this problem.

In this thesis, I will approach this issue by looking at an example strategy, which I consider a possible answer to this type of general openness of the context. I already introduced some examples of this strategy in the background section (Images 1–8). In this product strategy, we see openness as physical variations, which release control on the final aesthetics of the products. The general structure of the design process in these examples is divided into two events, where in the first a design team creates a platform product and in the second this platform is reinterpreted through variations (Figure 5).

Ideally, we can now imagine that the designer’s are released from the necessity to predict how consumers understand the product as the product allows consumers to further develop the product through physical manipulation. In this study, I will examine how these strategies relate to the idea of openness and how they answer the problems I have briefly explained in this introduction. During the case study, I focus further on a particular example of this strategy, the G-shock.
The main focus of this study is to analyze how the idea of openness exists in the evolution of the G-shock products. However, this strategy is still only one practical possibility and may not be applicable to all product types. For this reason, I will first look at the question of openness from a more general perspective, both to allow critical examination of the case study and to offer insights for designers to create their own answers to these problems.

In the following literature review, I will look at how the idea of openness can influence design strategies, both when we focus on products’ usability or their appearance. I will then build towards the example strategy by examining how the ability to manipulate a form can be used as a practical answer to the apparent demand for openness enforced by the context in question.
Part II
where I examine how a commercial context influences consumer–product relationships, how this impact should be considered, when creating a design strategy and how allowing product manipulation can try to answer these demands
The purpose of this literature review is to take a brief look at the general discussion on design, commercialism and aesthetics to understand how and why today’s commercial context should influence the way we approach product design. In this review, I will build towards a proposition that gives a background for practical examination of the product strategy described in the introduction.

I have structured this review based on three design approaches, which follow the three perspectives I described in the introduction in relation to our ability to understand forms: using, observing and manipulating. I will look at some of the main ideas one might consider, when developing their design strategy and how those strategies relate to the general idea of openness.

I will begin by looking at our ability to use products and so achieve integration with our surroundings. My focus in the first segment called “form as experience” is to look at the influence of the selected context on the usefulness of products and to introduce the idea of openness as a more flexible and consumer oriented approach to defining the purpose a product offers.

In the second segment, which I have named “form as expression”, I focus on the appearance of products and our general ability to observe them. My main interest is the influence today’s commercial society has in the way consumers interpret different forms and how products become a part of a “language”, which critically influences their perceived value and so can determine a product’s success and even override its other attributes. The idea of openness is introduced as an ability to escape negative associations by allowing consumers to use a form to reflect their personal values.

In the third and final segment, I take a look at the possibility to manipulate a form as a tool to answer the challenges observed in the first two segments. In particular, I will look at how this manipulation can be used to invite consumers to reinterpret and reinvent products as a practice of social and cultural value creation.

In this literature review, my main intent is to provide a general view on the different perspectives on openness, which will later help to critically observe the following case study. Therefore, I will build towards a general proposition for the requirements a “strategy of openness” should ideally fill. During the following case study, I will examine these similar issues in a practical setting to see how it reflects the ideas discussed in this literature review and to search for the practical insights it can provide for commercial product design in general.
2.1. Form as experience

In industrial design, a design process often begins with the problem of a purpose – what does a product allow us to achieve? It is thus natural to begin with what best separates the products of our primary concern from other objects, that is, the inherent assumption to be used for something. In this discussion, the concept that we base our design process on always includes the idea of a purpose, which offers the foundation for what the product is (here it is good to note the difference with what something can be used for and what it is meant to be used for).

With common products, such as chairs, cars or televisions, the primary purpose is obvious to us; with more complex products it might take some time to learn what they are good for, but it is practically never the case that the primary purpose becomes as a surprise to a designer, or those that have created a concept. I will thus begin the examination on the influence of the context with an analysis on how a form reflects its purpose, that is, how it allows us to use it.

In the introduction, I explained the act of using as an ability for a product to become included in an action. For example, I can use a shoe to change the sensations on my feet while I walk. Ideally, this means that at a moment of use, a product is only present to us through a particular outcome, as if it allows us to magically make something happen – a shoe is so comfortable that it feels like I am not even wearing it. In a strategy, which aims at optimizing the use of a product, the first measurement is thus focused on how well a product is able to disappear in an act proposed by that product – or, how it appears through the outcome of an action. This type of absolute togetherness was earlier described in reference to Heidegger’s idea of something disappearing in its usefulness, only to become available to us as a thing in itself, when it fails its purpose.

This gives us a very clear and simple starting point, but only considering a form in such a narrow sense leaves our design task a very negative purpose. If an ideal solution is a form, which fills its task immediately and at other times should not exist at all, the only time we would notice products would be when they fail – I could only experience a shoe, when it feels uncomfortable.

To make our life a little bit more meaningful, we can imagine extending the goal of using something from the exact outcome to the act itself. If we further think of our interaction with a product in a more general sense, without qualifying what are we exactly doing with it, we arrive at a design goal, which is closer to what John Dewey describes as having an experience (Dewey, 1958; Eco pp. 133–134). The preferred outcome is similar in the sense that it is a moment of togetherness, in the sense that any restrictions between ourselves and a product disappear. The difference is in the aesthetic enjoyment that complements the fulfilment of our interaction. If we select this as our main design goal, an ideal world appears as a world of harmony, where all products readily await our attention. Making any exact
measurements of this experience is a little bit more complicated, but it allows us a
general outcome to aim for.

To achieve this goal, we have several approaches ranging from measuring the
usability of a product to focusing on our emotional reactions (see Donald Norman
[2002, 2004] for a general overview). We might also search for aesthetic harmony
by applying Gestalt psychology or by making a product more understandable to
interact with (e.g. Krippendorff, 2015). However, before accepting this seemingly
appropriate objective, we should better understand the influence our context
introduces for these evaluations.

Here we come to our first point of reflection. Although it seems that we have a
reasonable goal for our design task, the complexity of the context demands us to
consider it with some care.

In a general discussion on products, it is easy to get fooled by their apparent
isolation. When we imagine a form as a commercial product, it becomes something
a lot more than any measurements we can make of the form itself. Every form is
always in some relation with other forms and ideas, with history, culture, other
products and people, both on the level of societies and our immediate surroundings.
In today’s highly developed global marketplace, everything is connected into a
complex mesh of relations – it is impossible to imagine a commercial product
detached from the commercial system that conceived it. This connectivity is perhaps
most concretely present through technological networks, but it is as relevant, and
perhaps more evasive, with social relations – one might see Pierre Bourdieu’s

One critique of the implications of Dewey’s harmonious integration in a
complex society is expressed by Umberto Eco (Eco, 1989 pp. 133-134). According to
Eco, the problem arises, when in a complex setting a product such as a car:

“does not simply alienate its driver to itself; it also alienates him to the system
of laws that govern the highways, to the race for prestige (the ambitions
of possessing a new model, a particular accessory, more horsepower), to a
market, to a world of competition in which the individual must lose himself in
order to acquire the car.” (Eco, 1989 p. 136).

Seemingly paradoxically, it appears to be exactly the ability of a product to be
experienced without any restrictions, which causes one to lose control of that
product, and the possibility of losing control may in turn make one unwilling to fall
in the experience in the first place.

This similar connectedness is also present in Heidegger’s analysis of using a
product. The act of using is not seen only in reference to a particular outcome, but
as an involvement in a system of outcomes (Heidegger, 2007). If the system is very
complex, this involvement can easily lead to anxiety.

When deciding to acquire a product, it is clear that we do not only consider the
enjoyment of the experiences it can provide, but questions such as: what do people
think of me if I possess this form, has this form been ethically produced, does it take away my privacy, can I support this company. A society of full integration and harmony is a society of total acceptance. A form, which exists only as an invitation to a moment of integration, balances constantly on the edge of acceptance and rejection.

The fragility of an approach, which places its hopes on the ability to keep consumers from falling out of the positive integration offered by products, is perhaps most concretely revealed through practices sometimes gathered under the umbrella of "culture jamming". According to Carducci, cultural jamming "endeavors to achieve transparency, that is, to mitigate the asymmetrical effects of power and other distortions in the communications apparatus" (Carducci, 2006) – a process, which consciously aspires to reveal the false promises disguised as harmony.

A good example is a character "Mc Supersized" (Image 9), which Ron English uses in his artworks as a parody of the contradictions between the positive marketing and the actual realities related to a McDonald’s experience. Another famous incident is an e-mail correspondence between Jonah Peretti and Nike, which was initiated, when Nike had refused to comply to a request for a customized shoe with the word "sweatshop" in it, designed by Peretti through the NikeID service (Shontell, 2017). A strategy, which offers seeming openness, but fails as soon as a consumer is able to produce a meaningful expression, is a good demonstration of the struggle to apply a closed mind-set in an open world.

The context seems to demand a new approach, a new role for a form as a mediator between a concept and its context. A chair cannot only be seen through the act of sitting, but as a piece in the organization of work (an office chair), family relations (a television chair), history (antique chair), cultural identity (traditional chair), city planning (a public park chair), and so on. For an open strategy, we need products, which would allow us to experience them without having to fully get integrated in the system that it is a part of. According to Eco, we should find both a lower and an upper limit to integration (Eco, 1989 p. 133).

If we consider the ability to use a product as a source for increased openness,
the idea of being-together should be replaced with being-together-apart – to appropriate a term from Jacques Rancière (2008) – with a more consumer oriented experience. One might also find a useful analogy from the idea of distance between a work and an observer as developed by Bertolt Brecht (2015) or Viktor Shklovsky (2015). Yet, it is by no means meaningful to suggest that such transition would demand us to create this distance by making the act promised by the concept itself unattainable, denying us a pleasurable experience. This would simply render all products obstacles, which only exist to oppress us. A positive experience thus should exists, at least as a possibility, but a form should be seen as a conscious negotiation between an experience and ourselves, and therefore between ourselves and the world.

To examine some possible consequences of this, we can first consider using a product not only as an experience in itself, but as an action towards an experience. This idea is already familiar to us from things such as musical instruments and games – a possibility also suggested by Donald Norman (2005) – as well as moments of contemplation, when we silence ourselves before complex artworks such as a poem by Hölderlin or a musical piece by Stravinsky. It is possible to imagine how this idea of denying immediate gratification could be implemented in commercial products, which are mainly excessive, but we need to be careful, when talking about products such as ovens, washing machines or vacuum cleaners, which hold a necessary role in our daily activities.

We should also consider the role of openness in relation to our possibilities of interaction. We can find an interesting proposal from a movement called architectural structuralism, which has its foundations in similar issues. The basic idea is to allow flexibility in how our relationship with spaces is organized. In an essay from 1973, Hertzberger explains this idea as follows:

"What we have to aim for, is, to form the material (of the things we make) in such a way that – as well as answering to the function in the narrower sense – it will be suitable for more purposes. And thus, it will be able to play as many roles as possible in the service of the various, individual users – so that everyone will then be able to react to it for himself, interpreting it in his own way, annexing it to his familiar environment, to which it will then make a contribution." (Hertzberger, 1973)

These ideas offer an interesting perspective on how we can gain control of our environment by getting more freedom to define how to integrate with it, but a building and products have some clear differences. In particular, we should consider the difference between being able to use a product in many ways and a product offering many ways to use it.

It may seem tempting to consider the possibility of increasing openness by introducing additional modes of action to a product, creating multi-purpose forms. However, this approach seems contrary to our goals, as long as it only
means a longer user-manual. It appears more accurate to consider openness, not by increasing the alternatives for use, but the alternatives for misuse. In fact, I would claim that the better defined the purpose of a product is, the easier it is for us to distance ourselves from it. If we are not allowed the alternative to misuse a product, we are forever trapped in its predefined intentions: an open form should allow complex use, but not be complicated to use. Therefore, where Vilém Flusser suggests that a product should be like a chess game (Flusser, 1988) – with simple rules and complex possibilities – we should agree, but insist on an ability to separate the pieces from the game and only accept the rules if we find them more interesting than any others we can imagine.

All in all, the question of openness seems to render all notions of usability design, emotional design or experience design meaningless as long as they are seen only as means to reach better integration. Although they may define a goal to struggle for, they do not alone offer a route to this destination.

In the kind of products we are interested in, the purpose creates the first, and perhaps the most important, source for a need for openness. Still, it is hard to imagine that by focusing on the act of using we could make the form otherwise insignificant, especially when most of the relations associated with a commercial form have little to do with the primary mode of action, but instead with our ability to simply observe a form; a form which we make an extension of ourselves merely by choosing to possess it.

We have already seen here that the complex relations, which are the root of our issues, are not limited to the active use of a product, but also to its aesthetic and symbolic relations. It is here, in the problem of expression, where we find our second struggle for increased openness.

### 2.2. Form as expression

A design process, as I have it here defined, is an act of selection, which, when done consciously, becomes an act of expression – therefore, an expression of something. It is first an expression as an act, then becoming an expression as a form, and perhaps still, through integration, hoping to become an expression of someone else, here a consumer.

In the previous segment, we became to understand the role of the context through the relations it forces on a form, denying it the ability to remain isolated from its production process and the surrounding society in general. The question of integration does then not only concern our physical ability to interact with a form, but also appears in relation to the ability or willingness of a consumer to assume the expressions suggested by a form as their own. A product becomes a part of a
conversation between consumers and a decision to own a product a decision to take part in this conversation.

In a discussion on the relations that exist in a form, we have to first make a distinction with the actual relations – mainly how a product relates to its production process, but also how it relates to its environment and us in particular – and the symbolic relations – the relations it has in our imagination. On a practical level, the actual relations may be much more important, but such practical questions of production or environmental issues are not within the scope of this discussion – the only actual relation we are interested in manipulating is our ability to personally interact with a product. Instead, what matters here is how a form seems to express these relations.

The idea of a form as an expression appears maybe most concretely today in product images, which play an important role in marketing products especially now, when photography is one of our most common platforms for social communication. However, just like a product image is an expression of a product, a set of similar expressions appear to us, when we look at a product next to us.

When we look at a form, or even touch or smell it, the sensations it provides are organized and connected to our previous experiences. Therefore, any expressions – that is, our sensations – are related to a set of concepts, or ideas, which create the content of those expressions. This ability of a form as an expression to be linked – either willingly or unwillingly – with existing conventions, styles, values, and other content is what creates the root for the second perspective on openness.

To use syntax given by Barthes (1973, p. 89), the relation between an expression (E) and its content (C) can then be expressed as “ERC” (expression relates to content). The question of openness then arises from the nature of this relation in today’s commercial context.

The discussion on the expressive nature of forms can be traced back either to Ferdinand de Saussure (e.g. 1959) or to Charles S. Peirce (e.g. 1932), who on their own parts initiated a rich conversation both on natural language and of other forms in following similar processes of signification. Within the design discourse, several suggestions for the applications of these ideas have been suggested, including the analysis of Peirce’s ideas by Susan Vihma (1995), the propositions by Klaus Krippendorff for using semiotics for more human-centered products (Krippendorff, 2005) and the analysis of “radical design innovations” by Roberto Verganti (2008). In this work, I am primarily interested in the influence of the cultural context for the interpretation of these expressions.

To understand the influence of the context for a certain expression, we can categorize these relations into several groups. One good effort for such categorizations is offered by Peirce, who aims at a full disclosure of all the possible relations in our observable world (Peirce, 1932 pp. 134–173). For this thesis, the most useful division is between those relations, which are more or less universal or “natural”, and those based on cultural agreements.
In our design work, a form has to first be an expression of a concept – the concept becomes the content of the form (a chair is not a chair unless it is a chair). In a similar manner, a form can relate to other forms by imitating them, such as a drawing of a bird imitates a bird or red paint imitates the color "red" (icons in Peirce, 1932 pp. 156–160). Additionally an expression can relate to something based on an existential fact, such as a handle relates to a hand, or smoke relates to fire (indexes in Peirce, 1932 pp. 170–172). For this work, the important transition happens, when a form is put into a social, or cultural, context: new relations are created based on common agreements (symbols in Peirce, 1932 pp. 165–169): a social system of forms is established.

In a complex society, we rarely fully understand all the actual relations of a product and have to rely on trying to decode these from the expressions of a form, which leads to a social game, where meanings are attached and detached to forms. Our resistance to allow integration with a product may thus not always have much to do with the actual qualities of that form, but the – sometimes accidental – symbolic relations associated with it. So, when Eco claims that driving alienates us to the race of prestige or the market, this is partly due to being forcefully integrated with the social system of forms (is there anything I can wear not to make a fashion statement?).

According to Roland Barthes, in commercial products, these social relations are created in a very similar fashion as relations in ordinary language (Barthes, 1973 p. 23–34). In today's commercial context, the nature of these relations seem to have adopted a new complexity. To understand this complexity we can observe how these relations are developed in two primary layers. We can call these the first order system and the second order system, as explained by Barthes (1973, p. 89–94).

The first order system is created with first order relations. These might include: a color within a certain culture expresses a selected content (black–death; white–death) or a clothing material expresses a specific social class. Today, we might imagine some common relations in product design such as green–ecological or gold–luxury. By referring to Saussure's analysis of the development of language, Barthes explains the first order system through a language/speech (langue/parole) dichotomy (Barthes, 1973 pp. 13–23; Saussure, 1959 pp. 7–20). In brief, the language refers to the underlying structure that determines the (current) cultural relations, whereas speech is the acting out of these relations – here we can consider the decision to own a product as a type of speech, especially if one chooses to display it in a social context, such as commonly now in an image uploaded to social media.

The first order system already poses some difficulties for design that aims at producing forms without a proper understanding of the possible cultural context they will end up in. A naive strategy, which produces a form with any type of a simple and fairly coherent form language may be easily embarrassed by cultural conventions, possibly leading to unfortunate misunderstandings. Yet,
these concerns issue a fairly easily understandable problem. In a world, where these relations could be simply listed for each cultural context, the problem appears mainly as a problem of cultural knowledge, but doesn’t quite explain the complexities apparent in today’s society. In fact, we would need to move quite a long way back within the realm of the so called Western world to reach a stage, where culture was ordered with such clear and commonly accepted relations. Our search must thus continue to the second order system.

According to Barthes, the second order system is created, when a relation itself becomes an expression. To follow the previous notation by Barthes (1973 p. 89), we can write this “(ERC)RC”, or we can write it open:

1. ERC
2. E   R   C

In the second order system, the way we use certain relations within a cultural context itself becomes to signify something, thus adding an ideological or mythical layer of meanings on top of the first order system. These “connotative” meanings appear as cultural myths and ideologies (Figure 5). A famous review of such cultural myths created through this signification is given by Barthes in “Mythologies” (1972).

This is a historical and cultural layering of relations, which – if we believe Baudrillard (1981) – in a commercial society evolves towards a stage, where each form threatens to become a purely virtual expression, where even its relation to itself seems to be trapped into an ideological connotation denying us access to the form as a real and singular entity. This overwhelming signification eventually leads to the complexity that frames the problem of today’s commercial design as an expressive process.

The significance of these cultural meanings has also been emphasized by Grant McCracken, who proposes that the movement of meanings in consumer goods is an important part of today’s consumption processes (McCracken, 1986). According to McCracken, these meanings originate from the Culturally Constituted World, a

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**Figure 6.** Barthes explains the creation of cultural myths as the layering of a signification process, where a particular relation, here a sign, itself becomes a new expression (Barthes, 1972 p. 113).
cloud of meanings, which describes the existing cultural conventions in a certain context (Figure 7).

The idea of openness exists as a description of the instability of cultural relations and thus the inability of a designer to control how consumers will understand the products they create. The implications of this problem have been further described by Barthes in his essay “The Death of the Author”, which has also been translated for industrial design by Richardson in his article “The Death of the Designer” (Barthes, 1967; Richardson, 1993). As an answer, we need a proposition for a form, which offers itself to this openness without getting subjected to its negative ideologies.

The first source of inspiration for such forms can be found in Umberto Eco’s analysis of “open aesthetics” (Eco, 1989). Although Eco begins with the notion that each form is always “open” in the sense that its interpretation depends on who is observing it, he claims that some forms seem to force the way they should be interpreted, while others allow a more open ended contemplation, subsequently proposing that a form should become a “way of thinking” rather than a “vehicle for thought” (Eco, 1989 pp. 2–4; p. 142).

This type of ambiguity is further explained by Eco as the balance of meanings and information. More exactly, Eco uses an equation from information theory, which indicates the amount of information in a particular signal (Eco, 1989 p. 46):

\[
\text{Information} = \log \left( \frac{\text{odds that addressee will know content of message after receiving it}}{\text{odds that addressee will know content of message before receiving it}} \right)
\]

As an application of this equation to aesthetic theory, Eco defines information in relation to the existing conventions of communication. The larger the information content of a message is, the more possible interpretations – that is, meanings – it has. In his book “The Open Work”, Eco observes how this type of aesthetic openness seems to have been increasingly present in avant-garde art works from the early 20th century onwards – two good examples of this idea are the Mobiles by Calder (Image 10) and Finnegans Wake by James Joyce (Image 11). (Eco, 1989 pp. 44-83)

For Eco, the purpose and measure of openness is always aesthetic pleasure (Eco, 1989 p. 39). However, the need for a more concrete type of openness as a quality of a work becomes necessary so that this pleasure would not be exhausted by existing conventions. For our discussion, this becomes most relevant in relation to how a form is intended to be interpreted and how it can be interpreted.

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**Figure 7.** Grant McCracken (1986) explains consumption through the movement of meanings in consumer goods. These meanings are assigned to products either through the fashion system – a description of the way meanings are organically created in a consumer society, based on a further description by Roland Barthes (1983) – or through advertisement. According to McCracken, consumption happens through the possession, exchange, grooming and divestment rituals, where these meanings play an important role.
Images 12 and 13. Max Lamb’s furniture is a good example of the use of chance and randomness by giving up control over the final form of a product. The outcome thus becomes a kind of ambiguous hybrid between furniture and sculpture.

Image 14. In the “Do Hit Chair” by Marijn van der Poll designed for Droog, the design process outsources the final expressions of the product for the consumers.

Image 15. The Ulm design philosophy is probably the most concrete example of an industrial design process, where all expressions, which are not directly related to the purpose of the product are minimized. However, this does not mean that the products would be more neutral in their appearance in some absolute manner. Rather, the significance may be more in the narrative reasoning behind the expressions than anything else.
Allowing openness in interpretation seems to indicate that a form has to be first emptied of its existing relations to be filled again with those of an individual consumer. To overcome the problem of unwanted connotations, it seems that we would need to remove the use of the first order relations as a means to entice consumers into an experience. The obvious challenge this approach shows is how to make a product meaningful for consumer if it has to be “meaningless”.

When we start looking at possible solutions for this problem, the first extreme approach seems to suggest that design should be used as a conscious effort to display a purpose with an utterly displeasing form to show it disconnected from the systems of ideological communication. Approaches of this sort have, in fact, manifested from time to time (mainly in the so called postmodern design tradition, but apparently also lately in avant-garde design [Gardner, 2017]). The obvious disadvantage of such a strategy is that it, if fully incorporated, leaves our environment just unpleasant, or what may be even more unfortunate, it only achieves a new category for aesthetics of ugliness, which gets trapped in the same meaning machine it was supposed to offer a release from. To allow this release, it would need to constantly keep recreating its facade, leaving the actions it provides our only source of satisfaction. The idea of ugliness eventually becomes like any other approach that aims at creating a particular effect. It may be useful in specific cases, but proves insufficient as a general solution.

There are some examples in the field of furniture design, which offer another aesthetic possibility: the use of probability. This we can see particularly in the aesthetics of Max Lamb’s furniture (Images 12 and 13) and in the “Do hit chair” by Marijn van der Poll (Image 14). However, for products with more complex technology and a greater need for a particular purpose, these still cannot offer a

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**Image 10.** Calder’s Mobiles are a good example of one basic way to achieve visual ambiguity. As Eco points out, an image of a Mobile (such as the one used here) is always an imperfect representation of the form as a whole. Because of its movement, the form constantly provides new ways to experience it and thus resists being fully comprehended. ([Eco, 1989 p. 86])

**Image 11.** Finnegans Wake by James Joyce is one of the most ambitious examples of a literary work, which tries to overcome the burden of conventions with ambiguity. The challenge is that it may provide little enjoyment for a reader, who does not understand the references it includes (a fragment used by Eco [1989 p. 41] from [Joyce, 1958]).

“From quiqui quinet to michemieche chelet and a jambebatiste to a brulobrulo! It is told in sounds in utter that, in signs so adds to, in universal, in polygluttural, in each auxiliary neutral idiom, sordomutics, florilingua, sheltafocal, flyflutter, a con’s cubane, a pro’s tutute, strassrab, ereperse and anythongue athall.”
In the field of industrial design, some approaches have been used to achieve the kind of universalism an open form seems to suggest. Two good examples are the design philosophy created in Ulm in the middle of the 20th century (Lindinger, 1990) and a Japanese marketing philosophy called *Mukokuseki* (Iwabuchi, 2002 pp. 24–26; Manning, 2010 p. 39). In Ulm, cultural expressions were minimized by creating an almost scientific reasoning for the relationship with a form and a purpose (Lindinger, 1990). Possibly the most famous example of this tradition is the work done by Dieter Rams for Braun (Image 15). The philosophy is nicely illustrated, when Dieter Rams claims, following the Ulm tradition, that good design is "as little design as possible" (Rams, n.d.). In a similar manner, according to Iwabuchi, Japanese products are often marketed following the "*Mukokuseki*" philosophy, which aims at removing all "cultural odours" from products (Iwabuchi, 2002 pp. 24–26; Manning, p. 39).

The challenge with these approaches is that the outcomes are fairly uniform and not always very interesting. These minimalist or functionalist approaches easily end up establishing just another style, which gets trapped in the same ideological connotations as any other – a problem, which is well expressed and further discussed in the context of literary criticism by Susan Sontag in her essay "On Style" (Sontag, 1966).

In Eco’s analysis of the practices of the avant-garde art, there is one possibility, which may give us a more concrete starting point for products, which remain open, but allow more variance in their expressions. "Klavierstück XI" by Karlheinz Stockhausen, "Sequence for Solo Flute" by Luciano Berio, "Third Sonata for Piano" by Pierre Boulez and "Scambi" by Henri Pousseur are all works, which are left unorganized, as segments or as open instructions, for a performer to interpret (one should note that a performance here is much more radical than an interpretation of more classical works and is build in the structure of the work itself) (Eco, 1989 p. 1-23). A musical performance experienced by an audience is thus always different (or one of the provided alternatives). Perhaps the closest example for an application in product design is Pousseur’s "Scambi", which is an electronic music piece constructed from white noise with a set of rules leading to sixteen sections, which can be arranged in different compositions. According to Eco, Pousseur entertained the idea that his work could be seen as a marketable product:

"if [the sections] were tape-recorded and the purchaser had a sufficiently sophisticated reception apparatus, then the general public would be in a position to develop a private musical construct of its own and a new collective sensibility in matters of musical presentation and duration could emerge.”

(Eco, 1989 p. 2)

The basic idea of these works is to divide the design process to two stages, where the first sets the boundaries for the form and the second performs a selection (Figure
8). In fact, this resembles greatly our first definition, where design was seen as a selection based on the boundaries given by the concept. However, to achieve this fully, we will first need to demand that the concept is further defined so that it is able to provide the uniqueness of a product. This notion leads to a proposition: a product, which is conceived unique despite its particular expression. Or we can formulate it the other way around: a form that is not unique only as an expression.

We can examine the nature of this statement a bit closer. In the beginning, I separated a concept as a practical foundation for our design task, yet left it fairly ambiguous in how strictly it should be defined. Thus the concept may as well be "chair" or "yellow chair with three legs". We should now establish a second stage to this definition to determine its uniqueness.

The necessity of this uniqueness becomes clear through an example. If we were allowed to leave a concept with a definition "chair", our design task would be unlimited as long as this definition is met, thus letting us to create a form, which would be an exact replicate of any of the already existing chairs. This would not be either legal or very interesting and could be avoided only with very arbitrary definitions such as: it can be anything within these boundaries, except exactly this or exactly that. To make the meaning of this new definition more apparent, we can call it simply the identity, or the identity-form, of a product. This identity-form can then be easily seen parallel to the platform as described in the introduction (Figure 5).

The nature of this proposition becomes better visible, when we approach it from another direction. If we take any product and start making changes to it, at some point we will realize that it is not the same thing anymore – it does not express the same the same concept. At this point we have reached the boundaries of the identity-form. This experiment resembles that of a commutation test in semiotics (Chandler & Munday, 2011), which is used to determine the relations of words and their meanings, and as in language, we should realize that the identity-form is not so much an exact definition that can, so to say, be selected in secret, but it has to be learned.

The reason for this separation is to make visible, what has to be so and what is selected to be so. To see this in practice, we can imagine an example of three different chairs:

**CHAIR 1**: Identity-form is defined only as "chair". Any changes that fill this concept appear as an act of expression, which means: the form is understood in comparison to all other expressions of the concept "chair".

**CHAIR 2**: Identity-form is defined by a set of qualities. For example, a seat with a unique shape, material and color. Anything else except this seat appear as an act of expression.

**CHAIR 3**: Identity-form defines all of the form (except dust, fading, scratching etc.). For example, a very technical chair, perhaps a military chair, but also a chair, which has become a classic (e.g. the Wassily chair). Motivated expression exists only through contextualizing the form.
To make these differences meaningful, a form should be seen from the perspective of how it is created. In particular, the main question is that of the responsibilities for creating an expression. Here the responsibility of a company is restricted to that of creating the underlying structure, the identity-form – which also defines the purpose of the product – while a performance allows the possibility to freely "perform" a form outside the control of a company. We can see these as two modes of expression: object-oriented expression and culture-oriented expression.

The basic idea of this proposition is that, in a complex marketplace, a designer cannot force consumers to receive a product the way they want to – a form should allow consumers to freely define its meanings. By leaving a product physically open for manipulation, consumers can join in to define how it fits in in their own environment. We are then able to see a form as a dynamic expression, which can be used to integrate consumers through an active process of forming.

### 2.3. Form as forming

If we analyze forms only based on how they appear at a certain moment, as static beings, as if they were frozen in their eternal structure, we fail to understand a form as a continuously living assembly of qualities. From its birth to its decay, a form exists as a changing expression gravitating towards its center, an idea of something, an idea external but undetachable from any of the exact states, in which a form can express it.

In my previous proposition, the idea of a performance was introduced to emphasize the amorphous nature of a form, or to follow Eco’s terminology, to create a form in “movement” (Eco, 1989 p. 12). In principle, we can imagine that there are no restrictions for this performance as long as its uniqueness is guaranteed by the underlying identity-form. However, as a cultural expression it becomes an interpretation for a particular context, it is the cultural flavor added to a concept. Where in this separation the identity-form should only provide the potential for consumption, the performance determines its meaning for a particular audience.

When defining the identity of a product as a statement separate from any active expressions or empirical relations, at the same time those qualities of a form, which cannot be traced back to this identity-form appear as pure expression. The simultaneous necessity for these qualities to exists and their completely arbitrary nature force us – or let us – to reconsider the process of creating the performance isolated from practical constraints, as a free artistic act. In a commercial environment, this highlights the importance of understanding what type of expressions are meaningful and how the forming process reflects the existing
cultural meanings.

One significant aspect of this context, which comes concretely visible through the possibility of physical manipulation is the significance of the design process in relation to the commercial authority of the designers. A lot of the anxieties – which I have earlier expressed through the complexity of relations in the context of a commercial society – can be traced back to the separation of the roles of production and consumption. Forcing a consumer to accept an expression as their own, while keeping them removed form the process of forming only emphasizes this distinction. The problem appears as a gap between consumers and the system, in which forms are created. Integration with a product demands a leap of faith over this gap, a passive acceptance of the systems of production that we cannot access. Or to use a popular analogy from Rousseau’s critique of theater:

"... the evil does not only lie in the content of the representation. It lies in its structure. It lies in the separation between the stage and the audience, between the performance of the bodies on the stage and the passivity of the spectators in the theatre." (Rousseau, 1758; appears translated in Rancière, 2008 p. 6)

Rousseau’s original critique was directed at the inability of theater to be used for changing the moral behavior of the audience, but it is possible to see similarities with how companies create expressions for consumers. This is particularly interesting as products – unlike theater – truly organize our life beyond just an aesthetic experience.

Here the idea of theater is not only related to independent products, but to how a company presents these products to us. In traditional marketing – particularly in the type we can find from the middle of the 20th century – a company offers a product by constructing an ideal world, an image of a lifestyle associated with a product, hoping that we would wish to continue playing out that world in our daily life by buying a product of that company (Holt, 2002 p. 71). To allow this, a product is formed as an expression of this lifestyle.

In the latter half of the 20th century, we have seen a paradoxical development, where, on the other hand, consumer emancipation – both in attitudes (e.g. Firat & Venkatesh 1995; Murray & Ozanne, 1991) and in technological development – has challenged the authority of companies, but on the other, consumerism and commercialism seem more prevalent than ever: everyone seems to have become a commercial actor. Where Rousseau – according to Ranciere (2008, p. 8) – suggest open air festivals as a more participatory alternative to theater, it does not take too much imagination to see today’s commercial environment as a strange image of such a festival, where consumers join together for commercial amusements. Yet, from another perspective, Guy Debord might remind us that the same festival quickly becomes a "society of spectacle", if consumer participation does not allow a break out of the dominating commercial ideologies (Debord, 1994).
Earlier, I described the basic idea of an "open" form as something, which allows an observer to freely define its meaning – a clear mirror rather than a mirror with a smiling face drawn on it. To make this openness a structural part of the form, I proposed this openness as physical manipulation as described earlier in this text. However, this implies that manipulation should be a process of free interpretation, and should thus ideally happen beyond the control of the company responsible for the original product. Consumers should be approached by inviting them to participate in this performance, rather than offering them a part in a play already written.

To find practical possibilities for applying the idea of physical openness, we can look at the musical examples discussed earlier. In these examples, there are two main types of performances. The first alternative we saw in Pousseur’s "Scambi", where a product is a ready-made structure, which consumers can rearrange. We could imagine this as a representation of customization services, which offer a set of alternatives for a consumer to select from. This certainly offers interesting possibilities for achieving openness as an aesthetic idea, but it also has some downsides regarding the production–consumption dichotomy. Although consumers may have more freedom to express themselves, if the alternatives are predefined by a company, the expressions will remain under their control. The forming process is also restricted to the aesthetic qualities of the form and may offer little relevance in relation to the purpose of the product.

With the development of tools, which allow consumers to create more advanced forms, it may be possible to imagine more radical expressions. However, the more advanced the tools are, the more we can see differences in the ability and willingness of consumers to use them. We will also have to consider the social relevance of these expressions, that is, their role in how consumers interact with each other.

Another alternative is a composition, which is left unorganized, but is performed by a conductor together with an orchestra for an audience rather than by each consumer for themselves. In a commercial society, we can imagine this role taken by commercial actors, who have gained relevance within a particular context.

The idea of an artist translated to a commercial system soon appears as a brand. Where a brand used to mark mainly objective qualities and ownership – identifying something as something – today a brand seems to be often associated with someone/-thing who does something. This shift is promoted by Douglas Holt, who encourages brands to become "citizen-artist", who show their relevance with the ability to produce authentic cultural material (Holt, 2002 pp. 87–88).

Holt’s analysis promotes the idea of cultural understanding, which relates to the idea of cultural mythologies as explained by Barthes (1972). If we consider Holt’s idea of citizen-artist together with the proposition by Grant McCracken, which explains consumption mainly as a movement of meanings from commercial
goods to consumers (Figure 7, p. 29), we can imagine a role for the "performance" as assigning meanings to the otherwise culturally neutral identity-form. It is then a performance done by an actor from within a cultural context, rather than by a company, which is restricted to trying to act as if it can "speak the language" of the consumers within that context.

These possibilities create the foundations for a product strategy, which tries to use the openness of the context as an advantage rather than a hindrance. However, to apply these ideas in practice, we will need to consider a couple of critical questions. First, we have two objectives for the design task, which are not necessarily in line with each other. Ideally, the focus when designing the identity-form should be in emphasizing the identity of the product, which seems to require the ability to differentiate it from other concepts. Yet, a free expression of this concept might not improve this recognition. On the other hand, where the identity-form provides the purpose of the product and should be culturally neutral, it may not be interesting to consumers unless expressed in a way relevant to a particular cultural context. Allowing both openness and a strong identity becomes a critical practical problem in any effort to answer the challenges introduced in this text.

The purpose of this literature review was to examine some of the main perspectives on openness, which make it increasingly difficult for a company to stay fully in control of the afterlife of their products or the wavering consumer preferences. The focus of this text has been in a particular strategy, which seems to relate to many of the issues examined here. In the following case study, I will take a closer look at one specific example, where we can observe the practical implication of using a design strategy, which follows the general model I introduced earlier (Figure 5, p. 16). During the case study, we will also see more concretely how the product form dramatically influences the value of a concept for different type of consumers.
Part III
where I describe the research methods
and go through the results of this research
To analyze this subject from a practical perspective, I conducted a study on an example product system, which illustrates many of the topics discussed earlier. However, before continuing to the methods used in this specific research, I will begin with an overall description of the research structure used in this study.

As mentioned previously, the goal of this thesis is to offer insights for open strategies in commercial product design. The focus was set on a particular strategy, where a product is created through variations and collaborations. To keep this very complex subject focused on the demands of practical design, I started by giving definitions for the particular design process, which I analyze in this thesis. The basic definition I gave for design is as follows:

\[ \text{Design} = \text{to give a form to a concept in a global marketplace} \]

The content of this statement was analyzed in the introduction of this thesis and it gives the general limits for this discussion.

Within these definitions, I conducted this study as a combination of general research, which aims at finding insights from the existing knowledge from various fields – centered on the ideas proposed by Umberto Eco in “The Open Work” (Eco, 1989) – and specific research, which examines a selected case study in reflection, or as an application to, the general analysis. The main objective was to search for design strategies, which allow increased openness and flexibility. However, to first understand the meaning and validity of this question, I conducted an analysis of the idea of openness and its relationship with product design. The overarching research questions, which guided both of these phases can then be summed up as follows:

\[ \text{How does the idea of openness influence how consumers interact with products?} \]

\[ \text{How to create design strategies, which benefit from such openness?} \]

Based on the outcomes of the general research – which can be examined in the literature review – I selected a case subject, which fits the restrictions given to this study and uses a strategy, which resembles the strategies described in the general analysis.
When selecting the case study, I had a couple of further principles. First, the example should include a reasonable amount of technological complexity to allow a discussion on the relationship between purpose and appearance, it should allow reasonably quick production to be more responsive to the context, it should provide enough research material, it should be sold globally and it should be interesting for a variety of different type of consumers. The best such case I found in G-shock, which is a watch brand by Casio.

To analyze the case study, I conducted a qualitative research on the concept and evolution of G-shock products. I did this through an analysis of diverse material gathered online of product images, marketing material, articles and discussions. The objective of this study was to observe how the G-shock evolution has proceeded and how the idea of openness appears in this process.

The analysis focused first on finding and categorizing the strategies used in the G-shock evolution, and then on analyzing how these strategies reflect the findings in the literature review. The main research questions used for this case study can thus be divided to three phases as follows:

What strategies have been used to give the G-shock concept a form?

What is the role of these strategies in the evolution of the G-shock brand?

How do these strategies relate to the findings in the literature review?

G-shock was established 1983, which makes it possible to still find a reasonable amount of documentation on its development. Since the late 1990s, when internet started to become a common platform for publishing and consumer discussions, G-shock has gained a significant amount of following through blogs, fan-sites, magazines and discussion forums. Because of the great amount of existing material, it is possible to delve into the virtual world established around G-shock and proceed through a type of internet anthropological exploration.

The data used in this study includes either images or text collected from different websites (for a complete listing of the material, see Table 1). The objective of this research was to go through this data based on the general themes discussed in the literature review. For this, I used qualitative content analysis (as described by Zhang & Wildermuth, 2016). Because the data is very varied, the exact analysis process was not completely consistent to all of the data, but was adjusted based on the data and the current perspective.

The overall structure of this analysis was conducted based on two main perspectives: the G-shock concept and the evolution of the G-shock forms. Through these perspectives, I analyzed the more general relationships with the concept and form to gain strategic insights on the issues examined during the literature review. Because the research process includes a lot of different types of data, and thus
the research method being fairly flexible, I will next give a slightly more detailed overview on the methods and data used for both of these perspectives.

The first topic is the general G-shock concept, or even: what is G-shock? In the beginning of this study, my knowledge of G-shock was quite limited so the first task was to get a general overview on the subject. A natural starting point was seeing what the brand wants to tell about itself. The research then began from the G-shock websites. There are alternative websites for different geographic areas, from which the most useful for my study were the international website (G-shock, 2017), the European website (G-shock EU, 2017) and the Japanese website (G-shock, Japan 2017). There are some differences in the basic structure of these sites, but the content is quite similar. The international website, also directed for the US audience, is the most comprehensive, but the European website offered some additional insights on the historical narrative of the brand. I also used the Japanese website later for the product analysis as it includes the most comprehensive model search. In addition to getting an overview on the product portfolio and the visual marketing of G-shock, the primary focus for my research in these websites was getting to understand the background of the brand.

After getting an overview of the available data, I separated the material, which related either to the origins of the concept, or to its current descriptions. I then used the textual data together with the visual material attached to it to inductively pull out themes and specific insights. Because this material is based on a narrative constructed by the company, the objective of this analysis was also to separate concrete explanations of the original concept from the more abstract narratives offered by the company.

After the G-shock websites, I expanded the search to other sources to get a designer perspective on what were the original ideas behind the G-shock products. In the websites, I had found out that the "founding father", a chief engineer behind the product, is called Kikuo Ibe, so I next continued to search what Kikuo Ibe himself has talked about this subject. This search provided me with a few sources for interviews he has given for different publications (Banks, 2016; Forster, 2016; Freshness, 2009; G-Central, [n.d.]). This text was analyzed in a similar manner as the data from the G-shock websites.

All of these interviews were very consistent in content, repeating a narrative on how Ibe came up with the concept and what were his perspective on the origins of the product. These interviews complemented with a visual analysis of the first G-shock model were the main source for understanding the original G-shock concept from the designer perspective.

After getting a decent understanding of the concept of G-shock, I then continued to analyze the actual products. This analysis was divided into three main phases. The purpose of the first phase was to understand what has been done, that is, what do the products look like, what changes have happened during the evolution, what are the bigger themes one can observe and what is the general structure of the
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product portfolio. The second stage aims at understanding why these decisions have been made and how do they relate to the consumer responses. In the third stage, I compared these findings to the literature review to find further insights.

The first step started by visually mapping the evolution of the most relevant G-shock models. This was possible with the help of a chronological listing of all published G-shock models (until 2012) in the G-shock wiki (My G-shock Wiki, 2015) in addition to a complete model search on the Japanese G-shock website (G-shock Model Search, 2017), from which the wiki information is mainly translated from. Because of the large amount of G-shock models (on many years over 100 new models a year!) an important part of the model mapping was filtering those, which offered significant additions to the form evolution or represented particular themes within the evolution.

The new G-shock models are either completely new models, variations of these models or variations of existing models. The focus in the mapping of the evolution of the G-shock forms was thus first on the completely new models and then the variations, which offer a new strategic angle on the evolution.

The analysis of the product evolution had two main phases. The first was simply looking at the models and analyzing their appearance. To keep this analysis consistent, I defined six basic form variables: material, shape, size, color, texts and display, which could be used for categorizing the products based on their physical attributes. This analysis focused on comparative mapping of the general developments rather than doing an individual listing for each model. In addition to these visual variables, I examined the basic technical features, which were not always a visible part of the form, as well as additional background information provided for each model. The objective of this analysis was to both see how the forms evolved in general and how this evolution expressed the reasoning for the development of these particular forms. The second perspective was categorizing the evolution into more general strategies to understand the relationship with changes in the form to the consumer responses to the products.

During the second stage, I proceeded from the visual analysis to a qualitative analysis of various blogs, articles, discussions, marketing material and background information in order to find insights for why these decisions were made and how consumers responded to them. I then continued to widen the search to look for other articles, blog-posts and forum discussions to understand G-shock from different angles, and to be able to compare the narratives given by Kikuo Ibe and the G-shock websites. Some of the most useful sources were a blog 50Gs (Sjors, [n.d.]) by a well known G-shock collector, a G-shock wiki-page (My G-shock Wiki, 2015) and a Watchuseek G-shock forum with a lively discussion around G-shock (Watchuseek, 2017). Because this study is qualitative in nature, thus aiming at finding patterns and themes rather than exact data, a lot of background information had to be consumed to allow a holistic view on the subject.

Because this data is very scattered and often second hand speculation, I focused
first on finding and comparing general themes both from consumer based sources such as blogs, articles and forum discussions and from company controlled sources such as press releases, websites and interviews. In addition to these general insights I focused on a few specific models with a similar approach to compare these findings to the findings on the general level. In particular, I examined the evolution of a popular model called the Frogman, the emergence of a sibling brand Baby-G and the evolution of the metallic G-shock products.

In the case of the Frogman, this analysis was focused on a visual analysis of the model and its variations, product information given by the G-shock wiki-page (My G-shock Wiki, 2015), and a qualitative analysis of forum discussions in the Watchuseek-forum (Watchuseek, 2017). The qualitative text analysis was made by inductively creating thematic categories based on the forum discussions and by organizing these findings based on concept qualities versus variation qualities, as well as purpose based value versus aesthetic value.

For the Baby-G line the main sources were Sjor’s blog 50Gs (Sjors, 2016) and visual analysis of the products and the current website (Baby-G, 2018). For the metallic G-shocks, the data was gathered from interviews by Kikuo Ibe (Forster, 2016; Lawley, 2016; Freshness Magazine, 2009), a visual analysis of the models and G-shock’s current marketing material (G-Shock, 2017a). This information was then compared and merged with the general insights.

After finishing the research on the G-shock evolution, I conducted a brief reflection on the similarities and differences with the findings in the literature review. Here the analysis was purely reflective and aimed at putting the findings into a wider perspective. The findings of this research will be displayed in the following segment.
4.

Results

The results are divided into two main segments: the G-shock concept and the form evolution. The first segment is dedicated to the concept of G-shock, which creates the foundation for the design task. The analysis of the concept is particularly focused on what makes it unique, that is, what gives it its identity. The benefit of the G-shock is that, although the brand itself has gone through a major evolution, the original concept has been sustained quite consistently. Although there have been hundreds of variations of the G-shock form, all of them can be seen as a continuation of the original concept.

After the G-shock concept, I will look at how this concept has been transformed into a product form and how these forms have since evolved. I have divided the product evolution into four segments. The first segment offers an overview of the first product. I have separated the first product as its own segment, because it helps to provide the first point of reference for the following changes. The second and the third segment show how the strategy changes from a performance-oriented design strategy to a more open and aesthetically motivated strategy. The fourth segment focuses on the use of collaborative partners in the G-shock strategy.

4.1. Concept

In the literature review, I defined a concept both as physical boundaries for a product and as a mental image, which creates the identity of that product. In the case of G-shock, we can find both of these perspectives. Here I am first interested in the G-shock concept as something that is given to the designers as a starting point for creating the products. This means that our interest is first in the company perspective, which then creates a foundation for the following analysis.

In the literature review, I proposed some demands for a concept so that it would offer the product a distinct identity and guarantee its uniqueness, while allowing some variation in the final forms. Also, it should be somehow unrelated to any specific cultural context so that it could be “performed” as freely as possible. Here I will show the main findings of this research in relation to these ideas.

The first trivial part of the concept is that it should be a wrist watch. This puts
some restrictions to the size and shape of the product. For the most part, the exact
definition of a wrist watch is not of much importance to us, but it gives the basic
dimensions for our design task and puts it in a particular category, which defines, to
some extent, the way consumers reflect on changes in its form. However, only being
a wrist watch does not yet offer any uniqueness to the concept so we need to look a
bit further.

For a more detailed concept, we can find both concrete and abstract
descriptions. I will begin with the physical boundaries.

The first notion of a concept appears as what is called a “triple 10” concept,
which is described to have been the goal, when the first product was developed
(G-shock, 2017b). The three “10”s mean that the product should achieve a 10-year
battery life, have 10 bar water resistance and 10 meter shock resistance (G-shock,
2017b). Whether it was accurate at the time or not, it gives a good starting point
as a practical design brief, at least for the technical part of the design process. The
concrete outcome of this brief is shown as a technological innovation, a floating
structure, which protects the watch engine from shocks (G-shock, 2017b, Image
16). In the websites, also other technological innovations are mentioned, but from
a historical perspective, the shock resistance, which is also represented in the name
“G-shock”, seems like the most important as a unifying quality (G-shock, 2017b).

As a physical concept, the most significant quality seems to thus be the rather
bulky appearance this technological structure forces on the product. If we try to
compare this to the earlier discussion in the literature review, it seems that this
quality is the main source for the physical identity or uniqueness of the concept.

Another interesting perspective appears in interviews given by the head
designer Kikuo Ibe. First interesting aspect is how the concept is described
in relation to consumer preferences. This is explained as a collision of the
technological value and the idea of a wrist watch as a cultural concept. Through the
interviews we find out that the general trend in watches was thought to be towards

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**Image 16.** A drawing of the floating watch engine for the first model by Kikuo Ibe. This structural innovation creates the main identity for the G-shock products both by providing it with purpose-based value, but also by giving the products a bulky appearance, which forced it to stand out among other wrist watches (although this uniqueness was not considered a benefit in the beginning).
slimmer models, while technological necessities set by the floating structure force a rather bulky appearance. It is even mentioned by Ibe that he had to start developing the idea secretly (“At that time, there was a kind of slim case competition in the watch industry, so I decided to test my dream in a secret place.” [Ibe, 2015]). We can thus assume that the rather bulky appearance is caused by necessity rather than conscious communication. Although this indicates that there was a preference from the Casio executives towards following the current trends, the concept is forced to not follow these preferences.

This distance from cultural meanings is also present in the more abstract explanations of the G-shock concept. In addition to these more concrete explanations, the websites offers some more ambiguous descriptions. Together with the more subtle “triple-10”, it is mentioned that the goal was to create an “unbreakable” watch (G-shock EU, 2017c). This is supported with the headline of the philosophy section: “absolute toughness” (G-shock EU, 2017c). Through this marketing speech, the narrative starts to move towards some type of absolute value instead of technical value. A good example is the current challenge of G-shock to go “beyond the limits of time and common sense” (G-shock EU, 2017c).

A similar narrative begins to arise, when looking through interviews given by Kikuo Ibe concerning the birth of the concept. The story has three stages: the initiation of a personal dream, a struggle to make this dream a reality and finally a revelation, a heureka moment, through which Ibe finds the fulfilment to his dream.

The story begins by Ibe describing how once his beloved mechanical watch – a gift from his father – broke and initiated in him a desire to create an “unbreakable” watch (Forster, 2016). The difficulty of achieving this dream is highlighted in an explanation of the process as a both physically and mentally exhausting task (“I tested everything I could think of! No turn was left unturned. Never give up! This is my principle.” [Ibe, 2015]). Finally, the answer comes to Ibe, when one day in a park he is watching a girl playing with a ball. Seeing this ball bouncing he realizes a solution: a floating watch engine (“Suddenly the solution was obvious” [Ibe, 2015]).

This almost mythical narrative underlines the concept as a technological innovation, but also gives it a more abstract character. Although the actual outcome of the development is very technical, the value appears as something more than just engineering. This personalized origin story also seems to underline the uniqueness of the concept.

It is interesting to note that Kikuo Ibe is referred to as an engineer, therefore not a designer in the sense of appearance design. This fact with the notion that he is explained to have been developing the product completely isolated from what I have described here as the consumer society underlines the separation of the origins of the concept from the forms that will later be made to express it.

These descriptions show us the basic concept, which provides the foundation for the
design process. Next, we can continue to look at the evolution of the G-shock forms to see how the designers have used this concept to create the G-shock products, and how the motivations behind this design process have changed during the evolution.

4.2. Form evolution

G-shock products have now been produced over three decades with hundreds of variations. However, during this progress there have been significant changes to how the design task has been approached. I have divided this evolution into four stages, which all display one key perspective on the different strategies used for the product design. These stages follow each other in a chronological order, while the next stage does not negate the previous, but rather complements it.

I will start at the first product. This gives us a good starting point for the later analysis. During the second phase, the forms are mainly focused on communicating the idea of toughness and the third segment shows an inclusion of new associations and new consumers by opening the G-shock forms for increasingly diverse aesthetic variations. The fourth segment examines the use of collaborative partners in the design process. I will next look at the general evolution of G-shock through these steps. An overview of these phases can be seen in Table 2.

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<td>Key form elements</td>
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<td>The (assumed) customers/context</td>
<td>Working men (solders, police and other professionals)</td>
<td>Working men (solders, police and other professionals)</td>
<td>+ specific brand followers</td>
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*Table 2. An overview of the four evolution stages*
4.2.1. Stage 0: The first model

The first product is particularly interesting, because it shows the first effort by the design team to give a concrete expression for the concept. By understanding this original design process, it will be easier to later compare the changes in the design approaches and the general G-shock strategy.

Even before the first mass produced models, there is a limited edition watch called the “Project team tough”, which was only produced for the design team (Images 18 and 19). This model is very similar to the first production models with its only practical difference being an engraving in the back of the watch. However, it has some symbolic value and can be seen as the original reference for the following models.

The first production models were introduced in 1983 with the model number DW-5000 (G-shock EU 2017b; Image 17). There were already some slight color variations in the first year, but these were limited to the texts and other highlights. Perhaps the most significant features in comparison to other products in its category (wrist watches) are the digital display, resin body and the slightly bulky appearance – although in today’s standards the original size seems quite reasonable. For later comparisons, the main form variables are listed in Table 3.

There are three clear candidates, which help in understanding the reasoning behind the design decisions made by the design team. These are communicating the original concept we analyzed in the previous segment, the general Casio brand style and the assumed consumer segment.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Shape</th>
<th>Size</th>
<th>Color</th>
<th>Texts</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mostly resin, metal backside</td>
<td>Square (rounded), bulky</td>
<td>Slightly bigger than an average wrist watch</td>
<td>Black/dark (with small color highlights in texts and display)</td>
<td>Brand symbols (Casio, G-shock), most visible other text: “protection”, several other informative texts</td>
<td>Digital</td>
</tr>
</tbody>
</table>

Table 3. An overview of the key form variables of the first product.

Image 17. The first G-shock model DW-5000-1A.

Images 18 and 19. Project team tough. A special edition watch created for the design team. Because this was not a commercial product, it has some symbolic value as the original G-shock product – as a “pure” G-shock.
First, we can start from the perspective of the concept. In the previous section, we saw how the concept was explained almost devoid any aesthetic references with only a hint of a physical form as a technological structure. From this point of view, we can think of the design process as a necessary process of giving the “perfect” concept an “imperfect” appearance. Imperfect because it traps the concept into a form, which includes qualities not directly related to the purpose-oriented nature of the concept itself – it reduces the pure concept into a banal form. Because it is, however, necessary to create this form, the design team can select a certain perspective to come up with a single outcome. According to the chief engineer Kikuo Ibe, the design team concentrated on communicating the idea of unbreakability, or toughness:

“shock resistant structure more or less determines the exterior form. Under this circumstance the designers have communicated toughness through the rugged exterior form” (Freshness 2009)

This quote reveals two interesting things. First, we see how Kikuo Ibe – perhaps as an engineer – primarily justifies the decisions with the technology, explaining it as a “natural” expression of the concept. At the same time, it affirms a process of communication, which does not lead to a necessary, but a selected outcome – here the idea of toughness is interpreted by the design team from actual toughness to an expression of toughness.

In this case, the main expressions of this communication are the black color, the bulky appearance, the robust resin body and the strong text highlights promoting the name “G-shock” as well as showing emphasis on durability with the texts “protection” and “water resistant 200m”.

In the analysis of the concept, we already saw that many of these qualities were, in fact, a necessity rather than a desired choice – the bulkiness in particular. However, as we will later continue the product evolution, it will become evident that these practical necessities would have allowed several different approaches, further underlining the expressive decisions made by the design team. In the next stage of the evolution, I will focus further on the influence of this communication for the consumer responses.

Another possible reasoning behind the design decisions is the general Casio style. Although G-shock has now become a fairly independent brand, in the beginning it was just one product in the Casio portfolio.

When comparing the original design to some other Casio products at the time, it is clear that there is some consistency in the appearance, but even more in the overall approach to design (Images 20–22). Casio first started with electric calculators and then expanded to other consumer electronics (Casio, 2017). The first clear element that reflects this history is the digital display, which is common
also in earlier Casio watches. The main difference with other products is the robust appearance. As a whole, the first G-shock, as well as other Casio products, can also be seen to reflect a Japanese internationalist marketing philosophy, Mukokuseki, which I mentioned in the literature review as an effort to erase any “cultural odors” from a product (as explained by Iwabuchi [2002 p. 24–26]). The original strategy thus seems to aim mainly for neutrality rather than strong cultural expressions.

Finally, the third possible motivation for the original design decisions is the assumed consumers of the products. Some insights for this can be found in the way the first G-shock products were advertised.

When G-shock was first brought to the US market, it was introduced with a television advertisement displaying a G-shock watch wrapped around a hockey puck (Image 23). The simple message of this advertisement is that a G-shock watch can handle the shock caused by an ice-hockey player hitting it with full force. It is mentioned that this advertisement caused disbelief in consumers and was then complemented with live demonstrations displayed in a television show (Casio, 2003). In addition to the ice hockey stunt, these demonstrations included dropping a G-shock watch from a helicopter and driving over it with a garbage truck (Casio, 2003). It seems that this campaign relied completely on the actual toughness of the product, while displaying it in situations completely irrelevant to any practical use-scenarios, further highlighting the almost transcendent nature of the product. There seems to be very little emphasis on the appearance of the product as well, emphasizing the idea that the form naturally follows the purpose of the product.

In fact, the early marketing campaigns seem to involve little reference to any specific consumer group. The message is rather universal in nature, focusing on the product’s features instead of real life scenarios and consumer values. However, it would be odd if consumer preferences would have been completely ignored. In one of his interviews, Kikuo Ibe mentions that the supposed consumers were thought to be “workmen working in tough conditions” (Freshness 2009; Lawley 2016). However, it is possible that this consumer segment is seen rather to fit the
4.2.2. Stage 1: Toughness

The first clear stage or strategy in the G-shock evolution begins from the previously examined first product and lasts until the end of the 80s. During this phase the form begins to evolve gradually, while each product still seems to follow the principle of “communicating toughness”, which we saw as the main aesthetic design driver in the analysis of the first product. During this first stage, the form remains fairly neutral in relation to any cultural references, although one may also interpret this simply as very focused cultural communication.

If we now look at these products and compare them to the description of the general G-shock concept, we can start to see how the idea of an identity-form begins to evolve from the abstract limitations of the original concept towards a more defined physical structure (Figure 9, Images 24–33). In the first model, it was still difficult to see, which of the form variables really only express the G-shock concept and which are only selected expressions. From 1983 to 1989, most of the form variables go through their natural alternatives: the digital display changes to analog, the square shape is complemented with a round shape and the size oscillates between

Image 23. An early television advertisement, which demonstrates G-shock's durability by using it as a replacement for a hockey puck.
Figure 9. A selection of the main G-shock models from its beginning in 1983 to the end of the 1980s. A few other variations exist, but they are very similar in appearance. During the 1980s, the general appearance of the G-shock products was still fairly uniform and emphasized the idea of toughness, which was an important part of the G-shock identity. However, while the overall appearance remains similar, a lot of the form variables go through significant changes: the shape from square to round, the display from digital to analog and the size with some variation to bigger and smaller models. The idea of toughness is mainly communicated with the black/dark color and the strong text highlights together with the general bulkiness, which was originally forced by the floating watch engine.

Image 24. DW-5000-1A
Image 25. DW-5100C-1
Image 26. DW-5000-1B
Image 27. DW-5300C-1
Image 28. DW-5200C-1
Image 29. DW-5400C-1
Image 30. DW-5500C-1
Image 31. DW-5600C-1
Image 32. DW-500C-1
Image 33. AW-500-1E
both bigger and smaller. What still remains consistent are the black (or dark) resin body, bold texts and the generally rather bulky and robust appearance. If we look at these products next to each other, we can almost imagine them as computer generated alternatives within certain boundaries. The personal touch of a designer starts to disappear.

The first important consequence of this development is that G-shock gets established as a brand, more or less independent of the Casio influence. Although the Casio logo still remains clearly visible in the products, we can practically forget the aesthetic influence of the Casio brand. The second consequence is that it can never return to the idea that the G-shock form would be the best or only possible solution of the concept as it becomes clear that each variation – within the apparent boundaries – is a decision done by someone, a selected expression.

Here we could think for a moment what would it mean for G-shock if the evolution would have been constrained to this first phase. We already have a clear identity-form/performance duality, and one might even say that the identity-form was fairly successful as it appears to have attracted some interest particularly in the USA (Casio, 2003). To evaluate this phase, we should consider its success to both achieving a “universal” form – a form, which is culturally neutral – and how it is able to attract consumers in different consumer cultures – that is, how do the "performances" of the identity-form relate to the consumer responses.

For the first part, it seems that the products achieve most of the objectives an identity-form should have as I expressed it in the literature review – especially if we imagine that even more products would have been created with this similar strategy. The main goal I gave the identity-form was to express the concept – particularly the purpose – of the product with a unique form, while allowing a consumer to distance oneself from it, so that it would appear as if not anchored to any particular cultural ideologies, traditions or other messages. An "open" product should allow such distance both in relation to its purpose and its appearance – particularly appearance as a socially determined symbol.

What comes to the purpose, I proposed that it should be clearly defined and as simple as possible, so that it would be easier to comprehend and thus either use or misuse. In the case of G-shock, this seems to be easy to achieve, because the purpose is fairly simple and does not demand a lot of interaction. However, what is interesting is how this distance was emphasized in the early marketing, which I analyzed in the earlier segment. Although the product is very purpose-oriented, the marketing did not focus on the user-interaction per se, but rather displayed the value as something almost transcendent. The exaggerated toughness tests – hitting it with a hockey stick or dropping it from a helicopter – did not try to bring the purpose closer to everyday use, quite the contrary. There is a great difference between "absolute" toughness and "useful" toughness. Similar communication has since continued and can still be seen in the "toughness tests" that are promoted in the G-shock website (Images 34 and 35).

In relation to aesthetics, the main question is, whether there is an authentic
relation with the appearance and the concept, or does it appear as an expression of a particular cultural ideology. That is, are the variations able to allow the concept to be embedded in different type of consumer contexts. In case of this first stage of the evolution, this would need to happen through contextualization, because the form itself is fairly restricted.

Even though it might be impossible to create anything that is completely neutral, most of the appearance can be quite naturally associated to the G-shock concept itself. The main form variable, which might be associated with some type of conscious communication or cultural associations is the color – particularly in relation to the general appearance of the product.

To some extent, one may think that black is probably the best option, if one wants to achieve as neutral a color as possible. This may be true in some cases, but here it seems that the color is also used as a symbol for cultural conventions such as masculinity and toughness, which is natural to consider associated with the color black based on cultural conventions. However, to examine this stage of the evolution in relation to the earlier analysis, we are not really interested in any particular meanings, but the possibility of different meanings. The question is then, if restricting the color would allow it to be appropriated for different types of consumer contexts or does it keep it stuck with these narrow interpretations.

It is not completely uncommon that a brand selects a particular color to be repeated throughout their products to emphasize their identity. A good example is Fiskars, which has used its rather arbitrary choice of the color orange to create a holistic narrative for their product family. It seems possible that G-shock could have followed a similar strategy by emphasizing the narrative behind the black color to avoid any unnecessary cultural communication, but the challenge is how to make it interesting for consumers, who do not necessarily need the functional benefits it can offer.

The limitation of this stage of the strategy is that the products may appear fairly boring (that is, meaningless). Here we come to the problem of neutrality versus cultural meanings. If we accept the idea by Grant McCracken (1986) that consumption is mainly based on the movement of meanings from consumer goods to consumers, there needs to be a way to make the G-shock products somehow neutral versus cultural meanings. If we accept the idea by Grant McCracken (1986) that consumption is mainly based on the movement of meanings from consumer goods to consumers, there needs to be a way to make the G-shock products somehow neutral versus cultural meanings.
culturally relevant. In case of G-shock, this idea seems to be verified by the sharp increase in popularity only after the early 90s, when the products are accepted as fashion items and not only as "tools".

Although the 80s may not have offered immediate success for G-shock as a culturally significant product, this first stage may not have been completely futile. Instead, it seems to have played an important role in establishing the foundations for the concept and its potential based on the technological innovation that it offered. Because the G-shock portfolio will later become highly fragmented and varied, it may have been useful to first establish the value of the concept based on its purpose to keep it more rooted and avoid dilution of the brand. In the next segment, I will take a look at what happened, when the form was opened for much more varied aesthetics.

4.2.3. Stage 2: New associations and consumers

From the early 1990s G-shock begins to evolve into its full diversity. Compared to the previous stage, the fairly restricted idea of communicating toughness begins to transform from the black masculinity towards a more ambiguous idea. Toughness now appears in different contexts such as playful toughness or luxurious toughness. Although some elements still remain consistent – that is, the G-shock products remain uniquely recognizable – most the main form variables listed previously for the first product are allowed to change (size, color, material, display, shape), while the products still have certain bulkiness and often use texts as an added effect (Figure 10, Images 36–48).

In addition to the general increase of aesthetic variation, another important change in the form evolution is the use of external associations. Where during the 80s we saw how the products remained focused on the G-shock concept and any cultural flavors were kept minimal, from the early 90s, cultural references start to be reflected on the product forms.

This contrast can be best seen in products, which reference the current pop-cultural symbols. This happens sometimes with aesthetic references such as music styles (such as reggae or hip-hop), but also by the activities models are directed towards, such as skateboarding or snowboarding. For the sudden expansion in popularity, it seems that the critical trend G-shock was able to leverage was the popularity of a new fashion sense brought forth by the popularity of hip-hop music in the USA. The big size, which was originally considered a hindrance for wider popularity, suddenly became compatible with the demand for largeness in all accessories preferred in the street style context (Freshness Magazine, 2009). However, for this analysis, my interest is not so much in any specific sources of popularity at any given time, but in the general structure of the G-shock products
In 1990, G-shock published a motorsports inspired model DW-6000GJ-1. This model later became a platform for other variations such as a Soccer World Cup themed model in 1994, which recontextualized the stopwatch-feature used in the original model.

In 1993, G-shock published the model DW-6300-1A, which was then given the name Frogman. It was originally designed as a diving watch, but has since been used as a platform for multiple aesthetic variations and has become popular also as a style item.

Figure 10. A selection of G-shock products from the early 1990s onwards. In the early 1990s, G-shock started to gain more popularity, which encouraged Casio to diversify the product portfolio to include new colors and materials, and with them new associations. Together with the earlier rather serious masculine idea of toughness, a new playfulness starts to dominate. A little bit later, this playfulness is again complemented with products with a more serious metallic appearance for a more mature and wealthy audiences. However, the importance of the purpose-based value of the models is not forgotten, but rather the aesthetic changes are introduced as new variations based on platform models, which still carry with them the similar seriousness and drive for technological innovations as the original G-shocks.

Image 36. DW-6000GJ-1
Image 37. DW-6000CJ-2
Image 38. DW-6094-1B
Image 39. DW-6400B-1
Image 40. MRG-100-1
Image 41. DW-002BJ-1
Image 42. DW-6300-1A
Image 43. DW-9900WC-7T
Image 44. GW-203K-4JR
Image 45. GW-204K-9JR
Image 46. GW-205K-2JR
Image 47. GW-200F-3JR
Image 48. DW-6900B-9
that allows such a quick change from a highly performance oriented contexts towards becoming a fashion item.

With the addition of these new associations from the early 90s onwards, the structure of the G-shock portfolio divides approximately into two layers, where the first contains new models based on the original G-shock concept, often with some added technology for a specific purpose, and the second layer variations based on these models. These two layers show an interesting example of the influence of the form for embedding the G-shock concept into different cultural contexts (Figure 10).

To understand this change in relation to our earlier discussion, we can imagine that the model products represent a new identity-form, whereas their variations show a free performance of this platform. This separation is emphasized by models, which are clearly directed towards a specific purpose. To examine this progress, I will look at a couple of examples.

An early example of this phenomenon is a model DW-6000GJ-1, first produced in 1990 and marketed as a motorsports influenced product (Image 36). If we analyze the form as such, the main addition to the original G-shock concept is a stop-watch feature, which can be seen also as an inspiration for the general shape of the watch. The idea of motorsports seems to be mainly communicated based on the connection of the purpose to the concept, rather than the visual appearance. In 1994, G-shock publishes another variation of this model as a Soccer World Cup themed product (Image 38). This transition from the context of motorsports to the context of soccer quite interestingly illustrates the possibility to translate the same basic form to very different cultural contexts. For this particular model, the idea of an identity-form as a context free set of possibilities appears through the stopwatch feature, while the contextualization is emphasized with small changes to the surface appearance.

Another early example is a popular model called the Frogman (Images 42–47), first published in 1993. In addition to the concept of unbreakability, the Frogman is made to fit an ISO-standard that qualifies it as a diving watch. The ISO-standard defines some of its qualities, but it is also defined by its strong and unique asymmetric shape. However, just like in the earlier example, these form variables appear to function mainly as differentiation that gives it a unique identity, rather than as culturally directed communication. After the initial introduction of the Frogman, there have been multiple variations for the contexts of surfing, street arts and environmental protection, for example (Images 43–47). While the idea of diving remains as a narrative background, it seems that the later variations have distanced the product from this context allowing it to be received also outside of it. In the Frogman model, the separation of the identity-form and the variations is also very practically present as a visual division between the resin cover and the underlying metallic structure (Figure 11, Images 49–52).

The Frogman is a good example, because it represents well the two extremes
in the G-shock strategy, it is one of the most technologically advanced models and at the same time highly appreciated as a style item with multiple variations. Based on a consumer discussion in Watchuseek-forum (Watchuseek, 2017a; 2017b), the appearance plays an important role in how consumers respond to the product form. One key feature in the form is its big size, which is able to make it unique within the G-shock portfolio.

“I love HUGE CHUNKY G-shocks”

“The aesthetics are simply off the charts, and it is one of the few truly large G-shocks...”

However, this uniqueness with the technological benefits seem to only create the potential for a positive consumer response. This perspective is supported by comments, which indicate that a personal relationship with the model is created through a particular variation:

“My silver Frogman looks best on a sunny day.”

“I was frankly not too attracted to the Frogman in the beginning... It all changed when Casio released the GW-203K_.4. I love colorful G's and yellow and red are my favorite colors.”

“Now that I got myself a white Frogman, I’m in love with Frogmans again...”
The Frogman is possibly the purest example of the ideas discussed in the literature review, where the platform model is designed based on uniqueness and purpose based value, but can be offered to a varied consumer base with simple form variations. To compare this to another possibility, we can now observe two more examples, which show a more organic way an identity-form can be established based on some simple form variables.

The first interesting example is the sibling brand Baby-G (Image 53), which originally separated from the G-shock main product line. In the analysis of the evolution of the G-shock forms during the 80s, I showed how the shape of the G-shocks went through most of its (reasonable) alternatives. One of these variations was a model DW-500C-1 in 1988 (Image 54), which was an attempt to achieve a smaller body than that of the first model. In the coming years, these smaller models became a continuing part of the G-shock product portfolio.

There is not a lot information available on these first models, but some good insights are given by Sjors, a well-known G-shock collector, in his blog 50Gs (Sjors, 2013). Apparently these smaller models started to get nicknames such as Junior-G and Baby-G, because of their small size compared to other G-shock models (Sjors, 2013). These nicknames also emphasize how the general G-shock concept had started to stabilize around the idea of size and bulkiness and the idea of a “normal” sized model was something recognized as different form this main product line in the Baby-G line. The small size attracted the female audience and led Casio to separate the Baby-G line from the main product line. In hindsight, this division seems very natural, but it is a good example how a new identity-form was separated based on a rather small change in the product form. In this case the identity was developed together with consumers, while the role of Casio was simply to fix one form variable and follow the consumer responses.
After gaining wider recognition, Casio decided to separate these smaller models into their own brand with the name Baby-G. By Casio, this is now referred to as the birth of a female oriented sibling brand (Casio Baby-G, 2018). However, according to Sjors this predefined segmentation didn’t exist in the beginning (Sjors, 2013). The early Baby-G forms were very similar to the other G-shocks, except smaller. Unlike the Frogman, the Baby-G line was never built on a purpose oriented concept – apart from sharing the same original concept as the other G-shocks. The only physical quality that creates its uniqueness is the size, which in comparison to the otherwise bulky G-shocks was enough to make it different enough to stand on its own. Although one might say that it is not really the size, but the idea of femininity, which finally caused it to be separated as its own brand, it seems that the size is what created the potential for difference, while femininity is a cultural identity established afterwards.

When the identity is built on a clear physical quality or a specific functional benefit – as is the case with the Frogman, for example – it is fairly straightforward to establish its uniqueness. However, in this case we see how it took several years until consumers learned to build the identity as something separate from the G-shock main line.

Another similar example is the differentiation, which happened, when Casio was able to produce a fully metallic G-shock product in 1996 (Figure 12, Images 55–59). This change in material naturally differentiates it from the other products. In the G-shock portfolio, we now have several different product lines, which are based on this differentiation.

The physical uniqueness of these models in the G-shock portfolio is fairly self-evident, but there is also a clear cultural element, which Casio has tried to use to widen their consumer base. The more refined metallic body allows a transition from the youthfulness of the pop-culture oriented resin models towards an older audience as well as the luxury markets (Lawley, 2016). This shift is interesting also because in an interview given earlier, the head designer Kikuo Ibe had explained the G-shock concept as the “polar opposite” of the more luxurious watch brands

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Figure 12. When the G-shock design team was able to produce the first fully metallic product, the MRG-100-1, the concept suddenly opened up to a new, more refined, audience. In the G-shock strategy, these products allowed Casio to complement the success of the more playful models in the 1990s to attract consumers, who grew up wearing G-shocks as kids, but now preferred a more refined sartorial appearance.
(Lawley, 2016; Freshness Magazine, 2009). In case of the metallic variations, we see how there exists a cultural environment, which could not be reached with the original plastic G-shock model. A simple change such as the material increases the flexibility of the G-shock concept. In particular, we can see how it allows a break away from the pop-culture context, which originally seemed to bring it its popularity, but which could possibly turn off consumers in other segments.

In these examples, we can see how the G-shock concept has been used in multiple different consumer context with fairly simple changes to its form. One important part of this strategy is the use of collaborative partners in creating these variations. To finish this analysis, I will next look in more detail at how these collaborations have been used in the G-shock strategy.

4.2.4. Stage 3: Collaborations

The final approach in the evolution of the G-shock design process is its opening to external collaborative partners. This can be seen as an extension of the stage two, where the responsibility for cultural expressions is outsourced to another actor. The addition of collaborative variations finally provides the last piece to fulfil the proposition I offered in the literature review. My main interest in these collaborations is then first the physical execution of these variations – how much freedom do the collaborative partners have – and second, the influence of these variations for the cultural appropriation of the G-shock products.

The most common way we see these collaborations used is by creating variations – often limited editions – of the existing platform models. Because these platform models are usually quite strictly defined by their forms, the collaborations appear mainly as differences in color, brand symbols and other surface details, as well as packaging or other accessories (Images 61–65).

A good example is the Frogman model, which we discussed in the previous section. If we take a look at these models without knowing anything about them, it is quite difficult to differentiate them except based on differences
Image 61. Product collaboration with Dee and Ricky.
Image 63. Product collaboration with Maharishi.
Image 64. Product collaboration with In4mation.
Image 65. Product collaboration with Pigalle.
in color. However, there are quite big symbolic differences, if one looks at them in more detail. For example, if we analyze a Frogman variation done in collaboration with Stussy and Babe (Image 60), the form looks basic dark grey with small logos of these collaborative partners. More interesting then is what Stussy and Babe are as brands and what is the consumer culture they represent.

Both of the brands are very popular street wear brands, Stussy from USA and Babe from Japan. We have already learned that the G-shock success in the 90s was caused heavily by the acceptance of the G-shock brand into a pop-culture and street style context, particularly in the USA. It is then not difficult to see Stussy and Babe as cultural authorities in the corresponding consumer cultures in USA and Japan. Another significant factor is that Stussy is specifically known as a surfing inspired brand, which offers another conceptually relevant link to the original concept of Frogman, not as a diving watch, but as a “water-friendly” watch. However, this does not mean it is necessary for consumers to buy it for this purpose, but the narrative link does exist and we see that these brands are also a part of a larger consumer culture.

It is not always as easy to see a conceptual similarity with the collaboration and the platform model. For example, there is another collaboration with the Frogman with Takashi Murakami (Images 66 and 67), one of the most popular contemporary Japanese visual artist. In this case, it is difficult to find anything that directly relates to the Frogman concept. However, the selection of Murakami is very consistent with the Japanese heritage of G-shock, especially because Murakami’s own art philosophy is strongly anchored in the Japanese heritage, but also in contemporary street art, which makes him relevant for G-shock in relation to this consumer culture. It is also important to remember that this was a very exclusive limited edition, which makes the practical side of the watch less important. It is a collector’s watch, not a diving watch.
Nevertheless, the original concept of the platform model seems to have some relevance to the selection of the collaborative party. It is also possible that the selection of the platform model is in some cases part of the appropriation process by the collaborative party. For example, in a statement given by Burton on the G-shock website in relation to one of their collaborative models, they explain that they selected this particular platform as for them it naturally fitted the context of snowboarding (G-Shock, 2015; Image 68). Of course, the narrative may be different from reality, but appropriation is also a narrative process.

There are also some differences in the flexibility of the platform models and their purpose. For example, one of the most successful G-shock platforms is DW-6900 (Figure 13, Images 71–74), which is also a popular base for collaborations. There is not really a distinct purpose behind this model and it is sometimes referred to as the round standard model (Sjors, 2012). However, we have already discussed the success of the Frogman platform, which is much more closely related to a particular purpose, yet still successful.

In addition to the common collaborations based on these platform models, there are some examples, where the collaboration is based on the general G-shock concept, although possibly the only pure example of this is a collaboration done with Maison Margiela (Images 69 and 70).

Another slightly different strategic reason for these new variations appears through collaborations with environmental organizations such as I.C.E.R.C. (International Cetacean Education and Research Centres) and W.C.C.S. (World Coral-reef Conservation...
Society) (Images 75–78). These can be seen mainly as a strategic move by Casio to use the G-shock to promote its environmental responsibility. In this light, using the G-shock form to create new products in association with environmental organizations certainly helps to transform speech into actions, especially as these models are sold, at least sometimes, as a campaign to raise funding for these organizations. The collaborative process of form giving makes these organizations co-authors of the forms lending their authenticity to the products. The actual outcome is mainly visual, but one could imagine this bind could be even stronger if the form would reflect these values in a more concrete manner, for example by using more environmentally friendly materials, or by positive changes to the process of production.

If we now compare these collaborative products to the first phase, where the forms were limited to a very consistent black appearance, it is clear that they do bring an additional cultural flavor. In this case, the greatest benefit of these collaborations seems to be involving consumers in taking the brand forward. This allows smaller brands to introduce G-shock products in their own product portfolios. It also keeps the brand fresh and gives consumers something to talk about in. Particularly websites such as Hypebeast (2018) or Highsnobiety (2018) function by offering consumers a look at the latest collaborations, thus opening a platform for consumers to discuss them. However, it is also evident that Casio has put a lot of effort in promoting the technological benefits of the products as well as developing the technology forward, which seems to help avoiding the products from becoming only style items.
Part IV
where I conclude this thesis,
offer critique on methods and findings
and discuss further implications
Commercial product design faces serious challenges today within the increasingly complex and chaotic global marketplace. An evaluation of a product created for consumption differs significantly from those we might consider for other objects. This is caused mainly by the impossibility to consider a consumer separated from the rest of the commercial society. Evaluating a product as if it would be confronted by an isolated user threatens to distort our objectives for product design. It is increasingly difficult to find exact evaluation criteria to guide a product design process. To overcome this ambiguity, I have proposed in this thesis a demand for design strategies, which allow more openness in the interaction with products and consumers, where the value of a product is only realized through individual integration.

In this thesis, I looked at one possible approach as an alternative for a more flexible design strategy. The principle of this strategy was to allow a product to be organically manipulated by consumers as a consumer oriented integration process. In my research, I further analyzed the evolution of G-shock products as a representation of a concrete application for such a model.

Based on this research, I can now offer some general conclusions. During this discussion, I will take a view on the findings from the case study and their relation to the perspectives I introduced during the literature review. I will also go through some critique of this analysis and improvements for further studies.

5.1. Case study

In this thesis, I looked at the evolution of G-shock products and the design strategies used to develop the G-shock towards a widely popular product system. In this segment, I will take a wider perspective on these findings both in comparison to the general content of this thesis and the possibilities it offers for other applications.
5.1.1. Comparison to the model product strategy

In the introduction of this thesis, I formulated a general structure for a platform based design strategy, where a product form is left partly unfinished to allow it to be used for different variations (Figure 5 p. 16). With an overview of the G-shock products, we can easily construct a similar model – as I did in during the case study (Figures 9 p. 54 and 10 p. 58) – but there are some clear differences that deserve further mentioning.

It is evident in the G-shock evolution that it did not originally begin with the assumption of such a design strategy, but rather evolved into it. This seems to indicate that the strategy was developed based on external demand. In particular, due to the shift from a purpose based consumer context towards a context, which resembles more the one described in the introduction of this thesis. However, it also means that the G-shock evolution is fairly messy and includes a lot of different approaches, which demands some simplification in fitting it in a simple model.

Compared to the basic model in Figure 5, the G-shock strategy includes another layer of variations (as seen in Figure 10). In general, this two layered model shows how both purpose-based variations and aesthetic variations are both used together to create the value of G-shock products (Figure 14). In brief, the first layer of variations is used to develop the technology of the products and to offer products with more specialized functionalities. The second layer is used to make these products interesting to consumers with aesthetic variations. These aesthetic variations are done both by the G-shock design team and by collaborative partners.

Figure 14. An approximation of the G-shock product strategy in comparison to the basic model strategy I defined in the introduction (Figure 5 p. 16). Here I consider the collaborative variations done within the consumer context and other variations outside of it. However, even the variations done by the design team are often inspired by symbols borrowed from the consumer context.
5.1.2. Comparison to literature review

It seems that as a practical solution the G-shock strategy is good example of a very flexible product design approach. However, the purpose of this thesis is not to promote the imitation of this exact strategy, but rather to provide insights for alternative applications. To make this possible, we can now consider the results of the case study in relation to the general ideas on openness I examined in the literature review.

The first perspective on openness had to do with the influence of the context to how we approach the usability and purpose-based design of a product. Here openness can be seen both as a practical possibility to increase the flexibility of a product and as the possibility to allow consumers to distance themselves from any predefined associations a product might include. Although our measurements of usability would affirm the value of a product, a consumer may be unwilling to choose to use or possess it due to this unwanted togetherness.

The G-shock evolution offers a fairly practical comment on these ideas. In the analysis of the original G-shock concept, we saw how it was defined mainly based on an almost transcendental idea of toughness, emphasized by the early marketing, where the unbreakability of the product was displayed in demonstrations, which had little to do with any actual use-scenarios. This flexibility seems to both allow the identity to be defined separated from any value statements and to give it the possibility to be later appropriated for a multitude of contexts. A similar flexibility appeared in the definition of the model platforms. A good example was the Frogman model, which appeared to be very strongly attached to a particular use (diving), but still allowed through variations to be introduced with many different associations. This apparent separation with the purpose and the context well illustrates the idea of openness in relation to the analysis in the literature review.

In addition to actually using a product, I examined integration through the symbolic associations communicated by a product’s appearance. Here I focused on the idea of openness as the ability to allow flexibility in the interpretations a product allows. As Eco mentions, the “openness of a work is the very condition of aesthetic pleasure” (Eco, 1989 p. 39). However, traditional means to allow this pleasure by managing the meanings a product should communicate cause a product to be subjected to complex associations and can thus fail at providing such pleasure. However, an approach, which tries to achieve openness only as ambiguity may end up appearing just boring and meaningless. To introduce the possibility of cultural meanings – in light of Grant McCracken’s (1986) proposition that consumption relies heavily on the movement of such meanings – we can imagine the model product strategy as a way to add associations to a product without compromising its flexibility. The key question for design is then how to first create this identity-form and then how to facilitate its performances.
As already seen, the G-shock gives one possible answer to these questions. In case of the identity-form, the case analysis seems to approve with the idea of trying to keep it neutral in relation to any cultural associations. For G-shock, this means building a narrative, where the original concept is shown either in association to the technological structure, “absolute” toughness or the person of Kikuo Ibe, the chief designer (or primarily engineer). G-shock has also continued to focus on developing the technology of the products despite the later success in more fashion oriented markets. Similar narrative follows the model platforms, which create the second layer in the product structure (Figure 14).

In case of G-shock, the physical structure of the identity-form was defined mainly based on the shock resistant structure. There is thus not a clear form, which defines a G-shock, but rather a G-shock “style”. In the literature review, I proposed that the performances of the identity-form should be independent from the company’s control. In the G-shock evolution, the freedom for different associations was fairly small in the beginning, but increased eventually to allow practically any type of variations. However, this freedom has to be given some critical scrutiny, because together with this practical openness, it is easy to see constant effort by Casio to keep some control of the evolution. For example, in the examples of the Baby-G and the metallic models, Casio has shown clear desire to specify the “correct” consumers for the products.

In the literature review, I also examined the idea of using collaborations as way to borrow the authority of other brands in developing the cultural value of the products. In case of G-shock, many of the collaborations can be seen to reflect the idea of “citizen artists” as described by Douglas Holt (2002). However, at the same time the authority of the G-shock creators – particularly as personified in Kikuo Ibe – seems to play on important role too, but more from the perspective of technology. Also, G-shock does not utilize the possibility to allow consumer customization. It is possible that Casio does not see this as a valuable addition to the design strategy, but it is also possible that it could to be fairly naturally implemented in it.

5.1.3. Comparison to other examples

The G-shock displays one possible approach to the ideas discussed here. However, there are some other practical possibilities available. To get a better perspective on the strategy used by G-shock, we can compare it to a couple of alternatives. In the similar product category, there are particularly two products, which offer a good comparison, namely Swatch and Apple Watch.

Compared to Swatch (Image 8 p. 5), one critical difference is the greater emphasis on the technology and purpose-based value in the G-shock products. Also Swatch, which was established in the same year 1983 as G-shock, started off with a product strategy that used the possibility of aesthetic variations – unlike
G-shock, which only evolved into this strategy later on. However, even Swatch was built on a technology focused concept, a manufacturing method, which allowed producing cheap analog watches (a good analysis on the innovativeness of Swatch can be found in: Verganti, 2008). This innovation allowed it to put more emphasis on the appearance of the products, often with slightly ironic take on the traditional aesthetics of wrist watches. The challenge of this strategy is how to keep the concept itself relevant, especially as the original value of the concept itself may not be as relevant today as it once was. In the case of Swatch, the uniqueness of the identity-form relies much more heavily on the aesthetics and brand narrative. The possible benefit of G-shock compared to Swatch is that its technology has evolved together with its appearances. For G-shock, the variations seem to be more an added value, whereas for Swatch they are the value.

On the other side, the Apple Watch (Image 6 and 7 p. 5) is an example of this similar strategy in a product, which relies much more heavily on the innovative technology of the products. In case of Apple Watch, the so called identity-form has a finished form and the idea of variations are created with changes to the watch strap. This may be a good alternative for products, which do not allow similar flexibility in production. However, the challenge is then that the design of the identity-form has a lot more emphasis for the perception of the products. The idea of structural openness does not automatically increase openness in reception. For example, it seems that the strict design approach in earlier Apple products already allowed fairly flexible consumption. As Alice Rawsthorn (2016) points out, the Apple Watch may not have been able to escape the existing aesthetic conventions in its category, with its overall design and the still fairly few variations. This reveals the problem of evaluating an open strategy only on a practical level and overlooking the original purpose of such a strategy. Before seeing a variation, which appears to be aesthetically free from the Apple company management, I am not sure we can see similar openness in associations, which seems to be present in the G-shock products. However, the Apple Watch still shows a good practical possibility for more technologically complicated products.

5.1.4. A critical view

Although G-shock seems to complement the ideas discussed in this thesis fairly well, there are some issues, which should be examined a little further. Particularly, in the end of the literature review, I raised the concern between the somewhat contradictory goals of creating a strong product identity and allowing free variations. At the same time, it is not obvious, whether the seemingly open approach used in G-shock is really open in a more radical sense or is it just apparent openness still controlled by the G-shock management.

For the first question, I have already highlighted the efforts to emphasize the
continuous technological innovations and purpose-based value of the G-shock products, therefore trying to sustain the identity of the concept separated from the aesthetic expressions used in the products. It is also possible that the fairly slow evolution towards a more open strategy helped to establish the identity of the G-shock watches. However, with the great amount of later variations, one can easily see that despite these efforts the importance of the variations themselves have had a significant influence on the general perception of the brand. Particularly during the 90s, it seems that the idea of G-shock was very strongly associated to a certain type of youthful pop-culture context, possibly even to an extent that it might have caused negative associations for people outside of this context.

For the purpose of keeping the concept separated from any particular cultural context, it seems that the fairly organic transition towards increased aesthetic openness may also have caused some issues. Although I have focused in this analysis on models, which better highlight the overall product strategy, there are a lot of models, which fall in between the idea of a platform and a variation. The amount of variations makes it sometimes difficult to see the difference between a platform and a particular variation. This causes some ambiguity, which might cause some difficulties for keeping the concept itself neutral. Particularly because consumers usually understand the brand based on a very small amount of products they have seen.

In an ideal case, an open product system should allow a clear separation with the variations and the influence of the company itself. In some models such as the Frogman, the solution seems to be fairly strict control of the form itself, a strong identity-form. This shows that an open strategy such as the one used in G-shock cannot be used as an excuse for lazy design. On the contrary, one should keep in mind that I am not suggesting that this is an easy solutions, but demands possibly even more design ability than one based on preconceived assumptions of consumers. However, G-shock evolutions shows very clearly how difficult it is to make sure these assumptions are correct in today’s commercial environment. Despite these possible imperfections in the G-shock evolution, with all of its variations it presents an interesting possibility of an organic product evolution, where a company almost randomly designs new models, which are then continued and further developed, if accepted by consumers. Overall, the evolution is fairly risk free as it does not demand every product to be equally successful. However, it is clear that a strategy such as this demands that the products allow fairly cheap and quick manufacturing. In products, which do not have this option, the design of the platform becomes increasingly important, as in the case of Apple Watch.
5.2. Thesis contributions and further possibilities

The purpose of this thesis was to examine the influence of today’s commercial context on how we should approach product design, and to analyze a possible application as a strategy that seems to better take into account the apparent openness in this context. With this brief analysis, I hope to highlight some of the critical questions that commercial product design should consider, if it wants to adjust to the unpredictability and fragmentation of today’s global markets. In the following two segments, I will give an overview of the main ideas, both for practical design and research, which I believe deserve further thought.

5.2.1. Implications for design practice

My main focus in this text are those technology-oriented companies, which try to provide their product(s) for a global audience. However, the overall analysis does not exclude any commercial actors, but there are clearly different roles a company is able to play in this context. This notion leads to the my main proposal for the design profession: a division between design that aims at increasing the potential of a product to become successful and design/marketing that is able to facilitate a process, where this potential is realized.

First, my analysis seems to indicate towards the difficulty of larger companies to manage the cultural value of their products. At its extreme, this means that our goals for product design could only be tied to the uniqueness of the product, be it uniqueness in technology, such as in the case of G-shock, or uniqueness in style. The practical consequence of this proposition is that a design process – at least some extent – should rather be kept isolated from the marketing and business management sectors of a company. The seemingly useful idea of letting advertising agencies more in control of product design from early on may be more harmful than useful. Here G-shock offered a very clear example, where Kikuo Ibe developed the G-shock concept apparently completely separated from the Casio management. This lead to a design, which seemed “wrong” for the purpose of easy marketing, but turned out very valuable in the long run.

At the same time, the G-shock example highlights the importance of being able to get consumers involved in building the success of a company. A product which can only offer purpose-based value is easily doomed as a niche product for a small segment of expert users – as seemed to be the case in the beginning of G-shock. The G-shock example shows one possible idea how to keep consumers involved, but depending on the type of a product, we could imagine other strategies, where value is created more through contextualization and immaterial collaboration with
consumers rather than physical product variations.

These ideas also show some implications for the small scale design strategies for individual designers. When we focus on design as a practice of creating a finished product, it is tempting to follow the visual guidelines one learns by following current designs. Particularly in industrial design, my personal observation is that a lot of products tend to follow a certain “industrial design” style, possibly developed through design education and the tools commonly used in design practice. Here I propose that we should be able to step out of such visual restrictions and focus our attention to breaking the conventions, and rather than trying to define the “correct” interpretation of a product, to focusing on forms, which let consumers to see the reflections of their own values in those products. However, this then becomes more an artistic problem than an analytical one and suggest an answer only as an increased focus on artistic understanding in personal design development.

5.2.2. Implications for design research

To continue looking for further applications for commercial product design, I suggest a couple of useful future research directions as extensions to the analysis I have offered here. The first concerns creating a more rigorous foundation for design specific analysis and the second a more in-depth empirical analysis.

One of the main challenges in taking the design profession forward is the almost impossible combination of a very wide field of analytical research and the necessity for practical design education. This problem is not made any easier with the recent tendencies to extent the design profession to cover almost all fields of creative work. Before the issues I have introduced in this text can be properly discussed within the design discourse, we need better definitions for a separate field, which is not just a diluted version of marketing, sociology or engineering sciences. For this purpose, I propose that we need increased understanding of the commercial context in practical product design education. This study should take as its only problem the analysis and development of commercial forms. The threat of an insignificant understanding of the context we work in is that many seemingly useful design practices may become more harmful than useful if they are based on false assumption.

As further possibilities for empirical research, I suggest three possible perspectives. The first concerns the division of decision making within companies. To better understand the motivations behind a particular design in relation to the responses it has eventually cased, a more in-depth research should be conducted
both through interviews and a detailed product analysis. Second, the process of facilitation should be analyzed more carefully to better understand useful ways to develop consumer participation. This includes an analysis of the influence of different types of collaborative partners together with other possible practices. Third, a comparative study should be done to find insights on the influence of different product and company types for the most useful design approaches.

5.3. Critique and limitations

It is clear that with a limited study like this, some of the ideas and analysis provided here need to be considered with open criticism. This concerns the propositions offered, the general definitions used to frame this study and the methods used for the empirical research. In this segment, I will take a look at some of the main issues, which should be further developed for a more comprehensive study.

5.3.1. Critique on propositions

The propositions I have examined in this study can be considered either from the perspective of practical problems or from the side of more ambiguous aesthetic considerations, which eventually include questions of the structure of the commercial system itself and the ethical dilemmas it proposes. The issues caused by the bind between these two perspectives cannot be fully resolved here.

From a practical perspective, the question of openness is fairly easy to ask. A strategy such as the one used by G-shock appears as a useful answer for a company, which wants to distribute its products to a global market. However, a practical strategy can easily fail to answer some of the more ambiguous question that cannot yet be given such factual answers – here I assume that the context is more or less a chaotic system, which easily defies simple answers.

To introduce the problem of openness in its whole depth, as an idea in progress in itself, I have tried to include in this text perspectives, which may not allow total exactness. Because of the ambiguity of this background analysis, the outcomes of this work will inherit some of that ambiguity. However, even with a quick look at the evolution of the design profession, it is easy to see that sometimes inspiration overcomes correctness. Yet, for a more exact practical propositions, a more thorough analysis of the subject is needed.
5.3.2. Critique on definitions and framing

The main issue in the background definitions for this study has to do with the assumptions related to the context of the design work. A lot of the discussion in this thesis is founded on the ideas expressed in the post-structural tradition, where a commercial society can be seen to cause significant changes to how products are perceived. However, many of these ideas do not appear as factual statements, but rather as propositions based on variety of studies in sociology and marketing, often relying heavily on ideas of independent thinkers such as Roland Barthes, Jean Baudrillard or Umberto Eco, who I have taken as my inspiration in this discussion. As it is not within my possibilities as a designer to offer an in-depth analysis of these traditions per se, some of the more abstract ideas within this study will be left for the reader to evaluate. However, this should not take away from the practical significance of the problem of openness, which is evident in many levels.

Another issue with the definition of the context is the contradiction with its clear relation to the development of the Western societies and its assumption of a global reach. This thesis does not take into consideration possible differences caused by the differences in the structure of economical systems, but uses the European/North American free market economies as the basic measure. However, as the goal is to create flexibility before the unknowns, an open strategy should optimally be applicable to different type of systems.

With these limitations in the definition of the context, also the fairly strict definition of design deserves some critical examination. In a practical setting, limiting a design process only to the execution of a particular concept threatens to undermine its usefulness for creating new concepts. However, this is a necessary limitation to allow any reasonable examination and should still apply with reasonable accuracy to many product types.

5.3.3. Critique on case study method

I conducted may empirical analysis by using a fairly free qualitative design approach, which focused on looking at the case subject on a very general level. Such an approach will necessarily lead to an emphasis on interpretations. However, within the limitations of this work, this was a practical solution as it allowed using time on the more critical question with the expense of some approximation. A more in-depth research should include both interviews with the G-shock designers and G-shock customers, and a more detailed analysis of the product categories in relation to their positioning within different consumer segments. A useful addition would be adding this analysis with data of the popularity of different models.
However, here we should be careful as popularity may be caused by many factors, sometimes unrelated to the questions that I have focused in this study.

5.4. Conclusion

The ability of companies and designers to control the afterlife of their products is very limited in today’s commercial environment. In this study, I examined one possibility to answer these demands. The central theme in this study was the separation of product identity design and practices, which focus on culturally meaningful expressions.

Particularly for a global company, it may be impossible to design its products so that they will be accepted in different type of contexts and by different type of consumers, even within the same context. To increase the flexibility of product forms, a company can actively facilitate the cultural appropriation of their products. At the same time, with an increasing amount of products and the difficulty to compete only with new technological innovations, the cultural significance of products appears to have increased significance.

Although there exists a clear speculative element in this study, the nature of the design practice also resist the ability to find factual answers to all problems. As the commercial environment keeps changing, we need to continue looking at new directions for commercial product design. Although the design profession seems to be focusing more and more on immaterial products, this immateriality is still practically always present to us through some type of forms – even possibly giving more importance for the materiality of our environment as a way to stay in control of the increasing complexity in a contemporary consumer society.
References

The references used in this thesis are categorized to three segments. The first contains the general references used for the introduction, literature review and discussion. The second contains the material used specifically for the case study. The third contains a list of references for images. After these references, this segment contains a list of the figures and tables used in this thesis.

References:


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**Case study sources:**


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