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# Assessing Startup Teams and Team Dynamics from an Investor's perspective

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Startup investors agree that when assessing the success potential of startup companies, the most important factor is the entrepreneurial team. However, there are few practical tools for evaluating the quality of startup teams. Assessing startup teams with clear methods can help support startup teams and make more accurate investment decisions. This thesis presents a team assessment framework that provides a high-level view on the components of startup human capital. This framework is based on interviews of investors and successful entrepreneurs and scientific findings about team performance.

The quality of a startup team consists of individual level and group level factors as well as team dynamics that make the team more or less than the sum of its parts. The most important individual level factors are skills, experience and ambition. Group level factors contain role clarity, social capital and commitment. The essential team dynamics factors identified is this study are shared leadership, constructive conflict and psychological safety. Shared leadership means that each team member inspires others to work better for the common goal. Constructive conflict signifies that the team frequently has differences of opinion about products and processes, but these conflicts never escalate to a personal level. Psychological safety means that team members feel safe to suggest ideas, ask questions and give feedback to others.

There are established methods for assessing individual and group level factors of the team, but practitioners have little tools for observing the dynamics of startup founding teams. Studies have shown that team dynamics dictate team performance more than individual capabilities, and thus a more accurate assessment of shared leadership, constructive conflict and psychological safety would be highly valuable. This thesis provides tested questions that can be used to assess team dynamics better. Asking questions about subjects like decision-making, feedback and mistakes can reveal essential information about the quality of the startup team.

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Sijoittajat pitävät tiimiä kaikkein tärkeimpänä startup-yritysten menestystekijänä. Tästä huolimatta ei ole olemassa juurikaan käytännön työkaluja tiimien arviointiin. Tiimien arvioinnin työkalut voivat auttaa parempien startup-yritysten kehittämisessä ja tarkempien sijoituspäätösten tekemisessä. Tämä diplomityö esittää viitekehyksen tiimien arvioinnille, joka antaa ylätason kuvan startup-tiimien laadun muodostumisesta. Tämä viitekehys yhdistelee aiempaa tiimien tutkimusta sekä sijoittajien ja menestyneiden yrittäjien haastatteluja.

Startup-tiimin laatu koostuu yksilötason ja ryhmätason ominaisuuksista sekä tiimidynamiikasta, joka tekee kokonaisuudesta enemmän tai vähemmän kuin osiensa summan. Yksilötason ominaisuuksia ovat taidot, kokemus ja kunnianhimo. Ryhmätason ominaisuuksia ovat selkeät roolit, sosiaalinen pääoma sekä sitoutuminen tiimiin. Tiimidynamiikan olennaisimmat käsitteet ovat jaettu johtajuus, rakentavat konfliktit sekä psykologinen turvallisuus. Jaettu johtajuus tarkoittaa, että jokainen tiimin jäsen inspiroi muita toimimaan paremmin yhteisen päämäärän eteen. Rakentavat konfliktit tarkoittavat, että tiimissä on usein erimielisyyksiä tuotteista ja prosesseista, mutta erimielisyydet eivät koskaan mene henkilökohtaiselle tasolle. Psykologinen turvallisuus tarkoittaa, että tiimin jäsenet kokevat voivansa esittää ideoita, kysymyksiä ja mielipiteitä ilman riskiä kasvojen menettämisestä.

Yksilötason ja ryhmätason ominaisuuksien arviointiin on olemassa olevia välineitä, mutta työkaluja tiimidynamiikan arviointiin ei juurikaan ole. Tutkimuksissa on osoitettu, että nimenomaan tiimidynamiikka vaikuttaa tiimin tuloksiin enemmän kuin yksilötason ominaisuudet, joten siksi tiimidynamiikan tarkempi arvioiminen olisi erittäin tärkeää sijoittajille. Tämä tutkimus antaa työkaluja tiimidynamiikan parempaan arviointiin. Kysyminen tiimin päätöksenteosta, palautteenannosta ja virheistä voi paljastaa olennaista tietoa startup-tiimin laadusta.

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# Contents

# Chapter 1

# Introduction

For an investor, the entrepreneurial team is often considered the most important part of a startup — as legendary venture capitalist Arthur Rock put it: "Nearly every mistake I've made has been picking the wrong people, not the wrong idea." (Smart, 1999). Numerous studies show that the qualities of startup team highly correlate with financial success (e.g. Ensley et al., 2006; Klotz et al., 2014). Thus, to predict and support startup success, evaluation of its human capital may be even more important than analysis of the business idea and strategy. However, accurate analysis of the team is difficult: in more than half of cases, investors make substantial over- or underestimates about the quality of the entrepreneurial team (Smart, 1999).

Using formal tools to assess the startup team could help make more accurate investment decisions as well as help in supporting the team's development. Smart (1999) found evidence to suggest that venture capitalists with more systematic and involved approaches to human capital valuation have significantly higher returns on their investments than their less systematic counterparts. As Smart concludes: "Perhaps human capital is an intangible only when ineffective methods are used to assess it." (Smart, 1999, p. 72)

The human capital of a startup consists of a number of things, such as the team's individual members' skills and social networks as well as the dynamics of the team that make it more — or less — than the sum of its parts. In their groundbreaking study, Woolley et al. (2010) found that these team dynamics affect the team's performance in collaborative tasks much more than the capabilities of its individual members. Since many of the critical decisions and actions in a startup are made collaboratively with all the members of the entrepreneurial team, it is possible that assessment of the team dynamics is even more important than assessing the capabilities of its individuals.

This study was done in collaboration with Tekes, the Finnish public organization for financing growth entrepreneurship. Just like private startup investors,

Tekes aims to identify the most potential startups, and support their growth and success. This study aims to create tools for startup team assessment that help Tekes, private investors and startups themselves understand and develop teams.

Assessing and understanding the dynamics of a startup team can reveal important information on the startup's success potential, as well as help in developing the team and setting improvement targets for the startup. (Woolley et al., 2010) showed that relatively simple team dynamics tests can predict team performance over a variety of tasks relatively accurately, but so far, there is little systematic assessment for startup teams from an investor's perspective. This study aims to address this by giving practitioners methods to gain a deeper understanding and more accurate assessment of the founding team's dynamics. To achieve this, scientific insights on startups, venture capitalism practices and organizational psychology are combined with interviews of experienced investors and entrepreneurs, and the created tools are tested and honed with a sample of real startup teams.

There is a wide variety of terms and definitions about different aspects of a team in scientific literature. This study reviews the most potential of these theories, and combines them with interviews with experienced professionals to create a scientifically robust and practically usable and understandable framework for assessing startup teams. This framework, presented on Chapter 4, encompasses individual level, group level and team dynamics level factors in a big picture view of the startup team. This focus of this study is particularly on the team dynamics level, since it is perhaps the least understood in practice.

Individual level and group level factors of the startup team are relatively straightforward to assess, but the team dynamics level is more difficult to see. This study provides specific questions that an outsider may use to see into the team and how they work together. These questions are based on scientifically robust team dynamics theories, and their practical applicability was developed in testing sessions with actual startup teams. The most efficient of these questions are presented in Chapter 5.

The created knowledge and tools from this study can be valuable to practitioners in this field in two ways. Firstly, having names and taxonomies for specific aspects of the startup team along with ways to observe them helps investors, growth catalysts and startups themselves identify areas of improvement and set specific development targets. Secondly, an investor or funding provider may use these tools to find and assess potential investment targets.

This study contributes to theory by bridging research from domains of organizational psychology, entrepreneurial leadership and venture capital. Research tying these two areas together has been called for (Smart, 1999), but so far little has been done. The empirical findings from this study may also serve to further understanding of how team dynamics manifest in entrepreneurial teams, and how they could be observed in future studies.

This study focuses on startups founded within two years with founding teams of 2–6 members, ruling out single-person companies as well as larger ventures. Special cases where environmental or other factors call for unusual team structures or dynamics or extremely specific skills or knowledge are also ruled outside the scope of this study. While the theories of team dynamics should apply to startups in all markets, this study focuses mainly on high-technology and software startups, since these are currently the most prevalent in the Finnish startup ecosystem.

# Chapter 2

# Literature review

This study combines research from multiple scientific fields. Most research concerning startups and investments originates from the fields of business science, finance and strategy, whereas research concerning team dynamics and performance most often emerges from fields of organizational psychology and sociology. With the notable exception of Smart (1999), there is little research that would combine findings from both investment sciences and human sciences in the startup context.

The most relevant prior research topics from business sciences include venture capital decision making and startup success factors. For this study, the prior research helps understand the specific team characteristics, tasks and behaviors that an investor pays attention to, or that are most important for a startup to thrive. Additionally, the literature helps to build an understanding of the viewpoint, practices and problems that are currently prominent in the field.

In the field of organizational psychology, there is a substantial body of research concerning team behavior and performance. However, the vast majority of this research is either conducted by comparing functional teams within a large corporation (e.g. Rozovsky, 2015; Ellonen et al., 2008), student teams assigned to a specific task (e.g. Jung, 2016; Mathieu et al., 2015), or in laboratory settings with teams assigned specifically for the purposes of the study (e.g. Woolley et al., 2010; Bergman et al., 2012). Thus, to adapt these findings to entrepreneurial teams, the particular characteristics of the startup environment and tasks must be considered. Still, there are many parallels between the kind of teams and tasks studied in literature and actual startup teams, which makes it potentially fruitful to apply them in the context of the entrepreneurial team.

The most relevant topics investigated in organizational psychology literature are "What team characteristics cause one team to perform better than another?", "How to predict future team performance?", and "How do different kinds of tasks affect team performance?" The findings regarding these research questions have potential to help understand, and test for, the quality and suitability of the team

dynamic with respect to most important startup tasks.

## 2.1 The startup context

This study focuses primarily on what new venture teams should *be*, instead of what they should *do*. However, it is widely accepted among team researchers that it is important to understand the nature of the task for understanding team dynamics and performance (Straus, 1999). Thus, it is necessary to establish an understanding of the team's most critical tasks in the startup process. With this understanding, one can establish not just *what* team characteristics are important, but also *why* they are important.

McGrath (1984) divides group tasks into four categories: generation, choosing, negotiating and executing. In a startup environment, all of these task types can be found, although intra-team negotiation might be less common than generation of ideas, choosing a strategy and executing plans. To comprehensively assess startup team quality, one must consider the team's capabilities in all these types of tasks.

Another often used dimension of team tasks is interdependence, which refers to the extent to which team members rely upon each other to complete their tasks (Gully et al., 2002; Bygrave and Minniti, 2000). In other words, in low-interdependence tasks each team member works mainly alone, whereas in highly interdependent tasks each team member is required to discuss and offer their unique contribution to the collective output. In general, the startup context is considered to be highly interdependent, since the team works closely together, and each member is expected to bring some unique knowledge (Bygrave and Minniti, 2000). However, it is possible that the required level of interdependence varies in different situations of the startup timeline.

Frequent changes in the business plan are a prominent feature of the startup process (Bygrave and Minniti, 2000). In studying numerous new ventures in the midst of refining their plans, Bygrave and Minniti (2000) find that the ability to absorb information and learn from one's business environment is an important prerequisite for successful pivoting. Hyytiäinen (2014) also found that Finnish angel investors and experienced entrepreneurs hold the ability to listen and learn as the most important capability of a startup team. Hyytiäinen (2014) argues that the startup process is not a simple problem-solving task, but rather an iterative or evolutive one, where the team must constantly validate their ideas against evidence gained from customers and other stakeholders. In this process, the entrepreneurs' ability to absorb information and ability to re-evaluate their position and respond to changes quickly are most valuable.

Ensley et al. (2003) identify four key characteristics of the entrepreneurial

context that separate it from general management or functional team contexts: resource scarcity, risk levels, time and ambiguity. In terms of resources, new venture teams have more limited access to material and social capital than larger businesses. The personal and relative financial risks involved in entrepreneurship are also larger for entrepreneurs. Since new ventures are often founded on specific market opportunities, time to take advantage of these opportunities is limited. Finally, there is often less information available for decision-making in new ventures than larger companies. All these four factors put unique pressure on the new venture team, thus making it a uniquely challenging atmosphere for teams to thrive.

## 2.2 Startup investments

The majority of existing entrepreneurial equity financing research is descriptive in nature, and a significant portion of it investigates how venture capitalists, corporate venture capitalists and angel investors evaluate and choose prospective investment targets (Drover et al., 2017; Franke et al., 2008). Most of this research mainly aims to answer the question "How do investors evaluate startups?" instead of "How *should* investors evaluate startups?", and there is little research on how accurate or effective the decision-making criteria and methods are (Shepherd and Zacharakis, 2002). Nevertheless, this literature helps understand the investors perspective into the startup team, and it is reasonable to assume that experienced investors' evaluation criteria matches actual startup success factors at least to some degree (Franke et al., 2008). Additionally, research points out some shortcomings and biases that show room for improvement in the current team analysis practices.

While startup investor decision making is a well-researched subject and the quality of the management team is often considered the most important factor in it, deeper understanding of the team evaluation criteria is still lacking (Franke et al., 2008). Franke et al. (2008) use conjoint analysis, where a sample of venture capitalists are asked to assess startup management teams based on detailed descriptions. The descriptions differed from on various characteristics of the team members regarding their educational background, area of professional experience and length of mutual acquaintance. Many of these had significant impact on venture capitalist overall team assessment, the most important factors being experience in the relevant industry, diversity and quality of educational backgrounds, leadership experience and length of mutual acquaintance. Features like industry experience and university degree were highly important, but it was sufficient that some, not necessarily all, of the team members possessed them. Franke et al. also tested for effects of venture capitalist experience on the assessment, and interestingly while less experienced VCs emphasized individual factors like education and relevant

experience more, more experienced ones regarded mutual acquaintance significantly more important. Particularly important was that the team members had had a working relationship with each other in the past as well. Franke et al. conclude that with more experience, venture capitalists seem to learn to look at the team as a whole, beyond its individual members.

Hyytiäinen (2014) investigated the most valued team characteristics by different actors — angel investors, venture capitalists and experienced entrepreneurs — in the Finnish startup ecosystem. Most valued characteristics, particularly by venture capitalists and angel investors, were ability to listen and learn, ability to recruit the right people and industry experience. Also, team features like motivation, commitment, diversity and team spirit were often mentioned by interviewees of all backgrounds. Hyytiäinen notes that startup company is a changing process, and thus angel investors — who often work with earlier stage companies — value the ability to learn higher than venture capitalists. However, there is little other research about how investor expectations change at different stages of the startup process.

The study by Franke et al. was based only on written documentation, intending to simulate the initial screening phase of the investment decision process. They note that usually investors only acquire a deeper understanding of the team in later stages of the process, since many implicit team features cannot be sufficiently expressed in written form. The findings do indicate that some team features are simply must-have for an investor to even consider the venture: someone in the team must have relevant industry experience, there need to be people from both engineering and management backgrounds, and someone in the team has a university degree. Beyond these, however, it seems that experienced investors look for team cohesion, as demonstrated by having previous working relationship. Assuming that more experienced VCs have more accurate ideas of the ideal team, this seems to support the idea that team dynamic, not just properties of the individuals, are important for a startup to succeed.

Research on the effects of human capital in investments and performance is difficult, and many studies that consider it as a part of a more general investor decision making analysis often use superficial and simplistic measures for human capital, resulting in inconclusive findings. For example, Baum and Silverman (2004) research the effects of several factors, including human capital, on both venture capitalist decision making as well as startup performance. Interestingly, while they find a significant relationship between their human capital measures and success in raising funding, they find no conclusive link between human capital and startup success. However, the measures they used for human capital were number of members in the management team, number of roles that the lead entrepreneur possesses, number of ventures that the lead entrepreneur has previously founded, and number of ventures that the lead entrepreneur in currently involved

in. Baum and Silverman made no clear hypotheses on how any of these four measures would affect startup results, nor do they state why they should represent human capital comprehensively. It could be argued that most of them might influence success both positively or negatively, and thus it is hardly surprising that these superficial measures of human capital do not correlate with actual results. Is is still interesting, however, that they do correlate so heavily with how well venture capitalists assess the team. It could be that VCs tend to disproportionately emphasize the prestige of the lead entrepreneur while ignoring some deeper management team characteristics.

Other studies have pointed out some imperfections in venture capitalist team assessment as well. Franke et al. (2006) found that venture capitalists have a strong bias towards people that are similar to themselves, particularly with respect to education and experience. VCs with management education evaluate teams with management education higher than others, and VCs with startup experience do similarly with teams with prior startup experience. To avoid biases and improve accuracy, research into systematic learning and decision-making tools for investors has been called for (Shepherd and Zacharakis, 2002), but not much has emerged. Since there are such inaccuracies and room for improvement, Franke et al. (2006) conclude that the investor decision-making criteria should not be interpreted as accurate startup success criteria.

Mitteness et al. (2012) study how angel investors value the entrepreneurial passion of potential investments, and how angel investors' characteristics affect how they perceive the value of entrepreneurial passion. Interestingly, they find that angel investors who use more analytical style of assessment put less weight on passion than their more intuitive counterparts. There are two possible explanations for this. Firstly, it may be that passionate entrepreneurs are able to "fool" non-analytical investors into thinking that their venture is better than it seems. Alternatively, the tools of analysis that some investors use are too simplistic to understand the value of passion in the complex system of a startup human capital. Either way, an investor would benefit from tools for explicitly discussing and assessing startup human capital, including less tangible factors like passion. This study aims to provide such tools.

Smart (1999) identified several methods that venture capitalists use to analyze and value human capital in startup companies, and searched for correlations between the usage of these methods and human capital valuation accuracy. All the methods that Smart describes are based on research in the field of recruiting, and they are primarily methods of analyzing individual people as opposed to whole groups — in fact, he does not consider team structure or team dynamics at all. Nevertheless, Smart's framework and analysis have important implications for the present study.

When contrasting time spent on methods of individual assessment with human

capital valuation accuracy, Smart (1999) found that the only method that consistently and significantly contributed to success was past-oriented interviews. These are strictly structured interviews where the questions aim for fact-based answers about the person's career, such as "What were some specific accomplishments in your first job?" The underlying assumption is that past performance is indicative of future performance. This method of interviewing could also be valuable when assessing the team as a whole.

Smart (1999) categorizes the interviewed venture capitalists in categories by their approach in human capital valuation. The most common types are "airline captain", "art critic" and "sponge." An airline captain is someone with highly systematic and fact-based approach with specific measurements and checklists. An art critic judges people with intuition without a specific procedure, and a sponge unsystematically gathers all the information about that they can. Smart finds that out of these three types, airline captains have a substantially higher median IRR (80%) in their investments than the other two types (20–25%). However, since he only had sample data of IRRs for 46 venture capitalists available, these findings are not statistically significant. Moreover, the methods of categorization are hardly transparent, so it's possible that the author has categorized the VCs only after seeing the IRR figures, possibly further biasing the results. Nevertheless, it is still reasonable to say that more systematic and analytical approaches to human capital valuation may well improve venture capitalist success, and this is certainly a topic that warrants further inquiry.

While much of the research on startup investors has focused on their investment target selection criteria (Drover et al., 2017), an equally important part of entrepreneurial investments is the support they offer for companies they have invested in. Baum and Silverman (2004) find that for successful firms, the evaluation criteria and the support an investor provides have equally important effects, proving that a success story is both found and created. Thus, improving an investor's capability and effectiveness in supporting startups is at least as valuable as developing their assessment process. While team dynamics are often intangible, it is still possible to coach them. For example, Carson et al. (2007) found that the coaching of shared leadership by an experienced outsider had significant effects on team performance, particularly when the team's internal dynamics were weak. This indicates that it is highly valuable for investors to learn to identify potential team dynamics problems and to address them appropriately.

Most venture capitalists spend most of their time in monitoring and supporting their investment companies (Gorman and Sahlman, 1989). Particularly time-consuming are problematic cases, where ineffective management team may be a contributor in the problems in up to 95% of cases (Gorman and Sahlman, 1989). While a larger portfolio may be better for investor returns and risk-management, a larger number of firms also means an investor will have less time to spend sup-

porting each one. This creates an U-shaped relationship between investor returns and number of portfolio companies, where there exists some optimal number of companies per investor, varying somewhere in the range of 10–15 (Jääskeläinen et al., 2006).

Due to their prevalence and propensity to take time, reducing and predicting problems with the management team is be extremely valuable for investor returns. However, there is little specific scientific research on the actions that investors take to monitor and support the management team. For this study, this implies that the understanding and assessment tools for team dynamics could serve for predicting and diagnosing management team problems. In some cases, it could be that taking preemptive actions to prevent management team problems would substantially increase chances of success and save valuable investor time.

## 2.3 Team characteristics and performance

The relations between team characteristics and performance have been studied in various ways and settings. A subset of this research focuses on the performance of company top management teams, and a portion of this research addresses specifically new venture top management teams (Ensley et al., 2003). Much of this research focuses on easily observable characteristics such as demographical diversity of the team (Ensley et al., 2003). Furthermore, while many relationships have been found between team characteristics and performance, little research addresses the logic with which these characteristics affect performance (Ensley et al., 2003; Klotz et al., 2014). Despite these shortcomings, there are some robust findings regarding both new venture team dynamics as well as general team dynamics and performance that are relevant for this study.

In scientific research, team dynamics are most often measured with self-assessment questionnaires that team members fill themselves. From an investor's perspective, this method is problematic since teams often have a strong motive to present themselves favorably to investors, and this would bias self-assessment. Some researchers, such as Losada and Heaphy (2004) and Jung (2016) use more objective methods where team interactions are recorded and micro-level emotions and behaviors in them are codified with strict standards. While these methods are less likely to be biased, their practical applicability is limited by their laboriousness. For example, Jung research team worked for 30 hours to codify each 15-minute recording of team interaction. This study aims to adapt new methods of objective outsider team assessment that would be as objective as possible while being feasible for practitioners. For this, both the self-assessment questionnaire questions and as well as the micro-behavioral assessment methods are adapted.

### 2.3.1 Team composition and structure

Due to their convenience, numerous entrepreneurship studies have examined the effects of team composition and structure on venture performance (Maschke and zu Knyphausen-Aufseß, 2012). Explicit team composition factors like team size, experience, educations and demographics are easily and objectively observable, and thus interesting from an investor's perspective. While these explicit factors are not sufficient for a deep understanding of the team dynamics, there are still interesting and useful findings regarding them.

Numerous studies address the effects of team diversity. Theoretically, more diverse teams should have a broader range of expertise and wider combined social networks (Ensley and Hmieleski, 2005; Maschke and zu Knyphausen-Aufseß, 2012). Empirically, heterogeneity of educational field, industry background and functional experience is generally found to be connected to increased performance of new ventures (Maschke and zu Knyphausen-Aufseß, 2012). Educational and skill diversity are also connected to better investor evaluations of the team (Franke et al., 2008). Furthermore, diversity of gender and ethnicity have been found to be linked to collective intelligence (Woolley et al., 2010; Chikersal et al., 2017). However, heterogeneity regarding age, length of experience and educational level have had mixed or non-significant effects on firm performance (Maschke and zu Knyphausen-Aufseß, 2012). In their meta-analysis of teams in various contexts, Horwitz and Horwitz (2007) conclude that task-related diversity has an overall positive effect on performance, while diversity of demographic factors has no significant effect. Given these findings and the fact that investors strongly disfavor entrepreneurial teams without sufficient variety of skills (Franke et al., 2008), it can be concluded that a certain degree of diversity regarding educational and functional backgrounds is necessary for a venture to thrive. Diversity regarding demographic and other factors is also nice to have, but not as essential.

Another factor of team structure is role clarity. For a long time, scholars have agreed that clearly defined and purposeful roles for team members enhance team effectiveness (Lyons, 1971). Google also determined structure and clarity one of the key qualities of excellent teams (Rozovsky, 2015). In the new venture context, investors also prefer teams with clearly defined and purposeful roles (Franke et al., 2008).

The background from which the startup company emerges also plays a role in venture performance. In comparing university-based startup companies with new ventures in general, Ensley and Hmieleski (2005) find that university-based firms perform systematically lower than average other companies. To explain the lower performance, Ensley and Hmieleski note that university-based companies are generally less diverse, and have lower levels of team cognition and less fruitful conflict. The authors suggest that university-based companies focus too much on

their technology and product, and too little on their team dynamic, which might make them inflexible in altering their strategy.

Not every aspect of group dynamics can be understood by observing its individuals. In studying over 180 teams at Google, Rozovsky (2015) failed to find any optimal group compositions that would consistently predict performance. In fact, the findings indicate the exact opposite, leading her to emphasize that *"Who is on a team matters less than how the team members interact, structure their work, and view their contributions."* (Rozovsky, 2015, para. 3). Thus, while individual-level characteristics obviously do influence team dynamics, a more robust assessment of the team dynamics requires observing the team's work together, not just as parts of a whole.

### 2.3.2 Collective intelligence

Psychologists have shown that in individual people, a single factor, commonly called "intelligence" correlates with the individual's performance across a variety of tasks. In their impactful article published in *Science*, Woolley et al. (2010) found from a relatively large sample data that a similar factor also exists for teams, and that this factor, coined *collective intelligence*, correlates with the team's performance in group work tasks significantly better than the median or maximal individual intelligences of the team's members, or indeed any other property of the individual.

To test for collective intelligence, Woolley et al. (2010) devised two tests for general team performance, one where the members played a game together against a standardized computer opponent, and one where the team designed some buildings out of building blocks according to specific rules. The results of these tests were contrasted with the team's performance in various more specific test tasks from each of the quadrants of the McGrath task circumplex. There were statistically significant correlations between the general tests and tasks from each of the four quadrants. Also, statistical factor analysis of the more specific tasks shows that there is indeed a single underlying quality (collective intelligence) that explains the results, as opposed to there being multiple uncorrelated qualities that would explain group performance in different kinds of tasks. In fact, this single factor may predict team performance better than individual intelligence predicts individual performance. In other words, it can be assumed that a team that does well in one kind of task, will also perform well in another type of task regardless of the types of these tasks. Particularly strong these connections were in choosing and execution type tasks.

For this study, the findings of Woolley et al. (2010) have the following important implications:

- The dynamics specific to the team predict its performance in collaborative tasks better than the properties of the individuals within the group.

- Collective intelligence can be relatively easily tested for, and it seems to consistently predict team performance over a variety of tasks.

- It is difficult, if not impossible, to predict team performance solely on the characteristics of its individual members.

Woolley et al. (2010) also tested for properties of the team and individuals that would explain collective intelligence. Most measures, such as group affection (How much do the team members like each other?) were not significantly connected to collective intelligence. However, a strong negative connection between speaking turn variance and collective intelligence was found, meaning that in the smartest groups, all members speak in equal amounts during the collaborative process. This finding may be interesting in the context of analyzing startup teams, since speaking turn variance is relatively easily observed by an outsider, such as an investor assessing a startup team. It must be noted that while speaking turn variance explains collective intelligence when the team is tasked with some specific problem-solving mission, it may not do so in other situations, such as presenting their business idea or in informal discussions.

Further research has validated the existence of collective intelligence, but there is still little understanding about what are the exact team and individual characteristics that explain it, or how it could be deliberately improved (Woolley et al., 2015). Also, the stability of collective intelligence over time has not been examined. This might pose both challenges and opportunities for using collective intelligence tests in startup team assessments — if collective intelligence randomly fluctuates over time, a single point measurement might not be sufficient for predicting startup performance. However, if collective intelligence improves over time as the team works together, this improvement could be used to track the team's progress, set targets for improvement and investor decision-making in later rounds of financing.

It must be noted as well that like individual intelligence, collective intelligence aims to explain performance void of any external factors, such as skills or knowledge that are relevant in the context of real world tasks. There is no research that would contrast the effects of collective intelligence with relevant skills and experience in a real-world setting. Another factor that may influence real-world performance outside collective intelligence is task motivation. In laboratory settings where collective intelligence has been tested, motivation was ensured with a financial reward, and the time used for completing the task is limited. The challenges that a real startup team must deal with may last for years, which may put significant strain on the individuals' personal life, and thus requiring motivation

and commitment on a whole another level than simple short-term tasks. While it may be speculated that a collectively intelligent team is better able to learn skills, gain experience and motivate people, it is still necessary to examine these properties separately to get a complete understanding of the team's situation.

Another limitation of current collective intelligence research is that there have been no studies on how resilient collective intelligence is for the changes in the composition of the team. Along the life of a startup, new personnel is often added, and it is entirely possible that members of the founding team are replaced or exit the company earlier than expected. In some cases, even the CEO of the company will be replaced. While theoretically, a collectively intelligent team should be able to navigate its way through these changes, it is still entirely possible that these events have unpredictable effects on the collective intelligence of the entrepreneurial team.

### 2.3.3 Team cohesion

Team cohesion refers to the degree to which the team members like each other and desire to remain a part of the team (Ensley and Pearson, 2005; Lechler, 2001). Team cohesion has been found to be linked to new venture performance in numerous studies (Ensley et al., 2002; Lechler, 2001; Ensley and Hmieleski, 2005). Outside the new venture context, the link between cohesion and performance has been shown to be stronger when the task at hand is complex, team members are highly dependent on each other and have a diverse set of skills (Beal et al., 2003; Chiocchio and Essiembre, 2009), all of which are typical in the entrepreneurial context.

In their meta-analysis of numerous studies on team cohesion and performance, Beal et al. (2003) find that while the results are not always strong, team cohesion is indeed generally related to higher performance across all kinds of teams and tasks. However, cohesion is a broad term, and researchers have used various definitions for it. Beal et al. divide cohesion concepts into three distinct (but intercorrelated) dimensions: interpersonal attraction, task commitment and group pride. Out of these, group pride was found to be most strongly associated with team performance, followed by task commitment. While other types of cohesion had positive effects in all scenarios, interpersonal attraction was mostly connected to the team's the ability to maximize output with limited time and resources. The authors argue that when team members know each other better, they need to spend less time coordinating and dividing tasks. However, interpersonal attraction may not necessarily translate into better performance in creativity or negotiation -type tasks, for instance.

While the overall effects of team cohesion are positive, numerous scholars have found that high levels of cohesion may have undesired effects like "group-

think," where differing opinions and ideas are discouraged (Ensley et al., 2002; Rovio et al., 2009; Tekleab et al., 2009). High levels of team cohesion are found to decrease productive, task-related conflict in both entrepreneurial teams and other teams (Ensley et al., 2002; Tekleab et al., 2009). Furthermore, Woolley et al. (2010) found no link between cohesion and collective intelligence, suggesting that cohesion has no immediate benefit for team's problem-solving capabilities. In these studies, the definition of cohesion corresponds to the subtype of cohesion Beal et al. labeled interpersonal attraction. In their review of team cohesion and groupthink literature, Rosh et al. (2012) found a general trend where interpersonal attraction is often connected to groupthink, and in some cases inferior performance. Rosh et al. as well as Beal et al. conclude that cohesion as itself needs to be further divided into more specific concepts to make it a reliable predictor of team performance.

### 2.3.4 Shared leadership

A particularly prominent factor in new venture team research has been *shared leadership*, a concept where all team members participate in leadership in different situations based on their unique expertise. Shared leadership contrasts with vertical leadership, where a single formally appointed leader is in charge in all situations. Shared leadership, as well as similar concepts of team self-leadership and collective leadership, have been linked to increased team efficiency and financial outcomes in variety of situations (e.g. Wang et al., 2014; Carson et al., 2007), and also in new venture context (Ensley et al., 2006). Recently, the findings regarding these concepts have caused the entrepreneurial leadership research paradigm to shift from the individual leader towards shared leadership, and there is wide acceptance that to understand the new venture process and performance, the team is more important than the individual leader (Klotz et al., 2014). Ensley et al. argue that unlike established businesses, new ventures do not have existing culture, processes and structures and thus rely on leadership alone to guide their work. Because of this, the quality of leadership in the team is likely of greater importance in new ventures than in established firms.

Ensley et al. (2006) define leadership as helping others understand what needs to be done, and empowering them to accomplish it. The difference between vertical and shared leadership is whether the leadership is done mainly by one formally appointed individual, or by the whole team. Using a sample of American venture management teams, Ensley et al. set out to test if different facets of vertical and shared leadership are connected to startup growth and performance. To determine the quality of vertical and shared leadership, they used questionnaires, where respondents were asked to rate the presence of specific leadership behaviors from four facets of leadership: directive, transactional, transformational and empow-

ering. To differentiate between vertical and shared leadership, the question was changed to ask about "my team leader" or "team members" respectively. For example, the respondents were asked to rate if "My team leader (members) gives (give) me positive feedback when I perform well" to gauge transactional leadership, and "My team leader (members) shows (show) enthusiasm for my efforts" for transformational leadership. Ensley et al. find that while both types of leadership have significant correlations with firm success, all facets of shared leadership are connected to performance to a much greater extent.

Interestingly, Ensley et al. (2006) found some vertical leadership behaviors were found to have adverse effects — the measures relating to transformational and empowering vertical leadership behaviors were connected to inferior performance. The authors speculate that it may be that in new venture contexts the intrinsic motivation and individual competence of team members might be so high that attempts to further motivate or empower the members by the team leader are considered redundant or manipulative. By contrast, the same behaviors, when done by the whole team, had strong positive effects on performance. This suggests that in new venture contexts it is particularly important that leadership emerges from the whole team, as opposed to a single "heroic" leader.

Importantly, the findings of Ensley et al. (2006) imply that shared leadership should be understood as a broad concept, where the term "leadership" entails all actions that inspire, help and support others, instead of just giving orders. Losada and Heaphy (2004) find that in high performance teams, members give each other more positive encouragement, ask more questions as opposed to arguing their own position, and focus more on others than self. These are behaviors that are all connected to leadership, and thus an atmosphere of shared leadership should be understood broadly as a state where all team members actively strive to make others perform better. As such, shared leadership is perhaps close to a state of human flourishing, as discussed by Phelps (2013). Phelps argues that good life and flourishing are best achieved in an dynamic, creative environment — such as a startup team. Perhaps then best teams are those where all team members have achieved a flourishing state and radiate this highly motivated, innovative state to others as well.

In a meta-analysis of research of teams in various contexts, Wang et al. (2014) find that shared leadership is indeed connected to higher levels of team effectiveness in almost all situations. Shared leadership seems to be particularly important in more complex tasks — such as new venture creation and growth. Consistent with Ensley et al. (2006), Wang et al. also find that transformational, empowering and motivating modes of shared leadership are essential for team performance. By contrast, it is less significant whether more "traditional" leadership behaviors — directive and transactional — originate from a single leader or if they are shared. In other words, it does not seem to matter if tangible, straight-forward leadership

actions like task division and rewarding is done by a single individual, but it is essential that all team members participate in creation of common vision as well as motivating and supporting others.

As Ensley et al. (2006) themselves note, using a simple questionnaire measuring current leadership perceptions and contrasting the results with historical firm performance is not sufficient to infer definite causality between shared leadership and new venture performance. The authors argue that even though it is possible that respondents excessively attribute historical positive outcomes to leadership in hindsight, the divergent results about transformational and empowering leadership seem to suggest that this has not affected the results. Nevertheless, the study method still leaves open the possibility that positive leadership behaviors have developed alongside or because of business success instead of the other way around. The authors call for a longitudinal study to address these possibilities, but so far, none exist. These limitations call for caution in interpreting the results. Still, the relations of shared leadership and new venture success are very strong, and the logic of their effectiveness is well-established by Ensley et al. (2003), and hence a measurement of shared leadership could be highly relevant for the present study.

### 2.3.5 Team cognition

A prominent concept in entrepreneurial team literature is *team cognition*. Along with many related or synonymous concepts such as team mental models, collective cognition, transactive memory systems, collective memory, strategic consensus and shared strategic cognition, team cognition has been linked to better new venture performance in numerous studies (Mol et al., 2015). While there are various and often ambiguous definitions for these terms, they broadly refer to a shared way of thinking, that emerges in the team through shared knowledge, and is embedded in the team's processes (Mol et al., 2015).

Mol et al. (2015) review over 40 academic papers that examine team cognition. They define team cognition as an emergent state that refers to the way knowledge is shared and organized as common mental models that enable the team to solve problems and make relevant decisions. More practically, team cognition is perhaps best understood so that each team member has sufficient knowledge and understanding about the venture's state and vision to meaningfully contribute to strategic decisions. In a team with high team cognition, every member could be able to make important decisions alone, even though this is rarely required. By contrast, in a team with low team cognition, only few or just one of the members see the big picture, and thus are the only ones capable of making important decisions. It must be noted that team cognition does not mean that team members agree about everything. In fact, Ensley and Pearce (2001) suggest that task-related conflict is fact positively connected to team cognition.

Mol et al. (2015) note that even though the precedents of team cognition are still little understood, some team characteristics that influence team cognition have been found in prior research. The team's shared experience, individual-level competence and task-focused conflict resolution strategies were positively connected to team cognition. Additionally, Ensley et al. (2003) suggest that shared leadership is a precedent for collective vision, which is a similar to the concept of team cognition. Thus, it would be reasonable to assume that shared leadership is also connected to team cognition. However, it could also be speculated that for the team members to effectively lead the team, a certain level of understanding — or team cognition — is required, and thus the connection between shared leadership and team cognition is probably close and complex.

There is also ambiguity about what kind of specific knowledge should be shared to achieve team cognition, as well as about the specific processes though which shared cognition advances team performance (Mol et al., 2015). Several processes have been suggested to mediate connection between team cognition and performance, such as improved team creativity, better opportunity recognition and more efficient team learning. While each of these has some empirical support, Mol et al. (2015) call for further research to understand these phenomena better.

### 2.3.6 Conflict interactions

Conflict interactions, their type and connection to team performance has attracted a considerable amount of research, both in the context of entrepreneurship and teams in general. It has been shown that some types of conflict are relevant and productive for team performance, while others may be destructive, and thus researchers often try to distinguish between different types of conflict (Jehn, 1994; Ensley and Pearce, 2001; Maschke and zu Knyphausen-Aufseß, 2012; Ensley et al., 2002). While the exact distinctions and labels for these types of conflict vary, a prominent distinction in entrepreneurial literature is between *cognitive conflict* (also referred to as task conflict) and *affective conflict* (also referred to as relationship conflict) (e.g. Ensley and Pearce, 2001; Ensley et al., 2002). Cognitive conflict refers to task-, process- or idea-related, on-topic disagreements and arguments that do not prompt overtly negative emotions like anger or frustration. Cognitive conflict may facilitate idea sharing, objective assessment of alternatives and creation of new viewpoints (Maschke and zu Knyphausen-Aufseß, 2012). Affective conflict, on the other hand, is characterized by personal and off-topic subjects and high negative emotions. Affective conflict can decrease motivation, trust and hinder exchange of information (Maschke and zu Knyphausen-Aufseß, 2012).

Empirical findings support the positive effects of cognitive and negative effects of affective conflict both outside the entrepreneurial context (e.g. Jehn, 1994;

Bradley et al., 2012; de Wit et al., 2012) and in it. Ensley and Pearce (2001) and Ensley and Hmieleski (2005) find strong negative connections between affective conflict and new venture performance. Ensley and Pearce (2001) and Ensley and Hmieleski (2005) also find positive associations between cognitive conflict and venture performance. However, Ensley et al. (2002) did not find statistically significant connection between cognitive conflict and performance. This may be because the study was not primarily designed to measure the effects of conflict on performance, but rather to find effects behind conflict interactions.

While cognitive and affective conflicts have opposing effects on performance, they also have a strong positive correlation with each other, since there is a risk that cognitive conflicts sometimes spill over to affective conflicts Ensley and Pearce (2001). In their large meta-analysis of conflict and team performance research, de Wit et al. (2012) find that even cognitive conflict may be negatively connected with performance if relationship conflict is also high. While the interactions between different types of conflicts and performance are still not perfectly understood, research seems to imply that while teams with high overall conflict perform worst, teams with low overall conflict are mediocre, and the best teams are able to have high cognitive conflict while avoiding any relationship conflict. For an example, Ensley and Hmieleski's (2005) sample of university-based ventures had low amounts of any conflict, but performed worse than a general sample of new ventures, which had significantly higher levels of cognitive conflict.

To measure team conflict, Ensley and Pearce (2001), Ensley et al. (2002) and Ensley and Hmieleski (2005) use simple questionnaires based on the interpersonal conflict scale originally employed by Jehn (1994). This questionnaire includes questions like "How often do people in your work group disagree about the work being done?" to measure cognitive conflict and "How much anger is present in your work group?" for affective conflict, and the respondents mark their answers on a number scale. This measurement may not be directly usable for an investor analyzing a team, but could be adapted for better objectivity.

Predicting team performance based on conflict interactions has been studied outside the new venture context in more detail. Building on a substantial body of research on predicting outcomes of marriages, Jung (2016) sets out to examine the analysis of conflict behavior for predicting outcomes of collaborative team work in student teams. In prior research, observing the balance of positive and negative emotions and certain especially harmful behaviors during conflict has been shown to predict divorces with high accuracy for up to six years in advance. Jung finds that these same methods can be used to predict team performance with relatively high accuracy. The teams in the study resembled startup teams, since they consisted of university students of various fields that were tasked with product design or development projects for real companies. Also, the teams had already worked intensively together for several months prior to the assessments, so stable group

dynamics had already formed. Thus, the findings are potentially relevant in the entrepreneurial context as well.

To incite a conflict situation at the desired time to be observed, Jung (2016) devised a *conflict elicitation protocol* based on prior methods used by relationship researchers. In this protocol, the team is first oriented to the situation by instructing them to discuss the most important features of their project for 15 minutes. After this, each member is tasked to individually write down issues of disagreement within the team, and rank them in order of importance. Subjects would be encouraged to write down issues concerning the task, the teamwork process and their relationships with other team members. Once this inventory of issues was completed, the experimenter asked the team members to share an issue they deemed important, and steered the discussion to converge on one individual issue. Once one central issue was found, the experimenter left to group to think of solutions for it for 15 minutes. The resulting conversation was recorded, and the positive and negative emotions as well as some particularly negative behaviors were meticulously measured from the recordings.

In prior research regarding marriages, four particularly corrosive behaviors have been shown to strongly deteriorate relationships and cause self-reinforcing negative spirals on the quality of the relationship: contempt, criticism of personality, stonewalling, and defensiveness. While stonewalling and criticism of personality are rarer in collaborative team settings, contempt and defensiveness are more prevalent (Jung, 2016). Contempt, in this context, refers to belittling, hurting of humiliating others. Defensiveness means deflecting responsibility or blame on other people. Jung finds that even in a small sample, the total amount of these behaviors correlates extremely well ($p < 0.001$) with team performance. In fact, the amounts of these behaviors — particularly contempt and defensiveness — seem to explain *almost all* variance in objectively assessed team performance six months in advance. While this result may be inflated by the small sample size, it is reasonable to conclude that if these toxic behaviors are prevalent within the team, this will have a strong negative impact on team performance in the long run, and needs to be addressed for the venture to thrive.

Beyond their usability in predicting team performance, the conflict elicitation protocol may be useful in and of itself to identify and resolve disagreements within the team. Jung (2016) notes that almost all of the participant teams reported that the created conflict interaction was an immediately useful learning opportunity, and several teams asked if they could continue beyond the 15-minute time limit. Thus, it is possible that even if the predictive power of the interaction would be limited, it would still be useful as a method for improving the team dynamics.

### 2.3.7 Psychological safety

Originally introduced by Edmondson (1999), the concept of *psychological safety* refers to how comfortable team members perceive social risk-taking within the team. In an environment with high psychological safety people feel they can liberally submit their ideas, disagree, give feedback and ask clarifying questions without fear of being ridiculed, reprimanded or rejected by other team members. Since the influential paper by Edmondson, numerous scholars have found strong positive effects of psychological safety on group outcomes in various settings (e.g. Baer and Frese, 2003; Gibson and Gibbs, 2006; Bradley et al., 2012). Companies have applied psychological safety in their practical contexts as well. For instance, Google recently concluded a large study that found psychological safety as the biggest identifiable explanatory factor in the success of their teams (Rozovsky, 2015). Harms (2015) found psychological safety to be a very strong predictor of team performance in an entrepreneurship education class, where students simulated founding teams. Despite these findings however, no research been published that would specifically study psychological safety and performance in real-world startup companies. Klotz et al. (2014) propose that applying psychological safety in the entrepreneurial context could help understand the connections of things like group cohesion, conflict types and new venture performance better, but so far, this type of empirical research is lacking.

Edmondson (1999) argues that the effects of psychological safety on team performance are mainly mediated by team learning behavior. Her empirical study, that examines work teams within a manufacturing company, supports these findings: there are strong connections between team learning behavior, psychological safety, and team performance. Edmondson gives examples of how in some teams, members thought it was natural to report errors and problems to others, while in other members shuddered at the thought of doing so. It is evident that if contingencies are not brought to other team members, this will hinder the team's ability to learn, change and adapt, which will restrict performance. Other studies have also linked psychological safety to innovativeness (Gibson and Gibbs, 2006) as well as overall firm performance (Baer and Frese, 2003).

Edmondson (1999) stresses that psychological safety is not synonymous with team affection or team cohesion. In other words, psychological safety does not mean that the team members would be particularly close or even like each other. While group cohesion and mutual affection may at too high levels lower task conflict and decrease likelihood of voicing differing opinions and contrasting ideas and thus promote groupthink Edmondson (1999); Ensley et al. (2002), psychological safety implies that even differing opinions are tolerated. Furthermore, psychological safety is found to make task-related conflict interactions more fruitful and prevent them from escalating into affective conflict Kostopoulos and Bozionelos

(2011). Thus, it is possible that high psychological safety is a better predictor for team performance than plain cohesion.

While psychological safety is a highly promising concept in understanding team dynamics and effectiveness, it is still a new concept that is not perfectly understood. There is no research that would confirm the effects of psychological safety on new venture performance. While it is reasonable to assume that such a connection exists (Klotz et al., 2014), this assumption needs to be interpreted cautiously.

### 2.3.8 Trust

Trust within the team has been empirically found to have strong positive effects on team performance outcomes in various settings (De Jong et al., 2016; Costa et al., 2001; Ellonen et al., 2008; Erdem and Ozen, 2003). In general, trust can be defined as willingness to be vulnerable to the actions and decisions of others (Dietz and Den Hartog, 2006; De Jong et al., 2016). However, trust is a broad concept that encompasses numerous more specific psychological states and behaviors, and researchers have used various more specific definitions and divisions of different types of trust (Costa et al., 2001). To acquire a deeper understanding of trust and team performance, researchers have divided trust into various subtypes, and tested their effects on various team outcomes (e.g. Costa et al., 2001; Ellonen et al., 2008; Erdem and Ozen, 2003). However, despite the intuitiveness and popularity of the concept in other literature, there is little research studying trust in the entrepreneurial context.

In their meta-analysis of trust and team performance, (De Jong et al., 2016) find that even when controlling for numerous possible alternative explanations, intrateam trust consistently shows a positive connection to team performance. However, there are numerous factors that mediate this relationship. Trust has the strongest connection with performance in teams where tasks are highly interdependent, there are high authority structures and team members have diverse specialty skills. Except for authority structures, these characteristics fit well to new venture teams, suggesting that mutual trust is of central importance in entrepreneurial context as well. The fact that trust is more important when the team is led by a single authority may suggest that high trust may compensate for the negative effects of vertical leadership. In other words, in teams with a single strong leader mutual trust is especially important.

Beyond its immediate benefits in facilitating innovation and cooperation, trust has also been shown to be positively connected to team satisfaction, team member commitment and reduced stress (Costa et al., 2001). Since a new venture team is supposed to stay together and work intensively together for several years, these effects may also be essential for entrepreneurial team success in the long run.

Moreover, De Jong and Elfring (2010) argue that trust is especially important in long-term teams where the positive connections of trust and performance have more time to develop.

In examining the connection of trust and innovativeness, Ellonen et al. (2008) distinguish between personal and institutional types of trust. Personal trust exists in the relationship between two people, while institutional trust refers to the trust between an individual member and the institution or team as a whole. Institutional trust includes trust in all the individual members as well as leadership, structures and purpose of the team. While Ellonen et al. find that both types of trust are related to innovativeness, the connection between institutional trust and innovation is particularly strong. While the study by Ellonen et al. was not conducted in the entrepreneurial context and the dependent variable in their analysis was innovativeness instead of broader team performance, the results may still be relevant in the entrepreneurial context, since innovation is such an integral part of new ventures. Thus, when analyzing a team, it may be reasonable to focus on the impersonal dimension of trust over the specific interpersonal relationships within the team.

Trust within teams can manifest in four distinct ways: propensity to trust, perceived trustworthiness, cooperative behaviors and monitoring behaviors (Costa and Anderson, 2011). Propensity to trust is an individual-level trait that dictates how secure an individual feels in relying upon other team members. Perceived trustworthiness refers to the extent that others can be trusted to keep their word. Cooperative behaviors are the actions that are somehow vulnerable to the actions of others, like accepting the influence of others and communicating openly about one's state. Monitoring behaviors, on the other hand, are actions of control or surveillance of others, and are negatively related to trust. In empirical testing, measures of propensity to trust and cooperative behaviors have the most significant correlations with team performance (Costa et al., 2001). This suggest that to best observe trust in a team, one must focus on the individual's willingness to be trustful, as well as the concrete actions that show trust, like asking others for help or accepting the opinions of others.

Trust and psychological safety have much in common, but Edmondson et al. (2004) argues that they are fundamentally distinct concepts. Edmondson et al., who is the originator of the term psychological safety, states trust is a more broadly defined concept that originates from interpersonal relationships and deals more with concrete actions. By contrast, psychological safety only exists in relation to a team or organization, and is more embedded in the team's culture than their actions. Edmondson et al. further suggests that interpersonal trust between team members is a precursor for a climate of psychological within the team. However, other scholars (e.g. De Jong and Elfring, 2010) have interpreted psychological safety as a subtype of trust — i.e. that psychological safety is trusting that the

team will not respond negatively to interpersonal risk-taking. Rozovsky (2015) differentiates between psychological safety and dependability as separate forms of trust, where dependability refers to trust that team members complete their tasks on time and as promised. Since the most powerful form of trust in predicting team performance is found to be institutional (Ellonen et al., 2008) and manifests in the attitudes of individuals Costa et al. (2001), it could be that psychological safety is a specific form of trust that is particularly important for team effectiveness.

Rozovsky (2015) identified *dependability*, another another subtype of trust, to be significantly connected to performance of teams at Google. In a culture of dependability, team members can trust each other to complete quality work on time. In this sense, dependability is similar to what influential startup expert and writer Steve Blank refers to as "no excuses culture", where team members are held strictly accountable for holding their promises and deadlines, or ask for help, if they cannot do so (Blank, 2017). The goal of this culture is not to create inflexibility — there must be room for unforeseen events and difficulties — but to encourage people to seek for help and communicate as soon as possible when there unforeseen difficulties emerge.

### 2.3.9 Team efficacy and team potency

The closely connected terms of *team efficacy* and *team potency* refer to the team's self-confidence. Team efficacy means the team's collective confidence in their ability to succeed in their given task, while potency is a broader concept that refers to a collective belief that the team will succeed in various tasks and contexts (Gully et al., 2002). However, some scholars have also used these terms interchangeably (e.g. Crockett et al., 2013). In their meta-analysis, (Gully et al., 2002) distinguished between the two concepts, and found that while both concepts are connected to team performance, in highly interdependent teams — such as new venture teams — team efficacy is more strongly connected to performance than potency.

In the new venture context, Ensley and Pearce (2001) found a relatively weak, but significant correlation between potency and performance. Crockett et al. (2013) also found that team efficacy predicted that corporate spin-off ventures reached their strategic goals, but was not significantly connected to reaching financial targets. Outside the entrepreneurial context, Pearce et al. (2002) show that team efficacy and performance are reciprocally and longitudinally connected in a sample of project teams within a manufacturing company. In other words, team efficacy is increases performance, and increased performance increases efficacy, creating a positive self-reinforcing loop.

Although the general connection between team efficacy and performance has been established, there is ambiguity about the specific definitions as well as the

logic why efficacy creates performance (Gully et al., 2002). While its intuitively believable that some degree of confidence in the team's abilities is required for success, one could also hypothesize that overt confidence could lead in excessive risk-taking, rejection of outside ideas or unwillingness to accept outsider support. However, these potential drawbacks of team potency have not yet been explored scientifically, which may limit the practical applicability of the concept.

## 2.4  Interactions between team characteristics

The concepts discussed in this chapter — shared leadership, team cognition, team composition, collective intelligence, conflict types, psychological safety and trust — are not separate. Most of them are connected to each other or overlapping. No comprehensive frameworks that would encompass all these concepts exist, and the interactions between many of them are not well understood. However, some studies include at least two of these concepts, and they may help understand the big picture of new venture team dynamics.

### 2.4.1  Team composition

Some studies that investigate team dynamics and performance also address team diversity as a potential explanatory factor. Carson et al. (2007) find no connection between gender or ethnic diversity and shared leadership in their regression analysis. Ensley and Hmieleski (2005) found that general team diversity does not correlate with team potency or cohesion, but does have a significant, but not particularly strong, negative correlation with team cognition and positive correlation with both cognitive and affective conflict. Overall, there is support for the idea that while team diversity may hinder initial trust, knowledge sharing and affection in the formation of the team, it also broadens the team's thinking, creates fruitful disagreement and has an overall positive effect (Horwitz and Horwitz, 2007).

There is little research addressing how other team compositional factors affect team dynamics. While certainly team dynamics are always, to some extent, a function of the personalities on the team, this function is very complex and not well understood — as Rozovsky (2015) concludes, there is no magic formula for assembling the best teams.

### 2.4.2  Collective intelligence

In their laboratory tests, Woolley et al. (2010) found no connection between psychological safety and collective intelligence. This is surprising, since theoretically safety in proposing ideas should be connected to team performance in various

tasks. To explain this, Woolley et al. (2015) propose that psychological safety and collective intelligence are fundamentally separate phenomena, each explaining a different factor of team performance. While collective intelligence measures the team's short-term ability to solve problems immediately at hand, psychological safety has mostly been connected to learning, which is a more longitudinal process. It is possible that the short-term randomly assigned teams used in collective intelligence research by Woolley et al. (2010) have not had sufficient time to develop significant psychological safety. By contrast, psychological safety research has focused on long-lasting work groups in practical settings (Edmondson, 1999; Gibson and Gibbs, 2006). It is therefore entirely possible that in long-lasting practical settings psychological safety enables creation of collective intelligence through learning, but so far no studies have examined this connection.

So far, there is little research connecting collective intelligence to other team dynamics factors. Since collective intelligence is not defined as a property of the team but its outcomes, it could well be that many concepts discussed in this chapter are precedents of collective intelligence in practical settings just as they are precedents of team performance. Thus at least shared leadership, constructive conflict and trust may well be precedents of collective intelligence. Team cognition is, by definition, related to context-specific knowledge, and may thus be separate from context-agnostic collective intelligence.

### 2.4.3   Shared leadership

Carson et al. (2007) investigated the relationship of team dynamics and shared leadership in a sample of consulting teams. They use a combined measure of internal team environment that resembles a combination team cognition and psychological safety. They find a significant connection between these team dynamics variables and shared leadership, indicating that at least team cognition and psychological safety are precursors for powerful shared leadership. However, their study is not longitudinal and thus cannot conclusively determine the direction of the relationship, or if the relationship is bidirectional. Contrasting with Carson et al.'s (2007) findings, Ensley et al. (2003) propose that creating team cognition is an important mediator for how shared leadership influences team performance. Logically, it seems intuitive that some degree of shared knowledge about vision and strategy — team cognition — is required for all team members to participate in leadership. On the other hand, it is also possible that in the process of leading the team, members learn about other's viewpoints to vision and strategy. Thus, it is reasonable to assume that team cognition and shared leadership are bidirectionally connected. Similarly, Liu et al. (2014) find a connection between shared leadership and psychological safety, but argue that the direction is converse to what Carson et al. (2007) suggest. Therefore, psychological safety and shared

leadership may have a complex, bidirectional interaction as well.

Shared leadership has been connected to reduced affective conflict (Bergman et al., 2012), but the relationship between cognitive conflict and shared leadership is unclear. Pearce (2004) argues that shared leadership is logically connected to task conflict, since multiple team members taking leadership roles encourages bringing forth different, strong opinions. However, Bergman et al. (2012) find empirically that shared leadership correlates negatively with cognitive conflict in a sample of randomly assembled teams in laboratory tests. The difference may be explained by differing definitions of cognitive conflict in the studies. While Pearce considers conflict to simply refer to any civil disagreement, Bergman et al.'s definition also encompasses a degree of misunderstanding of one another's motives and intentions for an interaction to be considered conflict.

Ensley et al. (2003) suggest that creating team cohesion is a key mediator for the effects of shared leadership. Empirically, Mathieu et al. (2015) as well as Bergman et al. (2012) confirm a strong connection between shared leadership and team cohesion in their samples of student teams. While no startup-specific studies test this connection empirically, it is believable that shared leadership has a strong interaction with team cohesion in them as well.

Bergman et al. (2012) also find that intrateam trust is significantly higher in teams exhibiting high amounts of shared leadership. The authors argue that trust is created in an iterative process, where people gradually perform actions that show more and more trust and trustworthiness, and since leadership actions inherently require a degree of trustworthiness, shared leadership naturally creates trust over time.

## 2.4.4 Conflict interactions

Simons and Peterson (2000) find a clear connection between trust and conflict types in top management teams. While cognitive and affective conflict types do correlate positively, they do so much less in teams with high levels of intra-team trust. The proposed reason for this is that when people do not trust each other, they might misattribute task-related differences as interpersonal differences. In other words, mistrusting people more easily think that a difference in opinion is a sign of personal fault instead of a merely cognitive difference. Furthermore, in studying student teams Bradley et al. (2012) found that psychological safety is essential for realizing the benefits of cognitive conflict. In their sample, cognitive conflict was negatively associated with team performance when psychological safety was low, but very highly positively connected in teams with high psychological safety. The authors argue that psychological safety is essential for the participants to avoid negative feelings in dealing with task-related differences in opinion. These findings imply that trust and psychological safety are essen-

tial preconditions of fruitful conflict: mutual trust keeps the discussion civil and on-topic, and psychological safety helps teams utilize the benefits of conflict.

# Chapter 3

# Methodology

This study uses a constructive research method, where a problem of both theoretical and practical relevance is defined, then, based on a deep understanding of this problem, a solution is proposed, and this solution is tested in practice (Lehtiranta et al., 2015). The primary research questions are "What are the most significant team-related success factors of a startup?" and "How to assess the dynamics of a startup founding team?" The study consists of three phases: understanding the problem, constructing the solution and testing the solution.

In the first phase, interviews with experienced investors and entrepreneurs are used in conjunction with the literature review to form a model and taxonomy of the most practically relevant and empirically robust startup team success factors. The model incorporates scientific research on both the fields of organizational psychology as well as venture capital and startups, and places them in practical context with the help of interview data to form a comprehensive startup team assessment framework.

Based on this framework, questions and test tasks for observing the key factors of startup team dynamics were derived. Finally, the proposed methods were tried with several real startup teams. The methods were refined for maximum practical usability based on these tests. Finally, these results were presented to experienced startup funding professionals at Tekes to assess their accuracy and practical usability.

## 3.1 Modeling startup teams

The first objective of constructive research is to build a comprehensive understanding of the underlying problem both in theory and practice (Lehtiranta et al., 2015). In this study, this understanding comes from the literature review that is combined with interviews with experienced professionals in the field. The purpose of these

interviews is to place theoretical constructs in practical context, as well as to find team characteristics that experienced professionals hold most valuable in practical settings. Also, the interviews help to select the theoretical concepts that are the most believable and understandable to practitioners.

The interview findings are presented in Section 4.1. These findings contain direct quotes from the interviewees to demonstrate their viewpoints more clearly. Since all interviews were held in Finnish, all quotes are translated. Also, some information that could help identify the interviewees or example cases they used has been changed, and some language and phrases have been made more formal and readable while preserving the original message.

### 3.1.1 Sample of investors

Since the primary purpose of the investor interviews is to ground the theory in practice rather than generate new theory, the sample of interviewees is intended to maximize the total experience and expertise to tap into, rather than be a representative sample of all startup investors. In total, six venture capitalists from six of the most significant venture capital companies in Finland were contacted, and all six agreed to an interview. The interviewees are some of the most experienced startup investors in Finland, and all of them are partners or managers of their venture capital companies. Several of the interviewees have previously founded their own startups and worked as angel investors. On average, the interviewed investors had 13 years of experience in working with startups either as founders or investors, ranging from 4 to 20 years. Most of the interviewees held at least master's level education, and two of the interviewees held Ph.D. degrees. The list of interviews is presented in more detail in Appendix C, Table C.1. Some of the details about the individual's experience and positions have been omitted from the table to ensure anonymity, since the pool of experienced venture capitalist in Finland is relatively small.

### 3.1.2 Investor interview protocol

The interviews with investors consisted of background information (Part 1), team characteristics in example cases (Part 2), general team qualities (Part 3), team assessment practices (Part 4), team support practices (Part 5) and discussion about theoretical concepts (Part 6). The Interview protocol is outlined in Appendix A.

For Part 2, the interviewees were asked to think of real examples of a successful as well as a problematic team. The purpose of these discussions was to get real examples of how teams affect startup performance, and how teams develop during the startup process. The interviewees were not required to provide names or other identity information for these cases, but most still volunteered to name

the example cases. This part was skipped in one investor interview due to lack of time, but in many of the other interviewees volunteered to discuss several cases, both positive and negative, even though only one example of each was asked for.

In Parts 3–5, interviewees explained their views on teams as well as assessing and supporting them in more general terms. The focus of the discussion was in gaining an understanding of why teams are perceived in the way they are, and why investors use certain methods. These parts were originally more comprehensive, but they were shortened after two interviews since they proved less fruitful than Parts 2 and 6.

The last part of the interview was meant to encourage reciprocal discussion and contemplation between the interviewee and interviewer. In this part, the interviewer introduced concepts from theoretical literature with brief definitions and a small summarization of the underlying theory. The interviewees were asked to describe how believable, useful and important they consider the concept, and how it relates to their experience in working with startups. The interviewee was encouraged to ideate and ponder freely on the significance of these concepts. The concepts discussed were shared leadership, interpersonal affection, team cognition, conflict types, psychological safety and trust or dependability. These concepts were selected from the literature based on their prominence as well as clarity and specificity, so that they could be easily defined in the discussion. Interpersonal affection was used instead of team cohesion due to its more clear and understandable meaning. After the first two interviews, the more specific dependability was introduced instead of trust, since trust is such a wide concept that prompts different interpretations.

Initially, Parts 2–5 of the interview contained more specific questions about the investors' perceptions of teams and methods used. For example, if the interviewees observed leadership or conflict with the teams during their assessment process. However, during the first two interviews it became clear that these were not necessary or fruitful, since the interviewees often voluntarily explained much of the answers to these questions in their answers to other questions, and they often lacked the vocabulary to more specifically articulate details about team dynamics. Also, simplifying these parts left more time to be used for Part 6 of the interview, which proved to be more fruitful.

### 3.1.3 Interviews with experienced entrepreneurs

Interviews with experienced entrepreneurs were used to complement the investors' views and gain a more detailed understanding of some of the team-related success factors. The sample entrepreneurs were found by asking the interviewed investors to refer to successful entrepreneurs from their contacts. From five contacted entrepreneurs, three agreed to an interview. The interviewed entrepreneurs had all

been CEOs of startup companies for several years, and their companies had grown substantially during this time. All of the companies had received outside investments, and their investors had received extremely high returns on their investments. Details about the entrepreneur interviews are presented in Appendix C, Table C.2.

The entrepreneur interview protocol, presented in Appendix B was mostly similar to the investor interview protocol. The success and failure case analysis of the investor interviews (Part 2) was replaced with analysis of the entrepreneur's own team. Investor-specific Parts 4 and 5 of the investor interview protocol were removed altogether. Parts 3 and 6 remained similar.

## 3.2  Methods for team assessment

Once an understanding of the significance of team dynamics in theory and practice has been formed, this is used as basis to suggest practical methods for more accurate team dynamics analysis. These methods include direct interview questions as well as small challenge tasks for the team. The suggested methods were drawn from relevant literature as well as interviewees' experience and suggestions, and adapted to be as generally usable with practical startup teams as possible, while maintaining as high accuracy and objectivity as possible. The two main objectives for the questions were their ability to differentiate teams and having a solid logic connecting them to specific team dynamics concepts.

The proposed methods were tested and refined with a sample of startup teams. The sample teams were selected from Tekes database according to suitability criteria. The suitability criteria were that the managerial team should consist of 2-6 members, each holding equity in the company, the company has been founded within the past two years, the company must operate in high-technology sector and be aiming for rapid international growth. Also, startups that operate with markets or products that require highly specific expertise, such as Ph.D. level molecular biology, were ruled out. Also, teams with highly senior and experienced founders (with over 20 years) of experience were ruled out. The purpose of these criteria was to maximize superficial homogeneity within the sample to maximally test the differentiating ability of the methods. In order to be effective, the tested methods need to show differences in teams that would seem similar at first, so it would have been counterproductive to test them with teams that seem different to begin with. Team information was collected from company websites and LinkedIn in addition to the Tekes database to find teams that met these criteria. All in all, 24 teams had enough information available and suited these criteria. Out of these, eight teams responded and agreed to be interviewed. The sample was not intended to be maximally representative of all startups, but rather to represent a typical startup in

Finland. Furthermore, this study does not attempt to claim specific findings about the startup teams themselves, but rather about methods that were used to interview them, and thus biases in this sample selection do not significantly affect the results. Details about the teams and interview sessions are listed in Appendix C, Table C.3.

At each pilot interview session, the team was first introduced to the subject and purpose of this research. Then each of the tested questions is asked and test task carried out, while recording speech and making notes about the team's answers, performance and behavior. Finally, the interviewer shared their main findings about the team and gave feedback on how the team's perceived dynamics corresponded to the theoretical model. The team was then given a chance to comment on these findings and suggest improvements and feedback about the session.

Once the practical testing was complete, the results of the team dynamics assessments of the teams were presented to funding professionals at Tekes, who were asked whether the information gained from the teams seemed accurate and relevant, and whether they were willing to use these methods in practice to complement their existing team analysis. This session was attended by four experienced funding professionals, who had first-hand experience with some of the tested teams. These experts were asked verbally for comments on the assessments' accuracy as well as the usefulness of the created methods. After the session, the participants also filled out a small anonymous questionnaire about the perceived accuracy and usefulness of the methods. In the questionnaire, the participants were asked to assess how much they agree with the following statements in a scale from one to five:

- I believe that the presented team dynamics assessments are accurate.

- I believe that the presented team dynamics assessments are useful for the development of these teams.

- I believe that I can use the team dynamics assessment framework in my work.

- I will use some of the team dynamics assessment questions in my work with teams.

The questionnaire contained a free text field for additional comments. While the responses were on a quantitative scale, the idea is not to do extensive analysis on this small dataset, but rather to give the experienced professionals a simple tool to provide feedback about the usefulness of the tools created in this study.

This assessment by experienced professionals constitutes a weak market testing (see Lehtiranta et al., 2015), where the resulting tool is mainly judged by

practitioners' reported willingness to use the created methods. A more comprehensive, strong market test where the accuracy and utility of these methods would be tested objectively would require a longitudinal study of the investigated startups for several years, and is not within the scope of this study.

# Chapter 4

# Modeling startup teams

The interviews with startup investors and successful entrepreneurs provided information that complement the theoretical concepts and help tie them down in practice. The interview findings contain observations about the big picture of startup teams as well as observations about the practical relevance of team dynamics concepts found in literature. These findings are then used in combination with scientific literature to synthetize a comprehensive framework of startup teams, which is presented at the end of this chapter.

## 4.1   Interview findings

The interviewees had differing viewpoints on teams. Some of the investors, as well as one entrepreneur, focused primarily on the skills and competences of the individuals, whereas others focused on the team as a whole. The individual-focused interviewees emphasized the role of the leadership of the startup CEO, explaining that an effective CEO is can assemble a good team, and promotes positive team dynamics through leadership. These respondents emphasized role clarity and thorough recruiting practices as the foundations of well-functioning teams. However, even these interviewees agreed that team dynamics are essential for startup success, and showed interest towards learning more about team dynamics concepts. Thus, it should not be concluded that some practitioners consider individual-level characteristics more important than team dynamics, but rather that some are more used to working with teams through individuals in them.

Many investors explained that membership changes in startup teams are frequent, and changing the team composition, including the CEO, is perceived as a common tool for fixing perceived problems in the team. Altering the team composition was perceived as the primary method for most investors to develop the team.

*Upon investing, we saw that the team was built around technological expertise. ... The strengths of this team were clearly in [expertise about] the best possible technology. Thus, our first mission was to change the team composition to focus primarily on execution: sales, marketing and growth.*
–Investor 1, describing a successful startup investment

*[The chairman of the startup's board] tried to spur and support the then CEO to get the company in shape. But the reality was, that it could not be done. [The CEO] could not be turned into a leader that would build a strong team. Therefore, we hired [contact from another investment with proven record in team building] as the new CEO.*
–Investor 1, describing a startup investment

None of the interviewees had explicit tools or frameworks for assessing team dynamics, although they considered the topic important. All investors stated that they always need to meet the whole team, often several times in varying circumstances, before making investment decisions. In these meetings, an intuitive understanding of how the team works together was acquired. However, most interviewees agreed that theoretical knowledge could help them communicate and develop team dynamics better.

### 4.1.1 Positive team characteristics

The interviewees had a wide variety of examples of successful cases, and named a range of various team-related reasons for the success of these cases. While some were more focused on team dynamics, many also mentioned individual level characteristics and other factors that had influenced success. Interviewee perceptions about the team dynamics factors discussed in the literature review are outlined in more detail in their own sections below. Other factors mentioned in the interviews are presented briefly here.

Skilled individuals are an obvious factor of startup human capital that investors pay attention to. Several interviewees mentioned the ability to recruit highly skilled individuals as a key prerequisite for successful startups. Investor 1 gave an example of a highly successful startup investment case where a perceived key success factor of the venture was the high recruitment criteria that was implemented. Entrepreneur 1 explained how finding the right people for the team had taken a considerable amount of time, since such high criteria had been held for the team members.

*A considerable amount of attention was paid to the quality of new recruits. The quality standards for hired people went up. Even though*

> *there was a shortage of workforce, [the CEO] dared to hire skilled and talented people.*
> –Investor 1, describing a successful startup investment

> *A world class creative leader was required for the team, which was eventually found from [another country]. ... In general, [an entrepreneur] needs to be able to let go of people if they don't work well enough. A world class team cannot be built out of Finnish ice hockey league players.*
> –Entrepreneur 1

Several interviewees also emphasized individual experience as a key characteristic of good startup teams. Particularly an experienced founding CEO was considered an important factor. Investor 1 explained that a good CEO should have been involved in successful and failed teams, and is able to use these experiences in building the best possible team. Investor 6 also called for diversity in experience.

> *Young, talented people are full of energy, but the experience required to building a strong team is often found more in experienced and slightly older people, who have been involved in and seen success and failure. They have more horizon, or vantage point, [on building the team].*
> –Investor 1

> *A team consisting only of people with corporate backgrounds is not ideal. It is good that there is someone with corporate experience, and know how processes work and how decisions are made there. But if everyone is ex-corporate, it is not a good sign.*
> –Investor 6

Having ambitious visions is important to investors. Investors seek high returns for their investment, and have extremely high growth expectations for the startups in their portfolio. This requires the team members to be able to work hard and take significant personal risks, and be committed to the shared vision.

> *One thing that we pay a lot of attention to is having a big vision. The team must have the ability, and the ambition, to vision big things. They want to build something big, and they see that there is a big market that they want to seize. ... High enough ambition is extremely important for us. Often companies want to be the best if Finland, but that is not enough for us.*
> –Investor 5

The ability to recruit the best possible people emerged also as a recurring theme in the interviews. Several investors emphasized the ability to recruit the right people as a key investment criterion. Investor 2 gave an example of an investment where the social capital, including the founders' contacts and brand, where so strong that the investors believed that they had a strong position for recruiting the best personnel.

> *To be able to attract the best people, the story [of the company] needs to be compelling, and the people need to be leaders for whom people would like to work. [A startup CEO discussed earlier] was able to recruit good people in [an earlier venture], and [his new company] is one of the most interesting companies because of how good people they have been able to get onboard. ... The recruitment inflow is much better in companies with a good brand.*
> –Investor 2

### 4.1.2 Negative team characteristics

Experience, or lack thereof, was a prominent theme in many interviews. In particular, experience about the target market was often deemed an essential criterion for startup success. Investor 3 explained that they would not trust that a company that does not know the market will understand the customer needs, and thus they would not invest in such a company.

> *[It is a red flag for me if] the founders do not know the market. They may be enthusiastic, but they do not understand the customer needs, or they have jumped into a completely new business and do not understand the field of competition. It is very hard for us to trust that they survive in that world.*
> –Investor 3

> *Obviously, the team must have some experience and understanding of the market that they are entering. If one goes in without any experience, it is difficult, and one often makes mistakes.*
> –Investor 5

Lack of role clarity and diversity were frequently mentioned as a source of problems. Investor 2 explained how they had three separate failure cases where the founding team was from the same company or research institution, and had formed a company with equal ownership and responsibilities for all founders. The founders all had similar skillsets, and were often too focused on technology and were unable to create a sales organization, for example. Other investors stressed the importance of suitable roles and suitable people as well.

*[In three failure cases] there were three or four people from the same [background] with equally split ownership, who from the management team. These teams have been unbelievably heavy. ... Everyone is a technocrat, but nobody has experience or willingness to lead the company. ... They often hire too similar people, and often too junior sales people are hired, ... and the company fails to create a sales organization [for the product].*
–Investor 2

*A frequent problem is that the core founders have a "hastily formed marriage", which causes trust issues in high pressure situations. Many startups go through a phase where one of the co-founders leaves, and it takes a long time for the decision to form, and a lot of time is wasted.*
–Investor 4

Resistance to change may hinder even highly skilled and experienced teams when facing difficult situations. Investor 1 had an example of a team that consisted of extremely skilled and experienced individuals, but had faced a situation where significant changes in the business model were required due to changes in the market situation. However, this highly skilled team failed to make sufficient changes and ultimately failed to generate returns for investors. This example shows that even the best collection of skilled and experienced individuals may not succeed without good team dynamics.

*[The CEO] had collected top people. I have never seen such a strong team of individuals in any other Finnish startup. ... We saw that the business model was not working due to [changes in the market], so we needed to rebuild the business model. ... The problem with some of the very experienced and skilled people was that they would have been excellent people to scale an existing product, ... but we were not in this phase, but instead in a phase where we needed to reinvent the company.*
–Investor 1

### 4.1.3   Shared leadership

In general, interviewees agreed that shared leadership is important in startup founding teams. Several interviewees pointed out that in most cases, the members of a startup's founding team are all expected to take leadership for their own functional teams as the company grows. Thus, showing leadership capabilities and attitude is a positive sign of the team's capacity to grow with the business. Also, some interviewees noted that they perceive leadership attitude as indicative of individual

commitment to the startup; if one truly cares about the success of the company, one should also ensure that others are able to do their best for it as well. Investor 4 stressed the importance of situational leadership, where leadership emerges from different team members at different times.

> *I am sure [shared leadership] is important. ... It is how all humans should try to be. ... When the company is small, everyone of course has their own area of responsibility, but everyone has to be able to help one another.*
> –Investor 6

> *Each part of the company, be it HR, sales or technology, should have their own champion. They can get their own team motivated ... the tools for motivation might be different for an R&D team then for a sales team. I don't believe that one person can do that from the top.*
> –Investor 2

However, most interviewees thought that clarity and agility of decision-making are more important than shared authority. Hence, the interviewees thought that motivating and helping one another within the team is more important than a fully democratic shared leadership structure. Entrepreneur 1 was especially adamant that decision-making responsibilities should not be shared. When the interviewee suggested that leadership should not be understood just as giving orders, but also as helping and supporting others, even entrepreneur 1 agreed that shared leadership in this sense is important. This notion is in line with the results by Ensley et al. (2006), who found that shared empowering and transformational leadership are more important than shared directive or transactional leadership.

> *Shared leadership as a term sounds scary, but [the summary of Ensley et al.'s (2006) results] sounds good. If everyone has every role, that's bad, but if everyone encourages each other, that's good.*
> –Entrepreneur 1

All in all, the interviews support the idea presented in literature that shared transformational leadership is generally highly beneficial, and especially so in startup companies. None of the interviewees disagreed with the statement, and many felt this was highly important. Furthermore, the concept of shared leadership was naturally understandable to all interviewees, and thus it is a useful concept for practical applications.

### 4.1.4 Interpersonal affection

Due to the varying definitions of team cohesion, interpersonal affection was introduced instead, since it is a more clearly defined and narrower concept. The interviewees had mixed opinions about the significance of interpersonal affection in startup teams. Entrepreneur 1 brought the subject of friendship within the team up even before the concept was introduced, explaining that he perceived affection as an exclusively beneficial phenomenon. Other interviewees were more cautious about the subject, most stating that it is essential that team members are familiar with each other and get along, but friendship beyond that is insignificant or even slightly negative. Investor 1 explained that they prefer that team members have separate lives in their free time. With some interviewees, the theory of how closeness may create groupthink and discourage divergent opinions was introduced, and these interviewees found this theory believable and some explained that they had seen this happen in practice.

> *It is not always necessary that team members spend much time together in their free time. Sometimes it can be [in good teams] that people have their own, different lives. Surely, there must not be social friction, ... but I see it positively if people are quite different. A group that is too close might be too narrow-minded as a team.*
> –Investor 1

> *In the beginning, "buddy spirit" may help motivate and speed up things. ... But a startup is, on average, an eight-year project, and while of course people could be good buddies for eight years, bad things happen over time — personal stuff, having to change personnel — where business interests are put ahead of friendships, which is hard. Thus, as a stakeholder who only considers returns on investment, I conclude that [interpersonal affection] is negative in the long term.*
> –Investor 2

> *As an entrepreneur, I wanted to create an atmosphere where everyone wants to push forward at full speed. In a good team, the circles of coworkers and friends merge. When I do angel investments, I consider it a good sign if the team members want to hang out and play video games at the office in the evenings after work.*
> –Entrepreneur 1

The interviews support the notion that a certain level of team cohesion is beneficial, but beyond that it may have both positive and negative effects. It is noteworthy that in building his successful company, entrepreneur 1 stated that it was

never necessary to do major strategic changes or pivot the startup idea. Investor 1 noted that perhaps at times when business is booming, it is more important to enjoy being together, which motivates the team members to work harder, but in times of hardship and re-organization other things are more important. It is reasonable that when changes are called for, it is important to bring attention to the mistakes made and avoid groupthink, which may be harder if the team members have strong interpersonal affection.

### 4.1.5 Team cognition

When introduced to the subject of team cognition, most interviewees agreed that it is important that the team is on the same page on strategy and important issues. Entrepreneur 1 disagreed slightly, stating that he prefers teams of such high specialist role separation that different team members may not have sufficient knowledge to fully understand the content of each other's work.

> *Knowledge of the strategy is one thing, but it is more important to trust the natural visionary ability of the lead entrepreneur. The specialist in the team might be such niche people that they would not be able to make decisions on each other's behalf. Or at least, the company would look very different if they did.*
> –Entrepreneur 1

While most interviewees deemed team cognition important, often in discussion it was perceived as a part of shared leadership. Some interviewees pointed out that having shared values, which may be component of team cognition, is also a prerequisite of shared leadership. Most interviewees did not discuss any additional benefits or practical examples of team cognition. Thus, team cognition might not be clearly enough defined as a separate, useful concept for practical applications.

> *Shared leadership works when people have common values. For example, people may agree that they always give the client the best possible information about how they could improve when we visit. When everybody sees that this is how we create trust, then that is shared leadership. Therefore, I think shared values are an important part of shared leadership.*
> –Investor 3

### 4.1.6 Conflict types

Interviewees agreed with the notion that task conflict is important and had consistently observed cognitive disagreement in the best teams. Also, the respondents

agreed that relationship conflict is highly detrimental to the team's functioning, and all investors explained that they had observed such conflict in practical situations too. Most interviewees stated that relationship conflicts need to be resolved immediately, and often require removing one or both parties of the conflict from the team.

> *[If there is relationship conflict], then we are on a bad path. It should be so that personas do not fight, but arguments are found and defended, and decisions are made based on that. It may be difficult in a situation where there is someone really experience in the board of directors, who has a lot of knowledge about the market, which is good, but it might also mean that people do not dare to disagree.*
> –Investor 5

> *It is exactly so [that task conflict is beneficial, and relationship conflict detrimental]. I would underline that conflict about personalities is extremely bad, and very difficult to solve. Often the only solution is to remove one of the parties of the conflict.*
> –Investor 3

> *A team with task conflict is better than a [team without conflict]. Mishaps happen, and while there may be calm moments when everything is going well, but it is probably calm before the storm. ... It is dangerous if there is no conflict. Then it might be that there is not enough passion.*
> –Investor 6

All experienced entrepreneurs described that conflict was prevalent in their founding teams during their successful startup growth. All entrepreneurs were equally adamant that if this conflict slipped to relationship conflict, immediate actions were required. Two of the three entrepreneurs spontaneously quoted the Finnish idiom "*asiat riitelee, ei ihmiset*" ("things argue, not people") when describing the atmosphere in their team, even before the scientific findings regarding conflict types were introduced in the interview. This highlights that in startup teams, the prevalence of task conflict combined with the absence of relationship conflict is an excellent indicator of good team dynamics. Many interviewees explained that best entrepreneurs are highly passionate about the success of their company, and disagreements are bound to arise when passionate people work together. The lack of disagreement would imply either a lack of passion and interest or that people do not feel secure about voicing their differing opinions.

> *I think conflicts are a part of a good team. If there are no con-*
> *flicts, that is a bit strange. In a good team, people's competences and*
> *viewpoints complement one another, and if there is no conflict, then*
> *sometimes the best decision is not done. In a way, the best decision is*
> *made when there many different viewpoints are brought up and then*
> *the best one is selected together. ... Surely, we had conflicts about the*
> *products and different choices.*
> –Entrepreneur 3, describing the atmosphere in their management team

> *We challenge each other quite a lot. Sometimes we have tough*
> *conflicts, but it's always things that argue, not people.*
> –Entrepreneur 2, describing the atmosphere in their management team

While all interviewees agreed that relationship conflict is highly detrimental, many also stated that in high-pressure startup environment it is often inevitable. Particularly the experienced entrepreneurs said that these relationship conflict will arise, and the ability to resolve it is more important than the complete lack of such conflict.

> *[Relationship conflict] does sometimes emerge. Then it is essen-*
> *tial to be able to discuss the situation openly. People need to respect*
> *each other professionally. A solution had to be found, and if it not*
> *found, then someone needs to go, or something needs to be done. In*
> *any organization, [relationship conflict] cannot be allowed to con-*
> *tinue.*
> –Entrepreneur 2

The concept of different conflicts and their effects to startup performance were intuitively understandable and useful for the interviewees. Interviewees could immediately find practical examples of both kind of conflict in their experience, and found the related scientific findings interesting and believable.

### 4.1.7   Psychological safety

Most interviewees were not previously familiar with the concept of psychological safety. For the interviewees, the concept was defined as the feeling of security in proposing own ideas, asking clarifying questions, voicing differing opinions, admitting mistakes and giving feedback. When given this brief definition, all interviewees understood the concept, and recognized its importance.

> *I believe that when you ask a question, it is not meant to challenge,*
> *but to understand each other. The purpose is not to prove each other*

*wrong, but to understand them, even when we disagree. The purpose of debate is mutual understanding, which is pretty much the same thing as [psychological safety].*
–Entrepreneur 2

*[Psychological safety] resonates strongly with my own experience. ... We believe it is one of the keys of success. ... Genuinely wishing that each other succeeds is important. In some startups [in our portfolio] it might not be explicitly cared for, and thus it might be lacking, and they would do better if they had it.*
–Investor 4

*[Psychological safety] is very important. In my own experience, feeling safe about saying things that are against the mainstream or are new or never been done before is a good proxy for how innovative the team or organization is.*
–Entrepreneur 3

The behaviors that were given in the definition — proposing ideas, asking questions, admitting mistakes and voicing opinions and feedback — were generally seen as supremely valuable for startup teams. Several interviewees stressed that startups need to constantly adapt and listen to outsider feedback, and thus being able recognize one's mistakes, openly discuss about them and learn from them is extremely important in the startup environment. Investor 3 noted that startups often have visionary leaders, who need to pay special attention to accommodate others' input and listen to feedback.

*Startup teams always have people who are perhaps more extroverted and assume leadership positions. They need to make room for others and notice that, since startups often have a big vision, they need to pay special attention [to psychological safety]. It is very useful, if [psychological safety] can be achieved.*
–Investor 3

The only caveat regarding psychological safety that surfaced in the discussions was brought up by entrepreneur 2. He stated that it is extremely important to make sure that the person is absolutely right for that job when recruiting new people, and thus it is sometimes necessary to terminate employments during the probation period. According to entrepreneur 2, this practice is so important that they wish to continue it, even with the risk of losing some psychological safety.

> *One notion about psychological safety ... we are tough in recruiting. We have always been specific about our recruitments and we use the probation period. The probation period is actually the probation period — is the person the right fit for us or not. ... About psychological safety, this is a challenging since when we have people on probation period, everyone knows that not all will continue with the company.*
> –Entrepreneur 2

Since all interviewees found the concept understandable and had strong belief in its usefulness, it can be concluded that psychological safety is highly potential for practical applications in the startup environment.

## 4.1.8 Trust and dependability

The concept of trust is obviously a commonly understood concept, and all interviewees with whom it was discussed agreed that it is highly important for startup teams. However, it quickly became clear in the interviews that trust in itself is too broad a concept to be directly observed or used in practical context. Rather, the different facets or subtypes of trust may yield more fruitful practical applications. Thus, in later interviews, the concept of dependability was used instead. The definition of dependability used by Rozovsky (2015) — that people consistently trust each other to complete quality work on time — was introduced to the conversation. In some interviews, also the concept of "no-excuses culture" as defined by Blank (2017) was introduced as a further example of dependability.

> *Dependability is an important factor in startups. The pressure to achieve results is huge, because everything depends on it: growth of valuation, benefits and the next round of financing. ... This may be very stressful. Thus, they need to be able [to be dependable].*
> –Investor 3

While most interviewees agreed that dependability is beneficial, the topic often did not spark as much conversation, enthusiasm or practical anecdotes as other concepts like shared leadership or psychological safety. Entrepreneur 2 agreed that dependability is a valuable ideal state, but in practice, it is more important that startup entrepreneurs have extremely high ambitions and set their targets as high as possible — even if this meant that some targets were not reached, and schedules kept exactly. Thus, entrepreneur 2 posited that perhaps dependability is more important in larger companies than startups.

> *[Dependability] is a challenging issue. In principle, it is important, that's how it need to be. But simultaneously, if we don't aim for the skies, we don't get there. This begins with the company's targets, how they are set and how they are committed to, and what is promised. Philosophically, I agree: under promise, over deliver, it's a good thesis, especially in larger companies. But when you are in the startup phase, the contradiction is to be able to paint a vision that is so inspirational, but still so realistic.*
> –Entrepreneur 2

All in all, while the concept of trust is important, the interviews failed to bring practically observable and strictly beneficial viewpoints on trust in startup teams. Other phenomena discussed here are closely related to the concept of trust. Psychological safety is a form of trust, and trust is arguably also a prerequisite of shared leadership and constructive conflict, and thus trust or dependability might not be necessary to be separately considered when assessing startup team dynamics.

## 4.2 Synthetizing a startup team framework

### 4.2.1 Individual-level qualities

Individual skills and experience are basic components of human capital. Both were also discussed in the interviews. Managing a startup company requires a diverse array of skills, but a simple categorization can be made between general skills and competences such as social skills, and task-specific skills like programming skills. As for experience, three distinct domains were mentioned in literature and interviews: entrepreneurship experience, leadership experience and experience of the market context, product and customers.

Entrepreneurial ambition was mentioned as a highly valued quality by several interviewees. Some interviewees also brought up the team's ability to take risks, which is quality that is closely related to ambition, since often startup companies have a high-risk strategy and founders have a high personal stake. To maximize their profits, investors seek ventures that have the potential and ability for extremely rapid growth, and having entrepreneurs that set such high targets for themselves as well as the company is thus essential.

### 4.2.2 Group-level qualities

As discussed in the literature review, role clarity has consistently been linked to higher team performance. Several investors gave examples of teams where over-

lapping or unsuitable roles had caused confusion and mistakes. Role confusion was often seen as a red flag for investments. Clearly defined roles allow people to work more efficiently together by creating a natural division of tasks and responsibilities. Furthermore, a specialist role makes a person feel less replaceable and more valuable as a part of the team (Lyons, 1971). When a person feels that they are the only one able to make contributions related to their specialist role, they are more motivated to participate. Separate specialist roles also require a certain degree of diversity, and diverse experience and educational backgrounds have also been found beneficial for teams in literature.

Social capital is commonly considered an essential part of human capital, the interviewed investors consider social connectedness a key investment criterion. There are three distinct groups of stakeholders that are important for a startup company: customers, investors and recruits. A common strategy for startups, that investors often encourage, is to test prototype products with customers and gather feedback as early as possible. This is easier with good connections to potential customers. Angel investors and venture capitalist are, in addition to potential sources of financing, also valuable coaches and sources of feedback for startup companies. Knowing potential recruits is also important since many startups operate in challenging high technology environments where expertise may be scarce, and finding the right people for the job is easier when potential employees are known in advance.

The total social capital of a team depends on the social networks of the individuals as well as the separateness of these networks. It is more valuable that each of the team members knows a separate potential customer than if there was a single customer that each team member knows individually. Thus, to optimize social capital, the team members should come from diverse social backgrounds. Also, a part of social capital is the company's brand, which also includes the personal brands of the founders. One interviewee gave an example of a successful team, where the personal brand of one of the founders had had significant impact on the team's ability to attract customers and talent to their company.

The topic of commitment brings together several concepts from the interviews and literature. Motivation is an obvious factor in success, and beyond personal ambition, motivation needs to be directed towards the shared vision with serious commitment. This also requires the team members to have confidence that the can reach its goals, which relates to the concepts of team potency or team efficacy discussed in literature. Thus, it is arguable that the group-level concept of commitment synthetizes the ideas of team pride, team motivation and team efficacy.

### 4.2.3 Team dynamics

There are numerous team dynamics concepts presented in literature, and little overarching theories that would combine them. This study aims to select the concepts that are maximally valuable and practical to be assessed and incorporate those into a comprehensive framework of startup teams. The criteria for selecting the most suitable team dynamics concepts are:

- Clear definition. All of the concepts are simple to understand and separate from other concepts.

- Practical relatability. All of the concepts inspired the interviewees to think of practical examples.

- Robust scientific evidence for positive connection to team performance.

- Robust logic that explains their value in startup context.

The three concepts that fit these criteria best are shared leadership, constructive conflict and psychological safety.

Shared leadership was easy to understand in the interviews, and interviewees perceived that it is valuable for team performance. Also, a significant body of scientific literature has shown its connection to team performance both for teams in general as well as startup teams (e.g. Wang et al., 2014; Ensley et al., 2006; Carson et al., 2007). The value of shared leadership is also relatively simple to argue logically. Leadership does not mean just giving orders to others, but also any actions that help other people work better towards a common goal: helping, supporting and guiding others. Thus, it is intuitive that if all team members strive not just to perform their job as well as possible, but also to make others do theirs equally well, this is highly beneficial for the team. In a broad sense, a team with shared leadership can be thought of as a team where all individuals flourish (see Phelps, 2013) when they are committed and inspired by the team and spread this inspiration to others. Furthermore, since often the members of the founding team take management positions when the company grows, it is beneficial to demonstrate willingness and ability for leadership early on.

For brevity, the idea that best teams have frequent task conflict, but no relationship conflict is henceforth discussed under the topic *constructive conflict*. The concepts of task conflict and relationship conflict were easy to understand and relate to for all interviewees. Successful entrepreneurs consistently brought up constructive conflict as a cornerstone of their team atmosphere. Substantial body of scientific evidence has also accumulated to support the positive connection of task conflict and team performance as well as the negative connection of relationship conflict and performance (e.g. de Wit et al., 2012; Ensley and Hmieleski,

2005; Jehn, 1994). It is also logical that task conflict improves decision-making by bringing forth differing views, and that voicing differing opinions is a sign of passion as well as psychological safety.

Psychological safety is a slightly more complex concept than the two previously discussed team dynamics concepts, but all interviewees were still quickly able understand it and believed it to be valuable for team performance. While the concept is newer and has thus been studied less than shared leadership or conflict interactions, there is already a substantial amount of scientific evidence connecting psychological safety to organizational learning, innovativeness and overall performance of teams (e.g. Edmondson, 1999; Baer and Frese, 2003; Harms, 2015; Rozovsky, 2015). It is also easy to understand that feeling secure about voicing opinions, admitting mistakes, asking questions and participating in other ways improves performance in a multitude of ways.

These three concepts are not entirely separate from one another. Bradley et al. (2012) showed that psychological safety is a prerequisite for leveraging the benefits of task conflict. Also, shared leadership is connected with reduced relationship conflict (Bergman et al., 2012). Shared leadership and psychological safety have not been studied together, but it is possible that a feeling of safety makes team members more likely to engage in leadership behaviors. However, while these concepts may overlap, they also have their distinct features that allow them to be observed separately in practice, and thus it makes sense to include them all in the framework.

Other team dynamics concepts introduced in the literature review did not meet the criteria outlined above. Team cohesion did not inspire consistently positive comments from the interviewees, and its potential negative effects in some circumstances have been discussed in scientific literature as well (Rovio et al., 2009; Ensley et al., 2002; Rosh et al., 2012). One aspect of team cohesion, team pride, is however closely connected to group-level commitment, which was discussed as a group-level concept above. Furthermore, both psychological safety and shared leadership require some degree of mutual respect and understanding, and thus it can be argued that the positive aspects of team cohesion are included in the analysis, without using it as a separate concept. Team cognition, on the other hand, was perceived as a valuable team characteristic by most interviewees, but to a lesser extent than the selected team dynamics aspects, and the logic behind its effects was more difficult to communicate. Also, shared leadership includes a degree of team cognition, since to lead each other one must also have some awareness of each other's tasks and opinions. While it is obvious that trust is highly valuable for team performance, as a concept it may be too broad to be directly observed or uniformly understood. Also, each of the three team dynamics concepts included in the framework conceivably requires a certain degree of trust, and thus it can be said that the framework includes trust as an underlying idea.
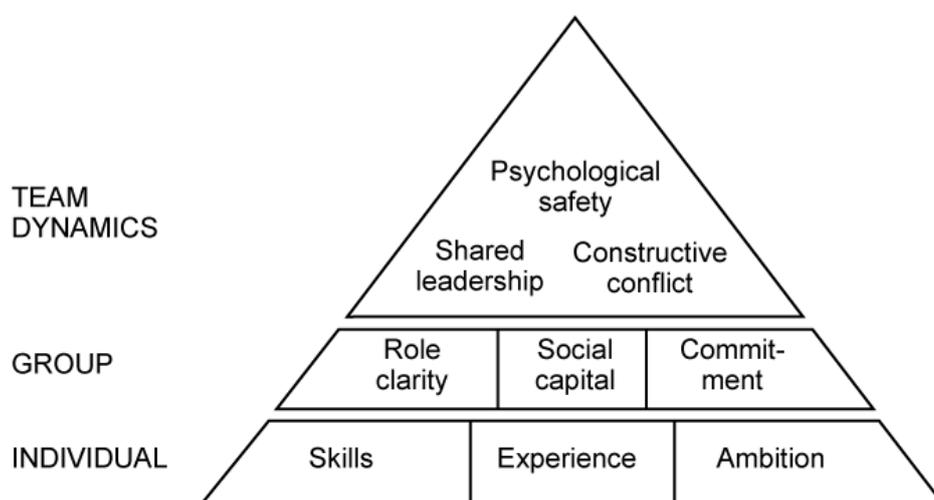
Figure 4.1: The startup team assessment framework

## 4.3 Startup team assessment framework

The components of startup human capital identified in literature and the interviews can be categorized to three groups: individual level, group level, and team dynamics. Individual level characteristics, such as skills and experience, manifest on the team members separately, and their team-level value can be reasonably assessed as a sum of individual team member values. Group level characteristics are not a simple sum of the individual parts, but can still be traced back to individual-level characteristics with relatively simple logic. By contrast, team dynamics are not easily traced back to individual team members, but rather emerge in how the team operates together. Figure 4.1 summarizes the most important components of human capital in startup teams, grouped on these three levels. Table 4.1 contains further details and explanations of each of these concepts.

The pyramid structure of the framework in Figure 4.1 signifies a certain hierarchical nature of the team components. Individual level qualities are often must-have characteristics, lack of which would render higher components worthless. For investors, a too low level of these is often a knock-off criterion (Franke et al., 2008). However, after a sufficient level, the additional value of these characteristics diminishes. For example, while it is important to investors that someone in the team has high seniority and experience, it is not always necessary for all team members. Some interviewees also pointed out that visionary startups require a certain degree of youthful naiveté. Also, in startups, one must be willing to engage in mundane tasks that in larger companies could be delegated to more ju-

nior personnel, and the most experienced people might struggle with doing these mundane tasks. Thus, while a certain degree of experience, particularly about the target market, is a must-have quality, has little additional value after a certain saturation point. By contrast, the quality of team dynamics is often not a knock-off criterion for investors, but rather something that makes the teams perform beyond expectations. Furthermore, individual and group-level qualities are often precursors of good team dynamics. For example, entrepreneurial experience, role clarity and commitment are likely to contribute to shared leadership.

It should be noted that to be as practical as possible, the startup team assessment framework includes only a minimal set of team characteristics. This means that several potentially valuable characteristics that are often considered a part of human capital are not included in the framework. However, the framework aims to include these characteristics as parts of other, more clearly defined concepts. For example, motivation is often considered an instrumental human capital phenomenon, but is not included in the framework. However, the concepts of individual ambition and group commitment integrate motivation: ambition means that an individual is motivated for success, and commitment means that the individuals are motivated towards the team. Similarly, Mitteness et al. (2012) suggest that entrepreneurial passion is an essential part of startup human capital, and it is arguably included in the framework through individual ambition, group commitment and team shared leadership. Thus, while many other concepts could have been included in the framework, the chosen set is aimed to be minimal, but still complete.

While this study focuses on team dynamics, individual-level and group-level characteristics are presented here to form a holistic model of the startup team for practitioners. It is important to understand team dynamics in the context of the bigger picture of startup human capital instead of a separate concept. For an investor, assessing the individual level and group level qualities of a team, while perhaps not easy, is at least more familiar than assessing team dynamics. Assessing individual level characteristics is similar to traditional recruiting, and group level characteristics are usually well available as well. However, to get a complete picture of the startup team, the team dynamics need to be assessed as well, but little practical tools for this exist. Therefore, the next part of this study presents methods that can be used to see the three team dynamics concepts in teams.

Table 4.1: Details of the startup team assessment framework components

| **Individual** | |
| --- | --- |
| Skills | Valuable skill include general skills like business understanding, expertise of entrepreneurial best practices and social skills as well as task-specific skills such as technological, sales or design expertise |
| Experience | Experience of the market context and customers is especially important, as well as prior entrepreneurship and leadership experience. |
| Ambition | In addition to sufficiently high targets for growth and success, personal ambition entails a high degree of risk-taking ability and entrepreneurial drive. |
| **Group** | |
| Role clarity | Clearly defined and purposeful roles improve efficiency. A diverse set of different people and skills is required in the team. Roles also help team members feel that their individual contributions are essential for the success of the company. |
| Social capital | Consist of the team's total social networks with potential customers, investors and recruits as well as the company's brand. |
| Commitment | Entrepreneurs need be able to make serious commitments of time and resources to the company over several years. The team members need to have strong confidence and pride in the team and their business idea. |
| **Team dynamics** | |
| Psychological safety | In an environment of psychological safety team members feel secure to propose ideas, ask clarifying questions, voice their opinion, give feedback and admit mistakes without the risk of being ridiculed or losing face. |
| Shared leadership | Each team member should have confidence to take responsibility and make decisions, and it is especially important that everyone in the team is a champion and an inspired individual who motivates others. |
| Constructive conflict | In the best teams, team members state their opinions and defend them with passion in case of disagreement. However, the disagreements are always on-topic, and never escalate to personal level. |

# Chapter 5

# Assessing team dynamics

The second research question in this study is "How to assess the dynamics of a startup founding team?" More specifically, this study aims to provide practical methods to observe the team dynamics characteristics that were previously deemed as most useful: shared leadership, constructive conflict and psychological safety. To do this, an array of questions and test tasks were derived based on literature, and these questions were tested and refined in pilot interview sessions with startup teams. Some of these questions and tests address team dynamics concepts specifically, whereas others are meant to give more general information about the team. The most effective questions for directly observing team dynamics along with guidelines for interpreting the answers are presented first in this chapter, followed by the most efficient auxiliary questions that can be used to complement the team analysis and indirectly observe team dynamics. Details about the process through which these questions were developed are also discussed in this chapter. Finally, the accuracy and usefulness of these methods is discussed and their assessment by funding professionals is presented.

## 5.1 Most effective questions for assessing team dynamics

In the startup interviews, numerous questions and interview methods were tried to reveal a maximal amount of information about the team's dynamics. The question list was developed and refined throughout the startup interviews. The final list of the most effective and practical questions for each of the team dynamics concepts is presented in Table 5.1. These questions were found to yield noticeably different answers from different teams, and the answers are signals of specific team dynamics through robust logic. Some of the questions are specific to one of the team dynamics concepts, while some are related to several concepts. All of the questions

often sparked a conversation that lasted several minutes. In this conversation, the interviewer occasionally presented clarifying questions, and encouraged the team to answer the question with specific examples.

These questions are intended to be slightly provocative and surprising, and some of them focus on issues such as mistakes and disagreements, that may be sensitive and have negative connotations. The purpose of this is to challenge the team and create an observable teamwork episode within the interview. If the questions were too easy, there would be less opportunities to see how the team works together. Some studies have found direct links between specific behaviors that arise within the team when working together and team performance. Losada and Heaphy (2004) found that in high performance teams, team members more often ask questions, make positive comments and focus on others instead of self. By contrast, team members focusing on just themselves and arguing their own position, and displaying contempt or defensiveness are signs of bad team performance (Losada and Heaphy, 2004; Jung, 2016). Thus, when interpreting the answers to these questions, one should focus not just on the wording of the answer, but make observations about how the team members ask questions, give positive comments, listen to each other and avoid negativity in the ensuing conversation.

Question 1: *How do you make decisions in this team?*

Question 1 is a relatively straightforward question about shared leadership. If the team struggles to understand the question, the interviewer may give more specific example questions like *How would you decide on the next feature to develop for your product?* or *Who on your team would decide about changing customer focus?* The idea of the question is to see how confident the team members were about their own decision-making responsibility. Ideally, each team member would be clear about their role and able to confidently drive decisions that are related to their own area of expertise.

In the startup team interviews, none of the teams directly stated that they would have completely vertical leadership or a hierarchical decision-making structure. However, there were substantial differences in how much shared responsibility was thought about in the teams, and how confidently they were able to explain their decision-making structure. In the team that was assessed worst in this regard, the CEO started, hesitantly, to explain how he asks about others' opinions before making big decisions. When asked for concrete examples of this, the team struggled to give any. It is noteworthy that the CEO was the only one who spoke in response to this question. By contrast, in the best teams, everyone participated in the conversation, explaining that while they each had separate areas of responsibility, they were clear about communicating with others before making any big decisions.

Table 5.1: Most effective questions for assessing team dynamics

| № | Question | Ideal answer description |
|---|----------|--------------------------|
| **Shared leadership** | | |
| 1 | How do you make decisions in this team? | All team members confidently give examples of decision-making from their own specialty. Not everything needs to be democratic, but all team members should be confident about their participation. |
| 2 | How have you helped and supported each other? | Team members have specific examples of feedback flowing from all team members to each other, instead of just the CEO giving feedback to others. |
| 3 | What negative feedback have you given to each other?[a] | The team members can come up with several concrete examples of constructive criticism that the team members have given each other. |
| **Constructive conflict** | | |
| 4 | What disagreements have you had?[b] | The team members openly discuss several concrete examples of differences of opinion about products, processes and tasks |
| 5 | Please describe the atmosphere of this team.[b] | The team members mention mutual openness, trust and positive atmosphere, but also that topical disagreements often arise and negative issues are discussed as well. |
| **Psychological safety** | | |
| 6 | What mistakes have you made, either as individuals or as a team, so far? | Several team members openly name specific examples of mistakes and how they handled them. |
| 7 | Please brainstorm five new business ideas. | The team members come up with specific ideas quickly, new ideas arise in the conversation, and exotic ideas are voiced without hesitation. |

[a] Also related to constructive conflict and psychological safety.
[b] Also related to psychological safety.

Question 2: *How have you helped and supported each other?*

Question 2 addresses the more transformational side of shared leadership. This question was clear and understandable to all teams, but in some cases, the question was supplemented with *What kind of positive feedback have you given each other?* to inspire more concrete answers. Ideally, teams would describe and give examples of how support flows between all team members, not just between a single leader and followers.

Asking about mutual support and feedback surprised most teams, and only a few were readily able to give concrete examples of this happening. In those teams, assessed best in this regard, there were clear examples and practices of team members giving each other encouragement. For example, in one team, the members had agreed to a system where they would post a positive response to each other's contributions to the product. While this feedback was nearly automatic, the team still said it was motivational and inspiring. By contrast, some teams dismissed the question or were completely unable to give concrete examples of support or positive feedback they had given each other.

Question 3: *What negative feedback have you given to each other?*

Question 3 is primarily designed for observing shared leadership, but also relates the other two team dynamics concepts. Giving each other constructive feedback that helps them improve their work is fundamentally a leadership action, and thus it can be interpreted as a sign of shared leadership if feedback flows in all directions between the team members. Also, negative feedback often stems from disagreement or confrontation between people, and thus answers to this question may reveal about the team's task or relationship conflict. Furthermore, giving negative feedback is a socially risky action, and thus being able to give feedback and discuss it openly can be a sign of psychological safety.

Few teams had good, concrete examples of negative feedback, and most hesitated for a few moments before answering. In the teams that could give concrete examples, these answers were highly revealing about the team's dynamics. In one case, the CEO admitted to having given too harsh comments about the contributions that some team members had made. Since in this case the direction of feedback was from the CEO to other team members, so the answer cannot be interpreted as a sign of shared leadership. However, the team was readily able to discuss the event and what they had learned from it very openly, which can be taken as a sign of strong psychological safety as well as ability to handle conflict situations. In another team, the CEO explained how another team member had commented about being annoyed by the CEO's attitude towards the technical development of the product. This can be interpreted as a sign of shared leadership, since the direction of feedback is towards the CEO. However, several teams

were unable to name any concrete examples of negative feedback within the team, which may be a sign of poor psychological safety or complete conflict-averseness.

Question 4: *What disagreements have you had?*

Question 4 is a straightforward question about conflict interactions. The team was further encouraged to bring up actual examples of disagreements or conflicts happening in the team. While this question was mostly about conflict, willingness to discuss these is as a sign of psychological safety as well.

Inquiry about disagreements brought up significant differences between the teams. Some teams were unable to come up with examples of conflict within the team. By contrast, other teams did not hesitate to begin their answer by stating that they experience conflict regularly. They were quickly able to bring up examples and discuss the topic of the conflict as well as the participants and their stances in the disagreement. This is a clear sign of both presence of task conflict as well as psychological safety. However, none of the teams presented examples of relationship conflict, which may be either due to lack of such conflict in the interviewed teams or the natural reluctance to discuss such sensitive situations when meeting the interviewer for the first time. Thus, this question may only separate teams with no conflict from teams with high task conflict, and other methods would be needed to observe relationship conflict.

Question 5: *Please describe the atmosphere of this team.*

Question 5 is a more open-ended conversation starter. In their responses to this prompt, teams often revealed details about their conflict interactions as well as psychological safety. Ideally, teams would describe a positive and supportive atmosphere but also bring up disagreements and mistakes and how they are handled.

Teams brought up a wide variety of issues when asked to describe their team atmosphere. Teams frequently mentioned humor and positive atmosphere as primary features of their team dynamics, but some teams also mentioned professionalism and possibilities to focus on individual work. Teams also often brought up practices they had set up to enhance team spirit such as having some common leisure activity every two months. Some teams brought up conflict interactions by themselves, and one team in particular was proud about consisting of seemingly strong-willed people who are not afraid to voice their opinions even when they disagree, but also stressed that the disagreements never went to a personal level. Bringing up conflict interactions spontaneously is a strong signal of constructive conflict. Also in some teams' answers, there were direct or indirect indications of psychological safety. For example, in one team, a team member (other than

the CEO) spontaneously brought up how they feel they can bring up any issues without being judged. However, for some teams, the question did not reveal much about the quality of their team dynamics, as can be expected with such an open question.

> Question 6: *What mistakes have you made, either as individuals or as a team, so far?*

Question 6 is related to psychological safety. Indeed, being comfortable about admitting mistakes was the original inspiration when Edmondson (1999) introduced the concept of psychological safety. To help the team come up with concrete examples, the interviewer gave a few potential examples such as wasting time by developing a worthless feature to the product or acting unprofessionally when meeting a client.

The teams had substantial differences in how eager they were to confront their mistakes. In some teams, several team members contributed to the discussion and were immediately able to name mistakes either by themselves or the team, and how they had learned about these mistakes. Being this upfront about mistakes is an obvious sign of high psychological safety (Edmondson, 1999), especially when all team members participated in this conversation. By contrast, some teams struggled to identify any past mistakes, or only few team members were able to admit them.

> Question 7: *Please brainstorm five new business ideas without any restraints on the quality of the ideas.*

Question 7 is a challenge that is inspired by the collective intelligence tests used by Woolley et al. (2010). The willingness to propose ideas in brainstorming correlates with the team's collective intelligence, and feeling secure to propose ideas is a reliable sign of psychological safety. The teams were given a few examples of "bad ideas" such as two-sided pizza and reusable bubble gum to help understand that this challenge was not about the practicality of these ideas, but the willingness to present them in front of others.

The teams' willingness to brainstorm ideas varied greatly. In the teams that displayed the strongest collective intelligence and psychological safety, all team members pitched in with crazy-sounding ideas. Most of these ideas were something that the team members had previously invented and perhaps already discussed, but some teams were also able to come up with whole new ideas during the conversation, displaying exceptional willingness to be socially vulnerable in front of each other. While the time taken to come up with the required five ideas was not explicitly measured, it was noteworthy that these teams were also relatively

Table 5.2: Auxiliary team-related questions

| № | Question | Related to |
|---|----------|-----------|
| 1 | Please describe your roles in this team. | Role clarity, shared leadership |
| 2 | What kind of experience do you have working in this market? | Experience, shared leadership |
| 3 | How do you plan to develop the team? | Commitment, psychological safety |
| 4 | Where do you see this company in five years? | Commitment, ambition, shared leadership |
| 5 | Please give a couple of reasons why this team would be the best team in the world to implement this idea. | Commitment, psychological safety |

fast in coming up with ideas, and often went beyond the assignment by coming up with more then five. By contrast, some teams struggled to come up with anything other than slight variations of their current business idea, and actively refused to propose outlandish ideas, even though the interviewer encouraged this, signaling poor psychological safety.

## 5.2   Auxiliary team-related questions

Some questions in the startup team interviews were meant to give the interviewer a more general view of the team, and were not directly related to any of the team dynamics concepts, but instead related to individual or group level qualities of the team, as presented in the startup team assessment framework (see Figure 4.1). However, some of the answers to these questions still gave insight on the shared leadership, conflict and psychological safety of the team. The most effective of these questions are listed in Table 5.2. Some of these questions could be developed further beyond the scope of this study to gain more insight about the team's dynamics.

Auxiliary question 1: *Please describe your roles in this team.*

Auxiliary question 1 is a simple question about role clarity. The idea is that well-defined roles make the team more efficient and motivate people by giving

them a specific purpose to be on the team. However, in addition to role clarity, there were noticeable differences in how teams responded to the question in terms of shared leadership, too. In some teams, the individuals responsible for different areas of business, like software development or sales, emphasized their responsibility and authority in those matters, but also confidently asserted that they help with other areas of business as well. By contrast, in some teams the individuals responsible for these functions simple answered that they, for example "do programming", signaling an arguably lower level of shared leadership.

> Auxiliary question 2: *What kind of experience do you have working in this market?*

Auxiliary question 2 is a direct question about market experience, which is arguably the most important aspect of experience for investors (Franke et al., 2008). However, beyond market experience, the answers to this question often revealed background information about the team and how the business idea had formed. In some teams, the CEO had previous experience working in the field, had come up with a related business idea, and recruited the other team members to support the implementation of this idea. By contrast, other teams had first formed as teams around shared work experience in the market, and the business idea had been formed collaboratively with all team members. It is possible that shared leadership forms more naturally in the latter case, since experience and responsibility are naturally more distributed. While it is entirely possible that shared leadership also forms in the former type of team, it may require more effort and deliberation, since the originator of the business idea must be able to share some responsibility to others.

> Auxiliary question 3: *How do you plan to develop the team?*

Auxiliary question 3 indirectly addresses the team's perceived weaknesses and potential problems. All interviewed teams first brought up recruitment needs, which were highly technical in nature, but some teams also were also able to self-reflect about deeper issues. While the teams might not have been able to come up with specific development ideas, there were clear differences in the teams' propensity to face their shortcomings. The ability to bring up areas of improvement is a sign of psychological safety. Questions about the team's development areas could potentially be developed further to find out more about the team's dynamics.

> Auxiliary question 4: *Where do you see this company in five years?*

Auxiliary question 4 is intended give insight about team commitment and ambition. There were considerable differences in how clear future visions the teams

had, and how committed the team members seemed to be to this vision. While things rarely work out completely according to plan, growing a startup company from foundation to exit is a long project that requires considerable personal resources. For team members, having a clear idea about the company's growth plan and their own part in is also a signal of willingness to go above and beyond what is required of them, and is thus a sign of shared leadership.

> Auxiliary question 5: *Please give a couple of reasons why this team would be the best team in the world to implement this idea.*

Auxiliary question 5 is based on one successful entrepreneur's interview, where they stated that the best teams have a clearly defined specialty that makes them, in some way, the world's best. The ability to come up with potential reasons how this team is exceptional is as a sign of commitment, since it shows that the team members believe in the team's abilities. Furthermore, this is also a simple brainstorming assignment, and the ability to quickly create ideas of introspective nature with the team is a sign of psychological safety, similarly to Question 7.

## 5.3 Team interview development process

The questions presented above proved to be effective in observing the team's dynamics. They showed differences in teams that would have otherwise appeared similar, and the answers revealed information about the team's dynamics. During the startup team interviews, several other questions were asked too, but they failed to give insight about the team. Some of these questions were dropped altogether, and some were changed and developed into the questions presented above. These ineffective questions are discussed here for scientific transparency and to help understand the challenges of assessing startup teams. Some of these questions could be developed further to create viable team dynamics assessment methods.

Asking *Please describe why you want to be an entrepreneur.* from each of the team members individually was intended to give insight on the individual ambition as well as team-level commitment. However, this question was, in a way, too easy - the interviewees were all easily give some rational reasons why they want to be entrepreneurs. Thus, the question was redundant, since there were no clear differences between different responses. Additionally, the dynamics of the team were not revealed, since all team members answered from a very personal point of view. Ideally, the respondents could have answered why this particular team had attracted them to entrepreneurship, but this viewpoint was difficult to bring into the discussion without guiding the responses too much.

Question 7 was originally asked as *Please come up with five ideas for how you could pivot your company, if customers, for some reason, were not pleased with*

*your current product.* This question format had a problem with becoming too theoretical and too dependent on the company's current situation. Often teams suggested vague ideas on how they would approach changing their product, rather than brainstorming concrete, actual ideas. Thus Question 7 was changed to the format presented in Table 5.1 after four interviews to encourage more concrete answers. While the new format could have been perceived as less practically relevant for the team itself, all interviewed teams reacted positively to the new format. It can be learned from this that hypotheticals or "thought games" are generally taken positively and need not to be avoided.

Question 7 originally had follow-up assignments about choosing the best alternative among the brainstormed business ideas and formulating a brief plan for executing this idea. However, both these assignments proved problematic. Choosing among the brainstormed ideas was too easy — often the teams had already come up with a clear favorite during the brainstorming, and thus no disagreements arose that could have been observed. Creating a small execution plan for the selected business idea proved to be a too broad assignment, and it was impossible to compare the team's collaboration methods against other teams in this sample. While a more comprehensive assignment that would incorporate creating, choosing and executing ideas could be formulated for assessing startup teams, this would require a considerable amount of further testing.

The conflict elicitation protocol, as introduced by Jung (2016) (discussed is Section 2.3.6), was tried with some of the startup teams as well. The team members were asked to individually write down a couple of points that they disagree about with other members of the team. After everyone had written down at least two points, the notes were gathered, and the team was asked to discuss and explain some prominent points in them. Some observations about psychological safety could be made just based on how quickly the team members could come up with points of disagreement. However, the ensuing conversations were often lackluster, and the points of disagreement were not specific enough to inspire actual conflict episodes in the interview situation. It is possible that the conflict elicitation could be developed into more useful startup team assessment method with more testing. In the scope of this study however, the same insights could be gained simply by asking about disagreements directly (Question 4), and thus the conflict elicitation protocol was redundant.

## 5.4 Validity of the team dynamics assessment

The questions presented above and the evaluation of their answers are based logically on team dynamics concepts with considerable amount of empirical evidence behind them. The validity of these methods was assessed in a discussion with

Table 5.3: Results of the Tekes funding professionals questionnaire

| Statement | Response average |
|---|---|
| I believe that the presented team dynamics assessments are accurate. | 3.5 |
| I believe that the presented team dynamics assessments are useful for the development of these teams. | 4.5 |
| I believe that I can use the team dynamics assessment framework in my work. | 4.0 |
| I will use some of the team dynamics assessment questions in my work with teams. | 3.75 |

experienced Tekes funding professionals who had personal experience in working with the studied teams. In this session, the team dynamics concepts and assessment methods were explained and the findings about team dynamics that were made in the startup team sessions were presented and discussed. Finally, the funding professionals were asked for their opinions about the assessment methods in an anonymous questionnaire. In this questionnaire, the respondents assessed how much they agree with four statements about the accuracy and usefulness of the methods on a scale of 1 to 5. The responses of this questionnaire are presented in Table 5.3.

As can be seen from the questionnaire results, the professionals were generally positive about the assessment methods. There is strong belief that team dynamics assessments are useful for developing the teams. In the free text field of the questionnaire, one respondent noted that the practical usability of the team dynamics assessment questions for Tekes was limited by Tekes' legal obligations, which require Tekes to make funding decisions based on objective measures. It can be concluded that the startup team assessment framework and team dynamics assessment methods are practically valuable, particularly for coaching team development. However, ultimate validation for the team assessment methods would require a longitudinal study of several years, which is not possible in the scope of this study. The presented methods could be used as basis for such a study.

The observations about the teams' dynamics made in the startup interview sessions were presented to the teams at the end of each session. In general, the interviewed startup teams reacted to the assessment positively and were interested about the results. Even in cases where the team had considerable shortcomings in team dynamics, the interviewees generally accepted the criticism and acknowledged their need to develop. Understandably, not everyone was enthusiastic about criticism, but there were no instances where the team would have voiced differing

opinions or perceived the assessment as unfair or inaccurate. Some teams raised criticism about some specific questions used, but never about the assessment itself. Several teams found the development ideas valuable, and asked for further clarification and suggestions.

# Chapter 6

# Discussion and conclusions

It is widely understood that the quality of the team is often the most significant factor in startup success, and thus the ability to assess it accurately is extremely important to investors. This study presented the startup team assessment framework that gives a structured view on all the components of startup human capital, as well as specific questions that can be used to assess the dynamics of startup teams. These tools are also useful for making more accurate investment decisions as well as communicating the team assessment, identifying specific problem areas and setting team development targets. Startup teams themselves can also use these tools to self-evaluate and plan team development.

The startup team assessment framework, presented in Section 4.3 contains the most significant individual level, group level and team dynamics characteristics that should be assessed to gain a comprehensive understanding of the quality of a startup team. The assessment of individual level factors, skills, experience and ambition, is similar to normal recruiting. Simple group level factors, role clarity, social capital and commitment, are also relatively straightforward to observe and assess. By contrast, team dynamics are more difficult to conceptualize and observe from the outside. This study helps practitioners to understand and assess team dynamics by selecting the most useful team dynamics concepts and presenting questions that can be used to observe them.

There are numerous concepts and theories about team dynamics discussed in prior literature, and their connections with each other are often unclear. Therefore, to make sense of startup team dynamics, the first task was to select the most effective and practical of these concepts. Based on the interviews, three team dynamics concepts were selected: shared leadership, constructive conflict and psychological safety. Shared leadership entails that all team members go beyond completing their assigned tasks to help others perform better in their tasks as well. This has been shown to improve team performance, and is an indication of commitment as well as leadership abilities that will become important when the company grows.

Constructive conflict means that productive disagreements about tasks, products or processes are frequent, but this conflict never escalates to an emotional, personal level. Task conflict has been shown to improve the quality of decisions and is an indicator of entrepreneurial passion, but relationship conflict correlates extremely negatively with team performance. The third team dynamics concept, psychological safety, refers to an atmosphere where team members feel secure to propose ideas, ask questions, give feedback and voice disagreements without fear of losing face. This has been to enhance team performance, and especially team learning, which is extremely valuable in the agile startup process.

Observing these three team dynamics phenomena is challenging. This study aimed to help practitioners with team dynamics assessment by developing specific questions that are especially insightful about the team's dynamics in interview sessions with startup teams. The questions that proved to be most effective are discussed in Sections 5.1 and 5.2. To assess shared leadership, simply asking about the team's decision-making and mutual support practices was highly revealing. For constructive conflict, asking the team directly to give concrete examples of past conflicts proved to be the most efficient assessment method. Psychological safety can be observed by discussing the team's mistakes and asking them to innovate new ideas freely. These team dynamics assessment methods were able to differentiate teams that initially seemed similar, and experienced funding professionals agreed that the team assessment was reasonably accurate and useful, and were willing to apply these methods in practice. Therefore, this study succeeded in its primary objectives: it gives practical tools to understand startup teams and assess their team dynamics.

## 6.1 Practical implications

### 6.1.1 For investors

As Smart (1999) concludes, using more formal tools to assess human capital in startups may significantly increase the accuracy of the assessment. The startup team assessment framework, as presented in Section 4.3, can be used as a "pre-flight checklist" to make sure that all components of the team are considered. Doing this could reduce errors in investment decisions. Also, the framework can be used to monitor teams already in the investment portfolio to identify improvement needs and set development targets for specific team issues.

Investors often have a high volume of prospective investments to consider, and will only invest in a small percentage of them, looking for truly exceptional ventures and teams. It has been shown that excellent team performance often depends more on how the team works together, rather than the capabilities of its individ-

uals (Woolley et al., 2010; Rozovsky, 2015). Therefore, it makes sense to invest in teams that have not just highly competent individuals, but also have team dynamics that make them more than the sum of their parts. The questions presented in Sections 5.1 and 5.2 can be used in discussions with teams to efficiently and accurately identify teams with stellar team dynamics.

A more thorough understanding of teams and team dynamics and their related concepts can be highly valuable when working with startups. Understanding shared leadership, constructive conflict and psychological safety along with the ability to see these in practical teams can help coach teams more effectively. Having clear names and definitions for team characteristics helps communicate the team's quality and identify specific problem areas. For example, saying "psychological safety is poor in this team" instead of "this team does not work well" yields much more concrete actions for how the team can be developed. Thus, knowledge of these simple concepts can be very valuable in supporting the startup teams in an investor's portfolio.

### 6.1.2 For startups

Since the quality of the team is such an important factor in startup success, entrepreneurs themselves should consciously make efforts to develop their team. Individual qualities like skills and experience generally develop slowly, but group-level qualities and particularly team dynamics can be considerably improved in a relatively short time span, and this improvement may be extremely beneficial for the long-term success of the company. It was clearly visible in the startup teams interviewed for this study that the best team dynamics were in teams where they were consciously kept up and improved. Also, efforts to improve team dynamics do not take vast amounts of time or resources. Therefore, it is recommendable for all teams to take deliberate actions to constantly improve their teams and especially team dynamics.

To understand the characteristics in the team that need to be developed, the startup team assessment framework presented in Section 4.3 can be used by teams to self-assess and identify specific problem areas. The framework can be used as a basis for creating a team development plan, which helps plan recruitments as well as other team improvement activities. Also, since the framework is largely based on what investors value in teams, it could be used as a basis for presenting the team's strengths to investors to secure financing.

The team dynamics assessment questions can serve as basis for internal discussions where team dynamics are monitored and developed. The best teams in terms of team dynamics that were assessed in the startup interviews had two kinds of regular practices set up for team development - regular team meetings and individual check-up conversations with each of the team members. Team de-

velopment meetings can be handled with varying degrees of formality. Teams could do regular introspective discussions with a defined schedule and agenda, or then less formally, perhaps over a beer or in a hot enough sauna. For individual discussions, one team member — the CEO or someone else — can take the responsibility of regularly meeting with each of the team members and discussing their feelings about the company and the team. Also, since much of the work in modern startups is done remotely and in geographically distributed teams, in may be wise to regularly schedule some time for the team to meet and spend time together in person.

While the focus of this study is not in finding ways to improve team dynamics, some suggestions — beyond simply discussing team dynamics with the team and spending time together — can be made based on literature and the interviews. Losada and Heaphy (2004) found that in the members of best teams often give each other positive comments, ask questions rather than focus on their own viewpoint and pay close attention to others' opinions. Focusing on these behaviors can thus improve team dynamics significantly. Out of the three team dynamics concepts, it is recommended to build psychological safety first, since it may help in building the other two. Psychological safety has also been shown to help in establishing constructive conflict (Bradley et al., 2012), and arguably psychological safety can also help in creating shared leadership, since people feel secure about giving others feedback and support. Thus, taking actions to enhance psychological safety can be immensely valuable to startup teams.

Walters and Diab (2016) found that a humble leadership style correlates highly with psychological safety. Personal humility means that one can recognize their own strengths and weaknesses, and present these to others with honesty. This creates an atmosphere where team members do not feel socially threatened by each other, and instead are free to be themselves when interacting with the team, lowering inhibitions about voicing opinions and ideas. It must be noted that this personal humility does not imply "weakness" or a lack of decisiveness. As Collins (2001) found, best leaders can combine personal humility with swift, decisive action when needed, which is of especial importance in the fast-paced startup context. Google has also published a guide for fostering psychological safety in teams, which could be highly valuable for startup teams[1]. Also, one of the entrepreneurs interviewed for this study gave an example of a company practice that they use to enhance psychological safety. When the company decided to shut down an unsuccessful product, the company celebrated the learnings together. This creates an atmosphere where failing is not frowned upon, since it is inevitable in an innovative process. Similar practices could be valuable for im-

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[1]`https://rework.withgoogle.com/guides/understanding-team-effectiveness/steps/foster-psychological-safety/`

proving psychological safety is all companies.

## 6.2 Theoretical implications and further research

Most scientific literature on team dynamics focuses on a single phenomenon and studies its connection to team performance. This study synthetizes several of these concepts and studies their practical applicability in startup teams. Shared leadership, constructive conflict and psychological safety are found to be particularly strong concepts in these settings, and are highly valuable for practical use. Further research should be made to study the connections of these concepts to understand how they interact with each other.

Shared leadership was used in this study as a broad concept that emphasizes the inspirational side of leadership. As a term, shared leadership proved problematic in some of the interviews, since often the primary connotations of the word "leadership" were task division and giving orders, not motivation and empowering[2]. Previously, Ensley et al. (2006) have found that indeed the transformational and empowering facets of shared leadership are more important than transactional or directive leadership modes. The interviews of this study support this finding — practitioners agreed that mutual inspiration within the team is more important than that every member directs each other's work. The idea is that in best teams, all members are inspired to work towards the common goal, and spread this inspiration to others. This idea is close to the term of mass flourishing, as discussed by Phelps (2013). In future studies, it might be fruitful to use a different term, such as "team flourishing" or "mutual inspiration" instead of shared leadership to more accurately capture the essence of this idea.

Shared leadership and psychological safety as well as task conflict were found to be observable for an outsider with relatively simple questions. Relationship conflict proved more difficult to evaluate. Currently, research often relies on team self-assessments, which are not applicable in all scenarios. The proposed methods for team dynamics assessment could be used as basis for quantitative research studying connections between outsider team dynamics assessments and team performance, which would pave way for wider understanding of team dynamics as well as provide tools for practitioners. Some researchers, such as Losada and Heaphy (2004) have used complex nonlinear mathematical models to model team dynamics, but these models may produce erratic results under some circumstances (Luoma et al., 2008). Besides Losada and Heaphy's work, there are few attempts to comprehensively model team behavior. To create more accurate quantitative

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[2]The Finnish language, that was used in the interviews, has no separate words for "management" and "leadership". This may have caused some interviewees to interpret shared leadership more as shared management.

models, the concepts of shared leadership, psychological safety and constructive conflict could be incorporated. From a quantitative perspective, an advantage of these phenomena is that their contribution to team performance is strictly positive. Furthermore, the logic that connects these phenomena to team performance is clear, as found in the interviews of this study.

Team dynamics research most often looks for correlations in team dynamics and performance in one point in time. In the interviews of this study, practitioners emphasized the developing nature of the startup process, where the structure of the team as well as its context evolve over time. There is a dire need for quantitative or qualitative longitudinal research that would address how teams and team dynamics change over timespans of several years. The interviews also suggested that different team dynamics emerge as most important in different situations. For example, it could be that psychological safety is most important in times of hardship and difficulty where changes are needed, whereas shared leadership is most important when the team is required to forge ahead efficiently. These contingencies should also be addressed in future studies.

## 6.3 Limitations

Predicting team performance from team dynamics is difficult, and some studies attempting it have resulted in inconclusive, unrepeatable or inconsistent results Jung (2016). Furthermore, even under optimal circumstances, a startup company often takes 5–10 years to reach its growth targets until investors exit either via buyout or an IPO, and most team-related research has only studied teams across much smaller timespans. Comprehensive validation of the proposed team assessment tools would require following the performance of the startup companies for several years after the initial team assessments, which was not possible within the scope of this study.

To address these challenges, the tools presented in this study are only based on the most robust and repeatable scientific findings, refraining from using more specific and speculative results. Furthermore, these tools are never meant to replace or invalidate existing methods of team assessment. The suggestions are meant to be valuable for complementing and improving existing methods, and can be used as basis for setting measurable development goals teams.

The number of startup interviews that could be done in this study was limited, and thus there is room for further development in the team dynamics assessment methods. The list of questions could be expanded to cover team dynamics more thoroughly. Little insight about relationship conflict could be gained through these methods. It could be that it is simply impossible to observe such intimate behavior in a single, short meeting with the team, and a deeper relationship with the team

would need to be developed to see relationship conflict. Also, while the methods succeeded to provide insight on psychological safety and shared leadership, the accuracy of these assessments could perhaps be developed further by more explicit task assignments and evaluation criteria.

Another challenge in adapting academic team-assessment methods for investors is that academic studies usually assume that the studied teams and their members will self-evaluate and present themselves as honestly as possible. By contrast, when discussing with investors, startup teams have strong motivation to present themselves as positively as possible, which may distort their behavior and answers, particularly in self-assessment questions. To address this, the presented team dynamics assessment questions are designed so that there are no simple right or wrong answers. Rather, the questions are designed to show the team dynamics in action — for example, explaining the team's mistakes requires a certain degree of psychological safety. However, it cannot be completely ruled out that some teams might be able to "fake" good team dynamics to outsiders, although it could be that, ironically, successfully faking good team dynamics requires good team dynamics.

Experienced Tekes funding professionals stated that the methods of team assessment presented in this study can be used to improve team analysis and are valuable for team development. However, this study is only the first step into improving team assessments, and there is still a vast amount of work to do to fully understand startup teams.

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# Appendix A

# Interview protocol for investors

## Part 1 - Background

Question 1.1: *Please tell me about your background in working with startups and investments.*

## Part 2 - Example cases

Each participant was asked to think of a real case of an exemplary and successful startup team as well as a case where team-related issues caused problems or failure. The questions in this part of the interview were asked for each of the cases.

Question 2.1: *Please describe the team in question.*

Question 2.2: *What were the most important team characteristics that influenced this success/failure?*

Sample probing questions:
- Why were these characteristics good/bad?
- Did these team characteristics surprise you?

Question 2.3. *What shortcomings did you see in this team when you began working with them?*

Sample probing questions:
- Were these problems addressed and fixed? How?

- Did these shortcomings impact the team's performance?

Question 2.4. *Please describe the leadership in this team.*

Sample probing questions:
- Was a single person leading, or was leadership shared?
- Were the team members able to make decisions autonomously?

Question 2.5. *How were critical strategic decisions made in this team?*

Question 2.6. *Were there changes in the managerial team composition during the startup's lifetime? (Why?)*

# Part 3 - General team characteristics

Question 3.1: *Please describe your ideal team.*

Sample probing questions:
- Why is this particular characteristic important?
- What are the most important characteristics out of the ones mentioned?

Question 3.2: *What team characteristics would make you not invest in a startup company?*

Sample probing questions:
- Why is this particular characteristic harmful?
- What are the most significant "red flags"?

# Part 4 - Team assessment methods

Question 4.1. *What is your process in evaluating startup teams?*

Sample probing questions:
- Why do you do each specific part of the evaluation?
- How do these methods allow you to identify specific characteristics of the team?

# Part 5 - Team support practices

Question 5.1: *Please describe your process in supporting a startup team.*

Sample probing questions:
- Why do you do this specific action?
- What kind of influence so you think these actions have on the team?

Question 5.2: *Can you think of ways how startup teams could be developed better?*

# Part 6 - Opinions on theoretical concepts

In this part, the interviewer introduced concepts from team dynamics literature to the interviewee with brief definitions. The concepts discussed were:
- Shared leadership
- Interpersonal affection
- Team cognition
- Conflict types
- Psychological safety
- Trust and dependability

For each of these, the interviewee is asked:

Question 6.1: *What do you think about the importance this characteristic?*

Question 6.2: *Are you able to see this characteristic in teams?*

# Appendix B

# Interview protocol for entrepreneurs

## Part 1 - Success case analysis

Question 1.1: *Please describe your founding team.*

Question 1.2: *Were there changes in your management team composition?*

Question 1.3: *Please describe the team dynamics in your management team.*

Sample probing questions:
- How have these characteristics influenced your success?
- How did these dynamics emerge?

Question 1.4: *Did the team dynamics change over time?*

Sample probing questions:
- Why did these changes happen?
- How did this change affect you decision-making?

Question 1.5: *How was the team led?*

Question 1.6: *How were critical strategic decisions made in this team?*

Question 1.7. *Did investors or other outsiders coach or advise your team?*

Question 1.8. *Do you think your investors understood how your team worked?*

# Part 2 - Perceptions about teams in general

Question 2.1: *Please describe your ideal team.*

Sample probing questions:
- Why is this particular characteristic important?
- What are the most important characteristics out of the ones mentioned?

Question 2.2: *What are some characteristics of a bad team?*

Sample probing questions:
- Why is this particular characteristic harmful?

Question 2.3: *How should investors assess team dynamics?*

Question 2.3: *How do you think investors could help startup teams develop?*

Question 2.4: *How would you advise other founding teams about team dynamics?*

# Part 3 - Opinions on theoretical concepts

In this part, the interviewer introduced concepts from team dynamics literature to the interviewee with brief definitions. The concepts discussed were:
- Shared leadership
- Interpersonal affection
- Team cognition
- Conflict types
- Psychological safety
- Trust and dependability

For each of these, the interviewee is asked:

Question 6.1: *What do you think about the importance this characteristic?*

Question 6.2: *How did this manifest in your team?*

# Appendix C

# List of interviews

Table C.1: Investor interviews

| Id | Date | Length | Background and experience |
|----|------|--------|---------------------------|
| A | 9.8.2017 | 72 min | Founding partner of a venture capital company |
| B | 10.8.2017 | 48 min | Managing partner of a venture capital company |
| C | 23.8.2017 | 30 min | Serial entrepreneur, founding partner of a venture capital company |
| D | 25.8.2017 | 48 min | Serial entrepreneur, founder and manager of a venture capital company |
| E | 25.8.2017 | 43 min | Founding partner of a venture capital company |
| F | 30.8.2017 | 52 min | Managing partner of a venture capital company |

Table C.2: Entrepreneur interviews

| Id | Date | Length | Background and experience |
|----|------|--------|---------------------------|
| A | 9.8.2017 | 52 min | CEO and founder of a highly successful startup |
| B | 25.8.2017 | 45 min | Long-term CEO of a highly successful startup |
| C | 6.9.2017 | 24 min | CEO and founder of a highly successful startup |

Table C.3: Startup team interviews

| Date | Length | Number of team members |
|------|--------|------------------------|
| 8.9.2017 | 86 min | 3 |
| 13.9.2017 | 63 min | 3 |
| 26.9.2017 | 81 min | 5 |
| 27.9.2017 | 47 min | 3 |
| 28.9.2017 | 43 min | 2 |
| 5.10.2017 | 56 min | 2 |
| 6.10.2017 | 60 min | 4 |
| 11.10.2017 | 62 min | 6 |