UNIVERSITY OF LJUBLJANA

SCHOOL OF ECONOMICS AND BUSINESS

MASTER'S THESIS

THE ROLE OF TEAM COMPOSITION AND TEAM CULTURE IN CARRYING OUT DESIGN THINKING PROCESS FOR FOSTERING INNOVATION

Ljubljana, February 2020 TAMARA ŽARKOVIĆ

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DT – Design thinking
HCD – Human-centred design

INTRODUCTION

In the 21st century, we are facing a growing number of scientific papers pointing to the great importance of innovation and debating on why companies should consider it as a core discipline. Google search produces about 110,000,000 results on “why innovate”.

Businesses are recognizing the need for innovation as the key strategy for gaining and sustaining an advantage over their competitors. As a result of the knowledge and opportunities that customers and users can provide, businesses are turning towards user-centred approaches to innovation. Through an increasing interest in design as a strategic resource among managers, design thinking as an approach with human centeredness, emerged (Carlgren, Emquist & Rauth, 2016).

Design thinking (hereinafter DT) summarises as a way of creative problem-solving that makes the user the heart of the process. This tool enables business goals and the solution's technical desirability to have an evenly balanced role in innovation by bridging the gap between thinking and doing, all to deepen our knowledge and increase its impact (Brill, 2017).

Innovation is not for masterminds working alone; rather, it is a team activity and a teachable skill. That is why, when thinking about DT as a journey, it is essential to have a good group of travellers to reach the desired destination safely and successfully (Dam & Siang, 2018a). DT process takes a team to the unfamiliar and bumpy ground and challenges all members, requiring them to have a set of characteristics that might be different for various destinations that have to be reached. Teams are created mostly by luck, happenstance, or circumstance, but rarely by a thoughtful design. Leaving things to chance, however, can be hazardous when it comes to actions of fast-moving start-ups, corporations, non-profit institutions, and governments (Malone & Karlgaard, 2015). Team creation for the DT process itself appears under a variety of names in the literature and is the primary research topic of this master’s thesis.

DT process has cultivated a continually growing interest in the business world in the past few decades, visible through mentions in Harvard Business Review and Forbes publications. As an approach, it has been slowly evolving since the 1950s and 1960s, however, mostly within the context of architecture and engineering, which had a hard time coping with a rapidly changing environment. Cross (1982) stated that because of an insufficient name “third culture” it is not easy to give enough recognition to design thinking. Instead, he believes it should be expressed as the experience gathered from material culture and the accumulated knowledge, skills and understanding embodied in the arts of planning, inventing, creating and doing. Nowadays, the DT movement is gaining momentum rapidly with innovators like IDEO and d.school, creating a trail for others to follow. Universities, businesses, schools, and innovative companies have

adopted the methodology to different levels, sometimes readapting it to suit a specific context or value better (Dam & Siang, 2018a).

Research objectives. The purpose of this research is to analyse team attributes and synergy that work in favour of innovating with the DT tool. The research questions are as follows:

- What is the effect of a multidisciplinary approach to the creation of teams for the DT process?
- What influences the creation of collaborative team culture for fostering innovation?
- What are team attributes essential for bringing out the most from the DT process and developing an innovative product/service?
- What is the effect of a regular feedback and peer rating, as a part of the team culture, on team performance?

There are not many contributions to the construction of teams for DT, but those which exist all highlight one core characteristic – the need for multidisciplinary team members with different thinking styles and specializations. That is the reason for the first research question about the effect of the multidisciplinary approach used in the creation of teams for the DT process. The composition of a team is affecting the DT process at every stage, and multidisciplinarity among members is a relevant aspect to take into account when fostering and stimulating creative contributions in conflicting opinions (Fay, Borrill, Amir, Haward & West, 2006). Teams consisting of people with diverse competencies and backgrounds (business, technical, IT…) are more likely to be successful in applying DT, as they can combine methods and switch from more to less impulsive practices, making fruitful discussions during workshops (Seidel & Fixson, 2013).

Another research question is related to team attributes that are essential for bringing out the most from the DT process, and developing innovative products or services. Choosing the perfect team is not always possible, especially when there is a limited pool of candidates, and those who are in should be involved in everything. Therefore, developing the right team culture in order to move forward with the DT process, is extremely important. Some of the attributes embodied within the team culture are ambiguity, collaboration, constructiveness, curiosity, empathy, holism, open-mindedness, etc. (Baeck & Gremett, 2011). Synergy among team members and the environment in which everyone is willing to contribute and participate is a good starting position for creation. Likewise, team members are expected to be flexible and to adapt to cooperative environments, where goals are achieved through collaboration and social independence, instead of having individualised, competitive goals (Tarricone & Luca, 2001)

Furthermore, the advantages of collective learning have been shown in countless studies, and several meta-analyses and books (Triyanto, 2019). This takes us to the next research question: What influences the creation of collaborative team culture for fostering

innovation? The suggestions will be partially based on cooperative and collaborative literature: Garmston and Wellman (1999); Oakley, Felder, Brent and Elhajj (2004); Tarricone and Luca (2001); Holton (2001) and partly on the observations from my own research.

Last but not least, the study will concentrate on the effects of a regular feedback and peer rating as a part of team culture on team performance. These are practical tools that scientific papers recommend for high-quality team culture and better results.

Methodology. The initial theoretical research is supported with secondary data that is obtained from reports prepared by research scholars and universities, books on this topic, reports, and publications of different organizations linked to the business world or psychology, as well as online interviews and journals.

The core of the research is grounded in primary data collected through In-Depth interviews, direct observations, and peer evaluation questionnaire. Detailed interviews with open-ended questions are included as well as observations of various teams' participants. The interviews included warm-up questions, followed by ten to fifteen open-end questions focused on real-life examples and experience within a team (Appendixes 2 and 3), as well as the completion of a peer-evaluation questionnaire (Appendix 4). The attention is focused upon a given experience in teams that conducted the DT process.

Chapter overview. Following the introduction, an overview of the relevant research literature is presented in chapters one through three. The literature review opens with creativity and innovation research, gradually narrowing down to the topic of teams and DT. Within each of the concepts, various research perspectives are presented, displaying the width and depth of this research stream.

The empirical part, chapters four through seven, includes methodology, findings and discussion. The methodology chapter includes the description of used data-collection and data-analysis methods, as well as the introduction of research sample. Following the body of the document, the conclusion summarizes the findings of the Master's thesis. The thesis is closed with a reflective analysis of the scholarly work in light of the newly acquired knowledge and discussion of the potential applications of the findings.

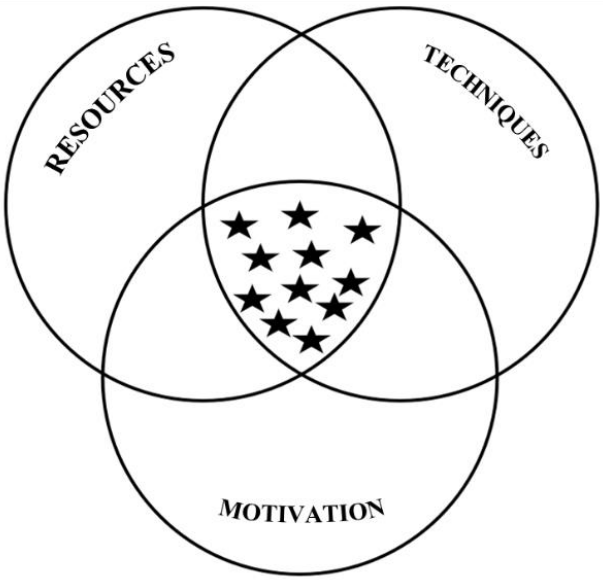
1 CREATIVITY AND INNOVATION

Businesses today seem to be under much pressure to find new ways of innovating their products and processes in order to follow up in the digital era promptly. Plentiful articles appear to highlight different factors needed for a breakthrough in business, namely: investing large amounts of money, a constant search for big new ideas, inspiration, perspiration, imagination, etc.; however, very few articles can go without pointing out to the importance of creativity as one of the soft skills in this regard. In literature, innovation and creativity as constructs have mostly been described as complements.

McLean (2018) explains this complementarity with the example of one of the greatest inventors ever, Nikola Tesla, referring to him as a great painting of how creativity and innovation work hand in hand. This great mind was as a highly creative person who used his knowledge and imagination to create an induction motor and many other technical appliances. Nevertheless, his creation was found useful only once it found its purpose in the electrical engineering and radio technology industry, and become the innovation. Research by Nakano and Wechsler (2018) summarises the relationship between creativity and innovation, and looks into three different literature approaches: innovation and creativity taken as synonyms, distinct characteristics, or as complementary to each other. These variables deserve multiple views so that they can be known and understood in the different fields of knowledge.

Amabile (1988) wrote in terms of "individual creativity" and "organizational innovation" as complements, and presented the intersection shown in the schematic representation of Figure 1, which has had many modifications since then by other authors. It suggests that the overlapping of three components, resources, techniques, and motivation, is a necessity, and the higher the level of each of them, the higher the level of individual creativity and organizational innovation. Even though the enlarging of any of these three constructs brings higher creativity and, correspondingly, organizational innovation, Amabile (1988) argues that motivation is the most important one, as resources and techniques make the innovation possible, but the necessary catalyst is the motivation to innovate, the forward-looking, risk-oriented vision that comes from the highest level of the organization.

Figure 1: The Creativity Intersection



Source: Amabile (1988, p. 157).

Among various techniques for creativity and innovation, DT seems to be receiving a large amount of attention at the beginning of the new century. A scalable tool that can be applied incrementally to improve existing ideas can be applied radically to improve creativity and create disruptive solutions that meet needs in entirely new ways (Brown, 2011). DT is accessible as an approach to innovation in a way that technical R&D is not. Successful innovation approaches balance the requirements of what people need, what technology can do, and what is sustainable or profitable. More attention to this topic will be given in the third chapter of my research.

The driving force behind any business' success is differing in its roots, imagination, and innovation. We are strong enough to change the face of an entire industry, create new markets, and the lack of them today can cause existing businesses and goods to be shut down completely (McLean, 2018). Companies that foster creative thinking and have the right motivation to move forward creative ideas and transform them into inventions, not only as goods but also as business management and manufacturing process techniques, have the potential to bring about organizational progress, increase revenue and change the world (Amabile, 1988).

2 TEAMS THAT ENCOURAGE INNOVATION

2.1 Teamwork

"The issues we face are so big and so challenging that we cannot do it alone, so there are a certain humility and recognition that we need to invite other people in. When you look at any issue such as food or water scarcity, it is evident that no individual institution, government, or a company can provide the solution."

Paul Polman, CEO, Unilever

For an individual, it is impossible to perform all tasks single-handedly. Support, as well as the guidance of other people, is needed in order to reach outstanding results in numerous situations. Complex problems can be easily accomplished if the right individuals are teamed up. A team can be commonly defined as a group of individuals who are working together for a common purpose. Individuals involved in a team preferably should have mutual goals and objectives, and relatively think along the same lines (Management study guide, n.d.). Therefore, it is not possible to form a team of individuals who are not compatible in any sense. Team members should have a similar perception of processes, a similar approach to solving problems and, bottom line, similar likings.

Work environments that are changing rapidly nowadays require individuals who know how to be flexible and collaborative whenever the need for that appears, individuals who know how to team up in an old-fashioned way by reorganizing work, establishing trust, and determining how to collaborate (Edmondson, 2012).

Quick (1992) elaborates on five key benefits of a team, including collaboration, communication, efficient application of resources, decisions, solutions, and quality. Group members willingly invest themselves in a team effort once they learn to support and trust one another. Based on this, collaboration as a benefit is grasped through them passing information freely to other members. In the team, people feel commitment not to let down other members, so they put an extra effort in order to reach achievement, because they want their team to look as good as possible.

While knowledge is becoming more and more specialised, the demand for the involvement of more individuals to deal with puzzling problems grows. Influential leaders who had all the answers and were routing their organizations through smooth and rough challenges by themselves are becoming part of the past. Leaders will have to start giving up "ego" and believing in a collective "we", because the trust in the human system can give the best answers (Rod & Fridjhon, 2016).

2.1.1 Teamwork motivates unity in the workplace

A teamwork environment endorses an atmosphere that nurtures friendship and loyalty. These cohesive relationships motivate employees in parallel and align them to work harder, cooperate, and be supportive of one another. The unhealthy and inefficient working environment is the one where employees are focused on promoting their own achievements and competing with their colleagues, because all of them naturally possess different communication skills, talents, strengths, and working together for a common goal is not encouraged (Wehbe, 2017). Based on a story of Motorola's RAZR, one of the most successful product launches in history, Edmonson (2012) uncovered empirical and theoretical research that identified several benefits of teaming, among which: better organizational performance and more engaging and satisfying work environments. Organizational performance is getting improved by enabling the creation of new knowledge, new processes, and new products, and on the other hand, acting together directly with people who have different knowledge and skills ultimately makes work more exciting, enriching, and meaningful.

2.1.2 Teamwork offers differing perspectives and feedback

Functional teamwork structures provide an organization with a variety of brainwaves, creativity, viewpoints, prospects, and problem-solving approaches. A proper team environment allows individuals to brainstorm collectively, and that raises their chances to solve the problem more efficiently and effectively (Wehbe, 2017). Quick (1992) names communication as another benefit, because there is a much better knowledge flow, which facilitates gaps of competences and expertise in certain areas. All the talents and strengths are being united into a more practical application of resources. More options for a single solution are created by a team than by the individual, while at the same time, choices have to be by consensus, which means they are usually better than the brightest solution of a

single member who did not adapt ideas using help from others. If individuals work independently and have a direct responsibility for the idea, they often end up choosing to propose a safer option, but in a productive team setting, participants feel more confident in proposing more drastic alternatives, as team effort increases the efficiency of having quick input, and multiple sets of skills come into play to help the idea (Baker, 2014).

2.1.3 Teamwork provides improved efficiency and productivity

In a team, members are working towards the same goal or sets of objectives, and every problem that may come out on the way can be solved more efficiently with more hands-on the board (Baker, 2014). Team members start sharing responsibilities, so that everybody is assigned a responsibility based on their specialization, which consequently increases the level of interest, reduces workload and work pressure, and ultimately, the output is more efficient and delivered in a faster manner (Management study guide, n.d.). Coordinating and collaborating as a team and calling on members with specialised skills to complete sets of tasks results in avoiding the repetition of tasks that others are doing (Winder, 2013). Emboldening teamwork by management allows companies or their departments sometimes even to take extra work and generate additional revenue without having to employ more people (Baker, 2014). Eventually, goals are more attainable, optimization of performance is boosted, and employees are more satisfied at work, and all that with an increased work pace.

2.1.4 Teamwork provides great learning opportunities

Working in a team increases the opportunity for learning, sharing ideas and information, networking, and improvement of skills. Cooperating in a team is opening the minds of members to new possibilities and knowledge that the others are sharing, but also enables them to challenge those ideas, give feedback, be a critic of an idea and reach a compromise solution, which increases the outcome of a given project (Winder, 2013). Cooperating on a project also gives a chance for new employees to learn from more experienced ones, to acquire skills that they never had beforehand (Sahu, 2015). Similarly, experienced employees can discover fresh ideas from new colleagues, and, therefore, discover more effective approaches and solutions toward the project at hand (Wehbe, 2017). Questions may be answered more quickly, and concepts understood more rapidly, because every member can serve as an educational resource to other team members (Nordmeyer, 2017). There is no individual without qualities and no individual who does not crave recognition and approval. Therefore, one feels motivated to work with the team and to reach the expectations of other members (Management study guide, n.d.). Consequently, active engagement generates the future expression, encouragement and innovative capacity to problem-solving and generating ideas more effectively and efficiently.

2.1.5 Teamwork promotes workplace synergy

A healthy team atmosphere will serve as a significant mechanism of support for collaboration between team members. If times are difficult, encouragement and feedback are crucial to the project's success, so that emphasis can stay on the overall goal, while addressing problems individually can lead to people becoming frustrated and making irrational and groundless decisions (Baker, 2014). Through working together, individuals get to know themselves better, which decreases chances of redundant conflicts, as when bonding increases, the quality of the project's output rises (Management study guide, n.d.). This cohesion is a very significant derivative of teamwork, which can be useful in the long run, because cohesive members are less likely to confront one another just for the sake of not allowing other ideas to come through and get recognition (Marquis, 2019). Working individually can have some advantages, but at the same time, it has lower morale, because it can prevent growth and development of ideas, whereas working in a group builds morale, because of shared goals, shared feedback, going through smooth and rough situations and uplifting each other (Winder, 2013). Thus, team members can feel a greater sense of accomplishment, they know they are collectively responsible for outcomes attained, and they can nurture others to perform at higher levels as well (Wehbe, 2017)

2.1.6 Promotion of healthy competition among members

Healthy and friendly competition is always right, even among team members, because that is when an individual feels motivated to perform better than his or her other team member by contributing more to the organization (Management study guide, n.d.). Competition between different teams in various kinds of environments can improve productivity, while encouraging team members to collaborate and be more efficient. The team is winning if each individual is winning, even though each individual is ranked against each other, but as a part of the bigger picture, they are working towards the same goal, while they are all part of an environment that challenges them every day (Pearlman, 2009).

2.2 Characteristics of effective teams

Throughout research via the web and written publications, numerous traits emerged on what makes up effective teams. The next paragraphs will summarise the most common traits that are critical in building and maintaining an effective team.

2.2.1 A sense of purpose

A sense of purpose is essentially the ability to understand how what an individual does daily impacts the larger picture, a team, or an organization. Growingly, a current workforce of employees considers engaging in a meaningful purpose as being more important than the paycheck they receive in the end. They prefer to participate in

something greater than themselves (Gatty, 2014). The complicated part is making sure that there is an aligned sense of purpose across all team members. A team's sense of purpose should connect an individual's sense of purpose with the organization's objectives, while individuals learn how their input in the teamwork can make a difference to the organization. A clear sense of purpose helps team members find the motivation to work to their full potential and put extra effort, because the importance of their role makes them enjoy completing tasks (Miles, 2017). When engaging a workforce and comprising a collaborative corporate sense of purpose, it is recommended to take into account three aspects, namely: firstly, business vision statement that should be reviewed; secondly, making sure that everyone is upholding the same perspective on the company's purpose; and thirdly, getting to know employees in a more holistic way (Gatty, 2014).

2.2.2 Established objectives

A clearly defined mission that portrays unambiguous purpose for the team's existence should be the starting point that is followed by setting team goals on a regular basis as well as an active development and implementation of plans (Holmes, 2015). In his book, Brong (2014) writes about the importance of defining a successful outcome and making sure that the team has a clear sense of what has to be accomplished. Otherwise, the right group of people cannot be assembled, and the same goals cannot be shared. For this purpose, team members should reach a consensus or corporate image on what needs to be done, they should share goals, rather than concentrating on the goals of a few people, and only after that, each team member brings their unique perspective and skills to the community (Brynteson, 2013). Afterward, there are a couple of different metrics that can be used when it comes to tracking how team members are doing individually. Staff (2018) noted five useful metrics for measuring team member performance, and as the simplest two, he mentions the attendance which automates time and enables keeping an eye on the situation, and helpfulness that can be measured through peer rating. The third metric is efficiency, which could be measured through how fast each task is performed and how many times the deadline was not met. Initiative and quality, moreover, are suggested by Staff (2018) as performance metrics that are harder to keep track of, but still essential objective measures.

2.2.3 Team members are communicating freely and openly

Goryachev A. (2018) states that communication is the most critical factor for turning a brilliant concept into a monetized product, based on two decades of experience creating his own solutions and leading co-innovations. To set the grounds for greater inclusion, at cisco, they encourage a clear, constant, and respectful communication among the single team and also among different departments, human resources, and even CEOs, so that strategic direction would be apparent to everyone and the innovation accessible. The

research on team communication (Liibert, 2018) suggests using DiSC[1] or MBTI[2] outline as the foundation to comprehend the most suitable communication style for each team, highlighting its importance when team members are diverse, as the effect of it on performance becomes very high. However, communication is not the key ingredient to all the types of tasks that have to be performed in the group, and for some of them it is even a contra-productive element (Hassal, 2009). This study shows that mechanical tasks of the type "the higher number of the final product the better" were not fortified by neither verbal nor written communication, as team members were making fewer origami figures when engaging in it. However, the effect of communication in decision-making tasks was significantly stronger, but, overall, the effect of communication was proven to be of an intermediate significance.

2.2.4 Well-motivated members

People will be ready to contribute more to the team if they are being fostered, inspired and taken care of, and success will stem from their intrinsic motivation, persistence, and vision. Motivation matters no less than the excellent goal orientation or proactivity, as they do not come alone (Tarricone & Luca, 2001). We cannot speak about the motivation at the team level without ensuring motivation at the individual level, as they are functionally similar and interconnected, meaning they perform similarly. Nevertheless, while team action processes are directly associated with an individual performance of a team member, team level motivation is correlated with individual motivation via cross-level influences and mediated pathways (Chen, Kanfer, DeShon, Mathieu & Kozlowski, 2009).

Economy (2016) goes back to powerful, straightforward ways of motivating each and every team member by encouraging happiness. Happiness is vital and actions should be taken if only one member is not experiencing it, as this emotion produces an attitude that is contagious and drives the action of a group. It can be accompanied by a problem-solving suggestion, decent work-in-work monetization, or just a more fun place to work at. Additionally, a constant chance to work on the improvement of their skills is what will motivate team members and make them feel good to be team members, as they can bring both a new share of expertise and additional knowledge to the team as a whole.

2.2.5 Socially and interpersonally skilled team members

Over a century ago, the President of the USA, Theodore Roosevelt said: "The most important single ingredient in the formula of success is knowing how to get along with people."

[1] DiSC - widely popular model provides a useful framework for talking about and evaluating communication styles

[2] MBTI – Personality test Myers-Briggs Type Indicator

In peer ratings in teams, it has been found that interpersonal skills are affecting 32% of the discrepancy in the rating of the performance of other team members (Neuman & Wright, 1999). So as to develop productive and effective relationships with teammates and drive away from the tension coming out of a day-to-day collaboration, members of a team should have excellent social skills to project a success. This kind of skills represent the ability of developing: common ground with other members, short-term relationships that are powerful, but also easy to break, once there is a need to be close to somebody else, trust and confidence in actions of others, and the ability of detecting conflict with the wisdom of easing it (Goleman, 1998). Johnson and Johnson (2009) explored the social skills that positively influence teamwork, including: the willingness to help and accept help from others on work-related and personal grounds; the openness to give feedback on a performance as well as to receive one; sharing knowledge and information, but also challenging others; and highlighting effectiveness of the team to support improvement of the team – as an extraversion and self-efficiency are strongly linked to beneficial work-related outcomes and can significantly lessen the negative impact of low organizational support on job performance (Bedwell et al., 2014).

2.3 Converting loose groups into effective teams

The team is not just a group of people who share their work because they are supposed to be successful and committed; rather, it is an entity that works as a whole and that comes alive when people come together for a common purpose and achieve small victories every day (Presser, 2017).

A dysfunctional team may be frustrating for one and create the animosity towards the goal that is to be reached within the group, and nobody was born with the whole set of skills (project management, time management, conflict resolution and communication skills for a high performing teammate) needed to be productive in a team, which is why a reasonable teaming is required (Oakley et al., 2004).

In his TED talk, Edmondson (2018) suggests that poor teaming will not always result in two extremes, life or death, like it will in hospitals where, due to the necessity to be open 24/7 and having numerous employees who should be ready to work with each other any time, they sometimes end up in a team that is saving the patient's life and they never even saw each other before. However, most of the teaming cases are not this extreme, meaning that some thorough thinking can be put in their creation. According to Edmonson, quality teaming means overcoming the professional cultural clash, which starts with the leadership. The leader has to admit that they do not have the answers, which should be followed by curiosity that gives psychological safety to open up to strangers, as it is tough to learn with the group if one thinks they already know it all. She firmly believes that it is hard to team up if an individual believes in the message of scarcity and sees the others in the group as competition, whilst if this feeling is defeated, something remarkable can be reached.

Something that stands in the way of many teams is having to deal with one or more problematic team members, who are either free-riders or refuse to share their knowledge with others, expecting the appraisal only for themselves. One good practice fighting this issue is presenting the group in the very beginning with a story of a team with Couch Potatoes or Hitchhikers, and asking them to reproduce it in a written form, targeting their feelings on the topic and preventing them from becoming one of these (Oakley, 2002).

Successful businesses are grounded on a coherent human infrastructure, and Presser (2017) points out some factors that should be considered:

- Different people have different ways of serving team needs: A team needs players, rather than robots, meaning that not all functional rules should be predefined, and that people need to have the freedom to do what they do best.
- Wait until the team has practiced together – a lot – before attempting a big play: People should adapt to each other and take some time practicing within low-risk barriers before they are sent out to play in a more significant field.
- Do not forget to share the magic: the leader should not keep his "field of dreams" as a mission or an intellectual property. It has to be shared with the group, so the rest can recognise it as an opportunity to be a part of carrying out something big.

2.4 Effective team members

Teams that are more connected on a personal and professional level tend to be more successful than those that overlook the significance of team members being aware of the impact their emotions and actions projected around have on the ultimate success of the team. Team members who are masters of abilities and approaches that are based in emotional intelligence, or simply, softer skills add more value than pure intellect and perception of deep technical competences and knowledge (Tucker, Sojka, Barone & McCarthy, 2000). Goleman (1998) writes about the ability to put the emotions in order and keep effective working relationships, especially before deadlines, when stress is overtaking and conflicts start arising, by putting the task first in the realization of the goal that is set.

Based on the literature in this field, specific team member characteristics have been identified as drivers of a pleasant teamwork atmosphere, productivity, and success. A few of them are discussed below.

Awareness of one's own emotions as the ability to understand and interpret one's own feelings and reflect them internally has been shown as very significant in teamwork. Team members who are aware of their own emotions will not reach the level of emotional instability in stressful situations when unpredicted emotions are taking place. Instead, they will be helpful in steering the discussion in the right direction and away from the conflict (Wolf, Druskat, Koman & Messer, 2013). Self-awareness is the critical element

for a team's ability to collaborate, even though it takes time and commitment. It is something that requires engagement every day, and means putting curiosity in front of defensiveness, managing anger, and covering blind spots. Yet, organizations usually do not understand it as an ongoing process in the form of team building, but rather as an occasional workshop type of an event (Beier, 2016).

Motivation as a tendency to pursue goals with energy and stamina, going beyond money and status, is another characteristic of an effective team member. Developing from emotional intelligence, motivation is the critical element that pushes forward through all the positive and negative sides of working in a team, because it encourages initiative, perseverance, and dedication, resulting in goal-orientation, focus, and proactivity (Lanser, 2000). Effective team members that are motivated are feeling comfortable in discussing their issues, which leads to their ability to create a positive and motivating team environment, and to motivate their teammates further with constructive criticism. This kind of a team is very goal-oriented and focused on the big picture (Tarricone & Luca, 2001). One model goes a bit further and acknowledges dynamic team relationships that originate in individual motivation and spread over to the team, contributing to performance, which, in turns, goes back to subsequent motivation as a refill (Chen et al., 2009).

Empathy as a skill for treating people according to their emotional reactions is found very popular in the teamwork literature. A study by Hojat, Bianco, Mann, Massello and Calabrese (2014) with the important implications for medical education looked at the degree of similarity (shared variance) between empathy, teamwork, and integrative approach. Common denominators, such as communication skills and understanding the patient's concerns, provided a credible explanation for the shared variance between empathy, collaboration and teamwork and orientation toward holistic approach to patient care. This mean that improvement of any of three variables brings improvement in the other ones, correspondingly. General McChrystal (2015) does not call it empathy, but indicates that for teams to function well, they have to know each other on some deeper level. In order to enhance teamwork, the following three kinds of empathy should be taken to the highest level:

- Cognitive empathy as the ability to think what others are thinking;
- affective empathy as the ability to feel the emotions and motivations that others are feeling;
- conative empathy as the competence of finding yourself doing what others are doing.

Besides, it does not even require one to like the other person in order to empathise with him or her, as once this stadium is reached, it will be easier for all to work together (Seager, 2018).

2.5 Effective team composition and culture in practice

In order to successfully fulfil team goals and tasks, the process of setting up the right combination of team members with suitable know-how, skills, background, and judgment has to take place. However, judging by the extensive literature, nothing is white or black in the team composition procedure, but it all refers to the vast importance it has. The wrong mix of people has been distinguished by many as a cardinal miscalculation when creating teams. According to Guzzo, Salas & Goldstein (1995), selecting individuals with knowledge, skills, abilities, and other simple characteristics that simply fit the job requirements, simple staffing, is not acceptable at the team level. Team level requires a more complex staffing, because one is composing a combination of members that have to collaborate very well, and it is different from matching a person for a well-defined job position. There are some dimensions that are commonly examined in relation to the concept of team composition.

2.5.1 Skills, knowledge and abilities

The individual-fit approach is concentrating on traditional individual-focused staffing psychology, and takes into account individuals' knowledge, skills, abilities, and other attributes, and the position they are supposed to cover in the team. The thorough job analysis and identification of dimensions having to be completed by a particular role in the team are used for analysing the fit of a member (Hirschfeld, Jordan, Field, Giles & Armenakis, 2006; Stevens & Campion, 1994). Contrary to this, a team-based approach to the composition of teams considers generic teamwork skills and the specific unique technical knowledge as often the most significant cause of team failure (Baker & Salas, 1992). Stevens & Campion (1994) are suggesting a variety of specific assumptions for team design. They believe selection procedures should not only measure knowledge, skills and abilities on the individual level but also team level knowledge, skills, and abilities should be determined, and the importance of possessing them highlighted.

An example of a team staffing expertise where the team elements, such as individual readiness, team fit, and a real-world constraint, are recognized regardless of being challenging to measure is by Tannenbaum, Donsbach and Alliger (2010). They have developed an estimate of the individual's best competence for the team in the form of a tool called Team Role Experiences and Orientation (TRIO), which represents a diagnostic survey on potential members' past team experiences and personal preferences when working in one. Figure 2 shows six team roles to which members are being assigned.

Figure 2: TREO Team Role Dimensions

Role	Role Description
Organizer	Acts to structure what the team is doing. Keeps track of accomplishments and how the team is progressing relative to goals and timelines.
Innovator	Regularly generates new and creative ideas, strategies, and approaches for how the team can handle various situations and challenges. Often offers original and imaginative suggestions.
Doer	Willingly takes on work and gets things accomplished. Can be counted on to complete work, meet deadlines, and take on tasks to ensure the team's success.
Challenger	Will push the team to explore all aspects of a situation and to consider alternative assumptions, explanations, and solutions. Often asks "why" and is comfortable debating and critiquing.
Team Builder	Helps establish norms, supports decisions, and maintains a positive work atmosphere *within the team.* Calms members when they are stressed, and motivates them when they are down.
Connector	Helps bridge and connect the team with people, groups, or other stakeholders *outside of the team*. Ensures good working relationships between the team and "outsiders".

Source: Tannenbaum, Donsbach & Alliger (2010, p. 4).

2.5.2 Diversity

With the end of the 20th and the beginning of the 21st century, a great deal of research has been conducted to examine the compound relationship between team success and team diversity. Miller, Burke & Glick (1998) simply defined team cognitive diversity as the extent to which team members deviate from each other in the background that includes expertise, experiences, and viewpoints. Using theoretical arguments from cognitive diversity hypothesis, some researchers defended the positive influence of various cognitive attributes team members bring to the table, with the reasoning that it endorses creativity, innovation, and problem-solving, consequently resulting in better outcome of teamwork (Hambrick, Cho & Chen, 1996).

Research workers have, among other more complex parcelling, defined "surface-level" and "deep-level" diversity, with surface-level diversity referring to immediately detectable biological distinctions, such as age, gender, education level or race/ethnicity, and deep-level appointing to heterogeneous attitudes, beliefs, and values that are noticeable after some meaningful team interactions, not in the early team life (Harrison, Price & Bell, 1998). Nevertheless, meta-analyses by Bell, Villado, Lukasik, Belau & Briggs (2011) proves that deep-level characteristics are more powerful influencers on team performance than surface-level ones. Surface-level differences affect the team to the

level of its variables being recognised in the team (Harrison, Price, Gavin & Florey, 2002).

Accordingly, when it is perceived on higher levels, the conflicts arise due to racioethnic diversity and distrust and decreased satisfaction when the broader organizational context was relatively more racio-homogeneous than heterogeneous (Martins, Milliken, Wiesenfeld & Salgado, 2003). Additionally, Cox and Blake (1991) found the heterogeneous age an effective human resources strategy, which proved to have a very positive impact on the outcomes, due to bringing a broad spectrum of viewpoints, perspectives, different understandings, and wisdom, which improved team problem-solving and decision-making capacity. Williams & O'Reilly (1998) agreed with this theory by pointing out how healthy debates and different perspectives brought by heterogeneity excludes short-sightedness of a homogeneous team; however, they claimed that there is no consistent main effect of team diversity on organizational effectiveness.

Ultimately, team diversity can provide organizations with much competitive advantage if they understand that there is no team construction with a uniform effect on all treasured outcomes, but moving individual attributes to the compositional ones would sooner or later magnify efficiency (Horwitz & Horwitz, 2007).

2.5.3 Team size

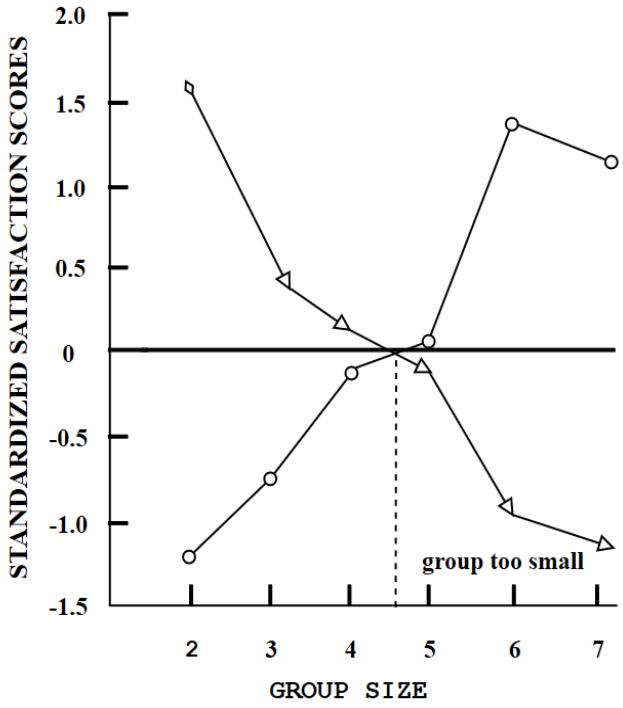
Team size appears as another critical variable that affects performance, and it is valuable in team construction theories, and they all seem to agree to one point. Large size groups bring more harm to success. Magjuka and Baldwin (1991) suggest that a team size affects team operations in a predictable style, as, on the one hand, a large number of team members brings more skills and resources to the team and, consequently, increases the output, but, on the other hand, it complicates the relationships, interaction and coordination, decreasing the overall satisfaction, which affects the final grand output. Large size teams deliver weakened returns by making it difficult to integrate the group and create cohesiveness; furthermore, additional team members are bringing arising conflicts impossible to coordinate (Dennis & Valacich, 1994).

It seems like this kind of research outcome can still relate to the almost 50 years old analysis by Hackman and Vidmar (1970), when they came up with the optimum team size of 4.6 members. Back then, they composed groups ranging from 2 to 7 members; when the groups completed the work, they were asked two questions:

- Is your group too small for the task?
- Is your group too big for the task?

Figure 3 shows average answers to these two questions via a simple graph indicating the perfect group size ranging around number 5.

Figure 3. Optimum team size: 4.6



Source: Hackman & Vidmar (1970, p. 48).

Ultimately, team diversity and the right team size can provide organizations with much competitive advantage if only they understand that there is no team construction with the uniform effect on all treasured outcomes, but that moving individual attributes to the compositional ones would sooner or later magnify efficiency (Horwitz & Horwitz, 2007).

2.6 Peer evaluation

Peer evaluation has been used in different educational settings for quite some time, but, lately, it increasingly starts to be popular in the organizational context as well. As a great summative and formative tool, literature shows its application in the act of simple grading of team members – giving feedback – that will reveal bad practices and eliminate them. It can also be considered to be a tool for getting the inside information about the team members' performance for leaders.

Doyle and Meeker (2008) discuss the effect of distinct peer evaluation schemes on student learning, team commitment, and, consequently, team performance. They were unable to identify the correlation between team assessment scores and team performance. They concluded that even though the majority of students rated other students very well and only a small number of cases were extremely poorly rated, the individual rating was consistent with the team member rating, meaning that ratings were on performance rather than on a personal basis.

The effective teamwork evaluation represents a comprehensive and well-combined mechanism, including the evaluation by the team leader or instructor, peer evaluation by team members, and self-evaluation by each student (Crews & North, 2000). Though, it shows that peer and self-grading are different from their team project grades given by the instructor. Nevertheless, Willson (2004) points out the importance of these two assessments for improving the accuracy of the overall student grades as well as allowing team members to deal better with the laziness and free riders. Students seem to be freely asking more questions about what they do not know as they are getting more comfortable through constant peer ratings. Also, they seem to be sharing more ideas and knowledge in these conditions (Dewi, Nurkamto & Drajati, 2019). Eschenbach (1997) indicates the benefits of performing a mid-term and end-term evaluation. Her study shows that students seem to be more motivated to contribute to the team after mid-term evaluation, probably as they acknowledge that their teammates and leader do not approve of their weak contribution, and they are on the right way of becoming more lucid thinkers than before. While, at the same time, many students find the end-term evaluation very gratifying for the work done, even more important than the final letter grade itself.

In the interval, organizations are also moving away from annual performance reviews and considering alternate ways of evaluating employee success, including peer evaluation. A prototype optics manufacturer from Ontario, Optimax, is giving more room for workers to have their say in seeing quality of other peers, and it finds this an effective way in accomplishing the company's mission, vision, and goals. In this company, in which trust, respect, and employee empowerment is seeded, each employee gets a 360-degree evaluation from people who tightly work with them and their supervisors through five attributes based on attitudes and five attributes based on skills they possess (Plympton, 2016). For instance, JetBlue[3] with its five core values, including safety, caring, integrity, passion, and fun, implemented the Lift[4] Peer review program that encourages their whole crew to perceive each other's achievements in those fields. Robin Hayes, the CEO of this company, has given each crewmember the Lift award for a specific achievement in their career (Mosley, 2015).

2.7 Healthy team leadership

A large number of authors shared their thoughts on how the gap between potential and engagement in teams could be closed with healthy leadership styles, and for many years this has been one of the top topics in the business world. Leadership can be defined as a process that consists of one person who sets the purpose and direction to one or more people and directs them to move along together with competence and full commitment to

[3] JetBlue Airways Corporation is an American low-cost airline headquartered in New York City.

[4] Lift is an online social recognition rewards program that allows JetBlue's crew-members to recognise each other.

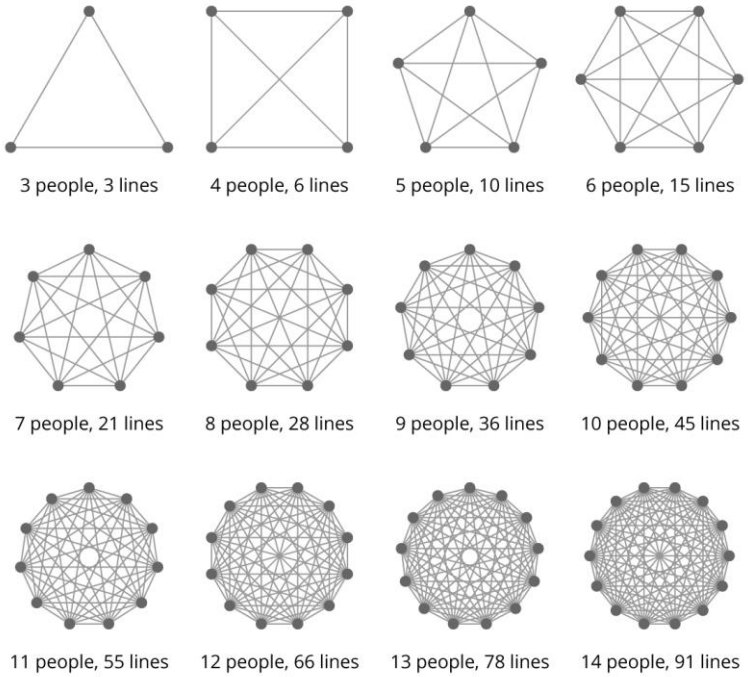
the target (Jaques & Clement, 1994). It is the influence process between a leader and his followers, in which he gets them to willingly do what has to be done (Cribbin, 1981).

Kim and Mauborgne (2014) are grounding their study on Blue Ocean Leadership on the findings which show the massive gap between the potential from employees around the world and their released talent and energy, mostly due to ineffective leadership in the organizations. While concentrating more on strategies rather than psychological aspects, their study suggests that, as the blue ocean strategy can create uncontested market parts, blue ocean leadership can bring to life an ocean of unreached talent and potential in the team. The most effective executives use a combination of distinct leadership styles, each of them at the right time with demands of a particular situation, as it is a mistake to choose one style that suits a leader's temperament best (Goleman, 2000). A leader's role is dependent on the internal and external conditions of the organization (Miner, 2005).

The emergence of the latest technologies and innovations in the business environment is calling for leaders to acquire knowledge about modern procedures and behave toward their followers in a different way (Pearce, 2014). Intrapersonal skills, self-awareness, self-regulation, motivation, and empathy all should be practiced by leaders in order to motivate the rest of the team to work toward the goal. The leader is expected to stand with the rest, or they will search for another chance in different team (Mumford, Campion & Morgenson, 2007). Demands of the 21st century urge leaders to change and work on themselves first, then manage members of their team (Drucker, 2006). On the contrary, in the light of the new century, Zaccaro, Kemp and Bader (2004) shared the trait theory of leadership underlying innate attributes. They believed only people with inborn qualities have the ability and knowledge needed to lead others, and there is no chance any learned skill can change this.

The latest studies encourage decentralization of leadership, principally due to team enlargements and the movement of people, which results in leading teams with members in a different geographical area of settlement. As it is shown in Figure 4, every new member added to a team adds many more lines of communication, making everything harder for a team leader.

Figure 4: Brooks' Law[5] applied to lines of communication in teams



Source: Lighthouse (2020).

The article which reflects the Brooks' law explains the practical case in which Brooks' law was respected, and the outcome was good, as additional team members were not brought in when a technology team was approaching deadline and a couple of extra pairs of hands were offered. Even though it seemed like a potential of added value to the team, there existed concern regarding complications that would be caused due to the increasing number of communication lines (Nicolette, 2018).

However, if we look at large organizations as teams, it is challenging to refuse to add new members on board. A study by Barta and Barwise (2017) suggests managing up, down, and sideways as the only leadership style that works. Their research supports the concept in which senior executives should not only pay attention to how their subordinates are performing (managing down) but also mobilise their bosses (managing upward) and follow the performance of functional colleagues (managing sideways). It shows that upward and horizontal management are about 50 percent more critical for success than management down, though mobilizing subordinates is the basis for starting in order to establish leading credibility.

Throughout the literature, leadership has been introduced as a vital skill for a team to move towards the fulfilment of the targeted goal, but there is no one-size leadership

[5] Brooks' law is an observation about software project management according to which adding human resources to a late software project prolongs it even more.

strategy that fits all the situations found in the leading path. Effective communication is, however, one of the key elements for any project. When using collaborative methods, such as agile principles-driven methods, the level of contact among employees is higher than with traditional methods (Nicolette, 2018).

3 DESIGN THINKING AS FACILITATOR OF INNOVATIVE PROBLEM-SOLVING

Today's economic and market conditions require much more than just adaptation. Today's businesses perceive the average demand for the ever-increasing speed of new product development, transformation, faster turnover of inventories, and willingness to respond to competition. However, these innovations either cause a change or follow the changes that have already been made in the market or other factors affecting the market. Knowledge of problem solving, acceptance and tracking of changes, and above all, innovation are the key features and advantages of both businesses and the economies of which they are a part. The problems that businesses are currently facing in the world are more complex than mere analytical solutions; therefore, interdisciplinarity, creative approaches, redefinition of the problem, continuous prototyping, research of needs, continuous readiness to act, and a different way of thinking are crucial. One of the newer approaches to developing this kind of knowledge is the method of DT. It touches the field of entrepreneurship, which is key to economic activity and development.

3.1 Introduction to design thinking

The DT method began in the late fifties and early sixties with the finding of what design actually is and how it can be actualised as a process (Carlgren, 2013). The development of the concept was presented at one of the first conferences on design methods. These studies of the design thinking are academically linked to the analysis of the process of thinking of designers, with the critical milestone being set after the publication of the book *Reflective Practitioners* in 1983, by Shöna.

The boost of discussions on the topic of DT in connection with business management is explained by written articles and books on the subject by consulting services, such as IDEO (A Design and Innovation Consulting). Collaborating with IDEO, one of the biggest promoters of DT, are Apple and SAP. SAP's co-founder Hasso Plattner made significant investments into two campuses in Stanford and Potsdam, which have been known as centres of DT research and innovation (Efeoglu, Møller, Sérié & Boer, 2013).

Although the DT is derived from the word design, it differs from it. DT is the way designers think. It is a thought process that is used to design objects, services or systems, but with the difference of the end result, which is a polished and useful product or service. It can be applied by people from different backgrounds to solve problems, such as creating new products or services, redesigning business processes, building new brands from the

ground, or merely improving communication (Brown, 2011). DT is presented as a prescription for evolution rather than revolution as it helps solving challenging problems though mental processes to design objects, services or systems (Dunne & Martin, 2006). Brown (2011) indicates DT, as an accessible approach to innovation through the eyes of the end-user, represents a human-centred approach. This concept supports research performed in the field, aiming to get more in-depth insight into users' unmet needs by empathizing with them, while, at the same time, the promotion of inappropriate solutions, which are only guessing what customers would need or desire, is avoided.

Thomas Edison's method can be seen as an example of what is nowadays called DT. He first created the electric light bulb and only afterwards the whole industry around it. Edison was aware of the fact that the bulb had no value without the whole electric power setting. Therefore, he started working on this too, while, at the same time, envisioning how people would prefer to use the product when it is built, so he engineered toward that awareness. The world that we live in now shows his approach was correct (Brow, 2008).

Regarding the areas of application of DT, they are various, and it is often described as a universal approach for problem-solving that can be applied to any circumstances, organizations or association that might be looking for creation of a new business strategy or organizational revitalization, or to almost any other area of life (Brown, 2009). DT focuses on both front-end innovation and innovation work at later stages (Hasso Plattner Institute of Design at Stanford, 2015). Dunne & Martin (2006) were anticipating the significant changes in business education with regards to DT. At the time, the idea was mostly undeveloped, and while managers slowly started adopting this toolkit, academics and practitioners were trying to define it. Based on the great interest in DT approaches at the time, they predicted the development of DT courses in business education to follow. Cross (1988) indicated that all kinds of design in general include education connected with the art of panning, inventing, making, and doing. He referred to them as the "third area" of education that are not being quickly recognized simply because they have been neglected for years and have not been adequately named or articulated. However, nowadays, we can only observe the rising slope of DT added to MBA curriculums.

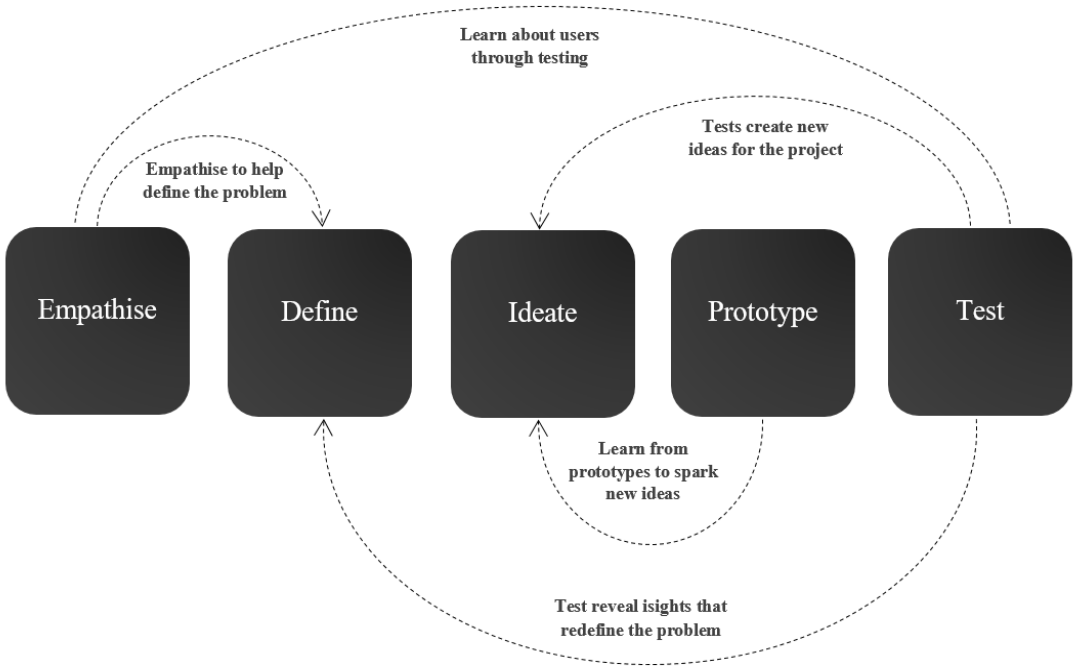
DT process has been modified many times, especially with the beginning of the 21st century, when it started getting the shape it has today. Earlier definitions of DT approaches were more of a circular nature. However, they strongly impacted approaches of the earlier age, such as the one from Stanford d.school that I will be concentrating on, and from which sequential approaches emerged (Efeoglu, Møller, Sérié & Boer, 2013).

3.2 Five stages of design thinking process

A DT problem-solving methodology that helps gaining perspective on the system and having an organised plan for a better understanding and growth can assist both companies and individuals to find a solution to a problem. Stanford's Hasso Plattner Institute of

Design (2010a, 2010b) describes DT as a five-stage process: empathise, define, ideate, prototype, and test. These stages are not always occurring in order, and DT process practitioners find the stages often coincide or repeat themselves on an iterative basis, as they are not meant to work as a formula, but rather as models that contribute to finding a solution to a problem. A straightforward and linear DT method may be illustrated, suggesting that at user testing, one stage tends to proceed to the next one with a logical conclusion. In reality, however, as can be seen in Figure 5, the mechanism is carried out in a more versatile and nonlinear manner (Dam & Siang, 2019).

Figure 5: Design Thinking: A non-linear process



Source: Dam & Siang (2019).

3.3 Design thinking apprises human-centred innovation

DT, as a way of a creative problem-solving technique, puts the user in the centre of the process and allows the business goals and technical practicability to be equally involved in reaching the solid innovative solution and, in the end, all three aspects – user, technical and business – are addressed. The differentiating factor of DT is engaging clients or stakeholders in the process, which gives designers the ability to identify what needs they have beforehand, and only after start exploring and proposing solutions without wasting time or budget by taking the wrong path (Brill, 2017). The user-focused framework enables us to reach deep user insights, which are gained through observation, empathy, and immersion in the users' context.

Brown (2008) contends that developed economies are shifting from industrial manufacturing to knowledge work and service delivery, which is freeing the space for

innovative solutions. It is not enough to ask designers how to make a developed idea more attractive for users, where their role is tactical and limited in creation, a highlight nowadays is on creating new ideas that meet users' needs and desires in a better way, which is preferably a strategic role, and leads to dramatic new innovation. Therefore, he suggests using a human-centred approach that includes research based on direct observation, in order to capture unexpected, and use it as a core around which innovation that precisely reflects what users want is produced.

DT approach to problem solving expresses itself in the collaborative way designers work through participative methods of co-creation, rather than designing "for users", they design "with users". Designers are working in teams, which is the first step of co-creation, but, other than that, a user is also seen as a partner in the whole process, starting with the insight research, followed by prototyping and testing solutions. During the design process, users are recognised as experts in their interactions and experiences, while determining products and services that will please their requirements (Tschimmel, 2012).

In 2009, IDEO developed a DT model as a toolkit for NGO[6]s and social enterprises for impoverished communities in developing countries, which is called HCD (human-centred design). HCD is based on three areas that IDEO's designers find indispensable for human-centeredness, namely: Hearing, Creating, and Delivering; grasping the acronym HCD one more time. The purpose is to help designers hear the needs of constituents in new ways, create innovative solutions to meet them, and deliver the solution that is financially sustainable. This model consists of various toolsets that are not supposed to be followed as an adamant method, but rather represent a good source to choose from when working on a collective design process, despite the social context of the project.

With regard to the similarity of HCD and DT that is popularised by Stanford's d.school having human-centeredness as the fundament, the difference can be observed as well. While d.school's DT is more of a process that a team goes through to create a solution that will be adopted by users, HCD is a mindset to be used in the long run for users they intend to serve.

3.4 Teamwork versus individual work with design thinking

Brown and Katz (2011) pointed out the importance of not leaving out the DT approach only to designers, as it has become too important, and defined it as design methods used by multidisciplinary teams to seek out a broad range of innovation challenges. DT as an approach to problem solving is meant to be performed in teams where each member has their specialization, and with gathered powers, they are getting the most out of the process.

[6] NGOs - an acronym for Non-Governmental Organizations.

DT process is not about titles or hierarchy, and everybody has an equal seat at the table with the opportunity to help the team to explore users' needs in the best way. People with varying skill sets who are unique and bring different ideas and perspectives is what an excellent multidisciplinary team gathered for DT is all about. The potential lies in the collaborative force of bringing together different disciplines in teams that will have the ability to look at things holistically (Brill, 2017). However, different backgrounds are not the only things members should have, and team creators should be paying attention to other aspects when deciding who is going to be right partner for the ride. Dam and Siang (2018b) share their recommendations on how to select the right team members and create the right team culture based on the thorough analysis. These are summarised below.

- The size depends on the imminent challenge an organization is facing – sometimes more teams are necessary working closely together, sometimes members of one teamwork working independently on tasks and gathering occasionally.
- Cross-disciplinary teams provide best results, because different minds, professions (even those from areas that contribute to the journey, but do not dominate it) and personalities are coming together; however, navigating such team dynamics can be a tough part.
- T-shaped[7] people with a depth of knowledge and experience in their fields, but who are also able to reach out to other members and connect horizontally. They are able to look outside their own shapes of solving issues and allow more holistically framed problems to be disclosed.
- Team members should be encouraged to respect each other's inputs in order to build upon each other's findings and ideas to get the big picture.
- All the stages of DT require everyone to be involved, sometimes less sometimes more.
- Flat hierarchy within a team is needed, despite the greater knowledge of more senior team members. Those less experienced should be allowed to share their opinions equally, no one should prevail just because one individual insists on it, and everything should be based on the agreement.
- A leader who is useful in maintaining the right combination of mindsets is an imperative, but at the same time, he or she should be able to maintain a high level of energy and enthusiasm.
- People with an open mindset are needed. They can empathise more effortlessly, they add a great value in the ideation phase, as every idea seems feasible to them.

Ultimately, project-based work highlights the need for greater collaboration and is typically assigned to the team rather than an individual. That does not mean members have to be together all the time, as individuals do the research and get prepared

[7] T-shaped people is a metaphor used by the recruitment force to describe people with depth in expertise, but also the ability to collaborate in other areas and create added value by this.

individually, but strategic sessions in which team works as a whole usually get the most out of the process (Brill, 2017).

3.5 Design thinking in practice: real-life examples

To this day, there has been a collection of DT success stories that have helped companies around the globe to innovate their products and services. There are examples of good DT practices in many different fields, including education, financial services, healthcare, journalism, consumer packaged goods, NGOs, retail, tech, transportation, self-improvement, etc. A couple of these stories are presented in the following content.

The period 1985-1977, in which the company “Apple” struggled, started to come to an end when its founder Steve Jobs returned and started implementing certain DT characteristics, which helped set up the vision that has been used until today. The needs of the business took the second place, whilst people's needs and desires were put first, and empathy built up inside the company helped people to start loving Apple's products and becoming attached to them. Designers started considering both the form and function of the product, rather than just concentrating on engineering work, and it resulted in user-friendly and straightforward devices, taking over complex hard-to-use products. DT helped Apple innovate while placing its customers at the heart of the process, and the company rose from failure (Elmansy, 2016).

Company Airbnb was on the edge of bankruptcy in 2009, with the weekly revenue of 200 dollars. Three founders, along with the creator of business incubator Paul Graham, were analysing the behaviour of their advertisements in New York to figure out what was going wrong. They noticed that photos representing flats that their potential customers could see from ads were not of good quality or not a good example of the space for which people would pay in advance and go and accommodate themselves. Luckily, one of the founders enrolled in a school where DT was taught, and he learned that they have to get away from computer codes and screens and try to put themselves in their customers' shoes. They followed DT steps and travelled to New York, rented a camera, spend some time with customers listing properties, and replaced the amateur photography with beautiful high-resolution pictures. They asked customers many questions about problems that arise and documented their reactions. They uncovered that understanding users is vital; thus they created a better platform. Today, Airbnb is present in 192 countries and 34,000 cities, and it is known as a platform that revolutionised tourism (BBVA, 2015).

A few years ago, Indra Nooyi was not so confident that she would stay PepsiCo's CEO, due to many years of flat revenue and investors seeing the company as the giant with its brands losing share. With employing a first-ever chief design officer in PepsiCo, they got back on the right track by forcing the DT approach back to the supply chain, and this has been driving innovation. They moved their focus from crunch and taste to the whole user experience, including the shape, packaging, form, and function. Based on the insight

gathered from users, they realised that, for instance, SunChips were cut too big and the consumers had to break them in many pieces before they could eat them. The reason the chips was cut into such big pieces in the first place was the mould. However, customers cannot fall in love with products based on manufacturing they had. DT process within PepsiCo is adapted to the market for which a product is created. In the Chinese market, failure that comes with launching a product quickly is not that costly. Therefore, the process goes more quickly and without a lot of time spent on prototyping, while the market of U.S. processes tends to be more organised, and each step is taken with great precautions (Nooyi, 2015).

4 EMPIRICAL STUDY

For the purpose of this descriptive and qualitative research, a field study in the form of in-depth, semi-structured interviews was conducted. Other than that, observation of teams' participants' behaviour took place among teams that conducted the DT process with the intention to get a clearer picture of the dynamics within their team. Following the completion of the part of the interview (further explained in part 4.2.1), interviewees were asked to fill out the peer rating evaluation questionnaire. The questionnaire consisted of three open-ended questions, one rating scale question, one question with ratings of other individual team members, and two questions where they were supposed to list characteristics. The question list was composed with respect to similar peer evaluation questionnaires found in the literature meant to gather data on teamwork assignments and projects (refer to Appendices 2 and 3 for the interview guide used). Finally,, all questions were modified to fit the purpose of this research. On average, interviews with students and employees lasted eighteen minutes and twenty-five minutes, respectfully.

4.1 Methodology

In mainstream scientific research, qualitative research methods are viewed as a type of social science research that collects and non-numerical data and seeks to interpret meaning from these data. The biggest issue is the transformation of data into accurate results and valid reasoning behind it. In 1998, Boyatzis named “thematic analysis”, which is based on themes, as one of the most commonly used methods for encoding qualitative data. Recently, the thematic analysis was recognised as a method of its own, while, previously, it was widely used in psychology, often with no recognition or separation.

With thematic analysis, researchers are, firstly, looking for patterns within the data to reasonably describe and organise the data, and, lastly, aiming to interpret the phenomenon to the maximum. This kind of an analysis is a good approach to study when a researcher is trying to find out something from a collection of qualitative data, such as interview transcripts, regarding people's views, beliefs, information, perceptions, or values. Themes can be generated from the raw data, using one of the qualitative methods, or deduced from a theory or previous research (Boyatzis, 1998). Raw data, in this case, has been collected

through in-depth interviews and observation. This type of an approach is most widely used, because it can lead to the creation of codes based on theories that are familiar to researchers. Coding involves highlighting parts of the data received through interviews – usually sentences or phrases – and supplying shorthand labels or "codes" to identify their content.

4.1.1 In-depth interview

In-depth interview involves a direct engagement with individual participants, and it can be defined as: "...an unstructured personal interview which uses extensive probing to get a single respondent to talk freely and to express detailed beliefs and feelings on a topic" (Webb, 1995). It represents a qualitative data collection method, where participants can be asked different questions based on their previous answers. It is vital for the interviewer to make the interviewee feel comfortable in sharing information and to be empathetic during the one-on-one engagement, in order to get the most out of an interview.

This method of data association is specifically appropriate when researching topics where identity, behaviour, representation, boundaries, cultural ideals, imagined realities or emotions are in the bull's eye. Data collected through interviews are generally not perceived as accurate as real-life observations. However, in-depth interviewing includes some elements of observation as well (Lamont & Swidler, 2014, p. 154). Still, the essential aspects of situations are often not visible to the direct observer. This is why the in-depth interview has been viewed as a tool that acknowledges facts of reality better than an immediate observation.

Some of the methodological advantages of the in-depth interview include:

- being a fundamental part of most human interactions through communication, questions and attention;
- revealing emotional dimensions of social experience that are not usually evident when the subjects are observed;
- permitting and encouraging systematic focus, especially when comparing different situations, circumstances, and individuals;
- portraying population characteristics accurately (Lamont & Swidler, 2014, p. 155).

Lamont and Swidler (2014) also point out to the in-depth interview limitation. Their research indicates that it is possible to answer more profound theoretical questions only by integrating ethnography, archival study, and many other approaches with interviews. Nevertheless, these approaches will bloom only with powerful questions taking all of these into consideration. Another drawback of interviews is that they can motivate researchers to find solidarity in stories they hear, viewpoints, and perspectives, although it can lead to an image of individual selves. Nevertheless, a significant challenge is the

temporal depth of interviewing or how to capture and represent more fully the historical or temporal dimension of human action.

The interviews performed for the purposes of this research included open-ended questions, follow-up questions, story-telling, and direct observation in order to get to the roots of the problem. Empathy in interviewing, which is used in DT, was used in these interviews, as it allows a smoother flow of conversation with the interviewee. The focus of the interviews was on the digging up for painful points with positive or negative experiences the interviewees had while working in a particular team, in order to arrive at more profound conclusions about the team culture, rather than the straightforward ones. Interviews started with offering post-it notes of five steps of the DT process and five post-it notes of different schools from which start-up weekend participants are coming from. The interviewee was first asked to put them in order from one to five, based on how difficult they were to him personally, and, afterward, to connect stages to the school of the member who contributed the most, as it is presented in Figure 6.

Figure 6: Post-it notes as the icebreaker

Source: Own work.

Based on body language and the interviewee's reaction, the first open-ended question about a specific step was asked. This was a starting point for learning about relationships among the team members. A discussion was led by means of (from ten to fifteen) open-end questions, seeking storytelling, and many follow-up questions, constructed to answer the research questions which were stated initially.

When applicable, depending on the path of an individual discussion, follow-up questions took place. These were designed to provoke storytelling, as well as a reflection on experience and practical examples, such as: “Please, can you tell me more about a misunderstanding that has occurred among your team members during your work in the

field?" Whenever discussion regressed, follow-ups asked for opposing reactions and feelings at the moment.

4.1.2 Observation

Observation is an ethnographic research method with a long history. It allows researchers to study people in their native environments, in order to come to an understanding about things from their own perspective (Baker, 2006).

It is a research method that requires the researcher to spend an extensive amount of time in the field, and sometimes even adopt different roles to get a more comprehensive knowledge of the characteristics or behaviours being studied. Given the degree of interaction with the study group, the researcher must always remain sufficiently isolated to collect and analyse data relevant to the interest issue. There are many different types of tasks that may be taken up by a researcher during an observational study. Baker (2006) examines a couple of them:

- *Nonparticipation*: *the researcher* is not present and observes from an entirely different environment. It is not suitable for a more in-depth understanding of people's behaviour.
- *Complete Observer*: the researcher is present on the scene, but does not participate or interact with observes to a great extent. It is seen as a good starting point for future observations and interactions, when the researcher assumes other roles, or in combination with the in-depth interview.
- *Moderate or Peripheral Membership*: the researcher is maintaining a balance between being an insider and an outsider, between participation and observation. It helps to avoid participation in specific activities, which are not unusual for the interest of a study.
- *Complete Participation*: the researcher goes "native" and studies a group in which she/he is already a member. This role is great for an in-depth understanding. However, it can make the observants feel uncomfortable and not showing their true selves.

This research included only complete observation, where the researcher shared no activities with team members, except the interviewing part with some of them. This did not affect team performance in any way.

Baker (2006) implies that ethics is one of the main elements of observational studies. While observations are generally considered as the least intrusive form of data collection, they can also violate the privacy of an individual. In addition, to increase reliability and validity, researchers should observe different conditions systematically and repeatedly, and vary time and place, in order to reach maximum observational regularity.

4.2 Sample description

Two target groups were chosen for this research to get the responses that will support the title: “The role of team composition and team culture in carrying out the DT process for fostering innovation.”

Ten interviews were carried out with students from five different schools from the University of Ljubljana, who have been working on idea development in special teams for about four months during the entrepreneurship course. Teams were created either before coming to a Startup Weekend or by idea creators pitching their ideas at the beginning of the weekend and inviting students from different schools to join. The photo from the Startup Weekend is enclosed as Figure 7.

Figure 7: 2018 Startup Weekend participants

Source: Own work.

The sample represents four teams, of which one or more members were interviewed, while all of them have been observed as a group of people. Those teams can be described as follows:

Team 1:

- Two female students who came to the start-up weekend together.
- They knew each other from before and are close friends.
- After their pitch, there was no interest from other students to join their team.
- Both students are from the School of Design.
- The team was not among the winners at the start-up weekend.
- The interview was conducted with one female team member.

Team 2:

- Four male and one female student.
- Two of them closely knew each other from before, another member was known to them from the school.
- Two other members joined after the pitch, they are from a different school and had not known the rest of the team before.
- Three students are from the School of Computer and Information Science and two from the School of Economics and Business.
- The team was not among the winners at the start-up weekend.
- The interview was conducted with one female and one male team member.

Team 3:

- Four male students and one female student.
- All five members closely knew each other from before and they are close friends.
- There was no more room in the team for additional members.
- Four students are from the School of Economics and Business and one from the School of Architecture.
- The team was not among the winners at the start-up weekend.
- The interview was conducted with two male team members.

Team 4:

- Three male and two female students.
- Two of them were close friends, but all of them were acquaintances.
- There was no more room in the team for additional members.
- Four students are from the School of Computer and Information Science and one from the School of Design.
- The team won the first prize at the start-up weekend.
- Interviews were conducted with all the team members.

The observation and interviewing took place during the weekend from 23 March 2018 to 25 March 2018. In-depth interviews and moderate observation were examining the efficiency of team composition and team culture among students from Slovenian schools.

To get the perspective of team efficiency and composition effectiveness on a different level, two interviews were conducted with people who followed DT training within teams of co-workers, for the purposes of adapting or creating new products or services for two European corporations, where they are fully employed. The whole observation part for one of the interviewees took place at workshops, while the interview took place in the company three months after the completion of workshops. The second interview was conducted over Skype, whereas the observation of teamwork was not possible, as the

workshops and project happened roughly two years ago. Both interviews were conducted in 2019. Those teams can be described as follows:

Team 5:

- Six male and three female employees in an IT businesses corporation.
- All nine members are work colleagues.
- Six employees are from the development department, one from the legal department, one from finance, and one from the marketing department.
- The team was not very successful with product development, and the project is put on hold.
- The interview was conducted with one team member.

Team 6:

- Four male and four female employees from a food industry corporation.
- All eight members are work colleagues; some are friends.
- Three employees are from the HR department, one from the finance department, two from marketing and two from the sales department.
- The team was successful with service development and their project has been implemented.
- The interview was conducted with one team member.

At the end of each interview, the peer evaluation questionnaire was presented to the interviewee, not for the purpose of measuring their responses, but rather so as to test how comfortable they are completing it and how they react to the evaluation of their peers.

The convenience sampling as a nonprobability sampling technique was used for choosing the research sample, because of a sizeable statistical population where randomization is impossible. With convenience sampling, a researcher can select the sample based on their convenient accessibility and proximity. The subjective nature of choosing with this sampling technique makes the sample less representative of the whole population, but useful when a researcher has limited resources, time, and workforce (Etikan, Musa & Alkassim, 2016, p. 2). Due to a large number of European companies and students in Slovenian schoolss that conducted DT workshops within teams, generalizing about the entire population would be impossible.

With the aim of achieving a high variability degree, the sample members are representatives of both genders, different educational backgrounds, different cultural backgrounds, and various professional experiences and industries in the case of companies. More details on the research sample can be found in Tables 1 and 2:

Table 1: Research sample – students

	School	Gender	Age group	No. of team members
Interviewee 1 Team No.1	School of Design	F	20-25	2
Interviewee 2 Team No.2	School of Computer and Information Science	F	20-25	5
Interviewee 3 Team No.2	School of Computer and Information Science	M	20-25	5
Interviewee 4 Team No.3	School of Economics and Business	M	20-25	5
Interviewee 5 Team No.3	School of Economics and Business	M	20-25	5
Interviewee 6 Team No.4	Computer and Information Science	M	20-25	5
Interviewee 7 Team No.4	Computer and Information Science	M	20-25	5
Interviewee 8 Team No.4	School of Design	M	20-25	5
Interviewee 9 Team No.4	Computer and Information Science	F	20-25	5
Interviewee 10 Team No.4	Computer and Information Science	F	20-25	5

Source: Own work.

Table 2: Research sample – employees

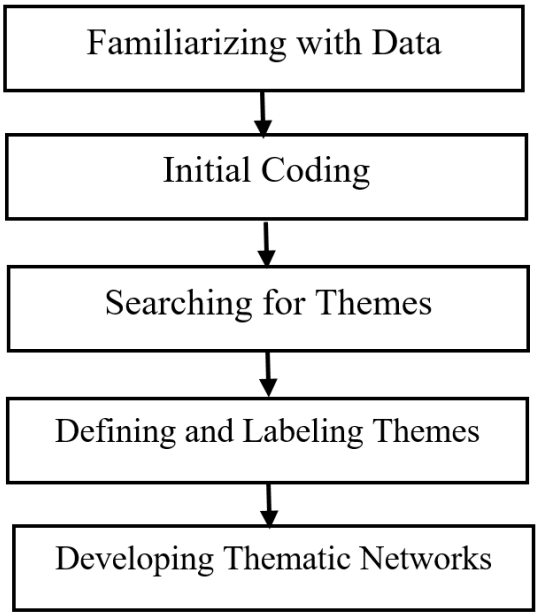
	Company industry	Position / job title	Gender	Team's age group	No. of members	Nationalities within the team
Interviewee 11 Team No.5	IT services	Legal director	F	30-60	9	Slovenian, Serbian, Belgian
Interviewee 12 Team No.6	Food	HR manager	F	25-55	8	Serbian, Montenegrin, Albanian

Source: Own work.

The qualitative research method is not only about what people think but also about why they think so. This is why the biggest issue is the transformation of data into actual results, as well as valid reasoning behind it.

The information gathered through in-depth interviews has been transcribed – the audio recordings have been written and synthesised. Thematic analysis was used to analyse the data, in order to recognise specific trends, following the steps from Figure 8.

Figure 8: Thematic analysis flowchart



Source: Information Resources Management Association (2015, p. 1136).

Firstly, the written interviews were thoroughly read and understood. The next step was initial coding with highlighting various phrases from transcribed audio recordings corresponding to different codes, where each code describes the idea or feeling expressed in that part of the text. All the data was collated into groups identified by code to give an overview of the main points.

After the codes were created, the patterns were identified among them, and several codes combined to start coming up with themes that are generally broader. To make sure themes are a useful and accurate representation of data, they were reviewed. At this stage, some themes were split up, combined, and new ones created. This was followed by the formulation of what exactly is meant with each theme, so as to improve the understanding of the data. Moreover, the thematic network was developed, and the analysis of the data was written up and reflected upon in the following chapter.

5 FINDINGS FROM THE EMPIRICAL STUDY

Firstly, it is essential to note that the purpose of this study is not to provide any kind of generalization or conclusive findings relevant to other settings because of the research's exploratory nature. Instead, the focus is on understanding and explaining how different teams' function when seeking innovation while applying the DT tool. It is then possible to use the achievement of this work to provide recommendations and guidance for future related research.

Analysing the data collected through interviews, five themes, which will be discussed in this section, emerged. The five main themes were:

- Diminished need for one-person guidance
- The urgency for divergent specialties
- Tight relationships and predominance within a team
- Attitudes toward assessing or being assessed by fellow teammates
- The effect of team building activities and motivation

5.1 Diminished need for one-person guidance

Prominent leaders seem to be blurred out in the DT journey. When the followers are already motivated for the work they do, there is no need for the leader to try to enthuse them. Innovating with DT seems to be an assignment among students where one person's leadership does not bring an additional value until thereafter. In the early stages of DT, students find being engaged in tasks inherently satisfying, so much so that practically everyone performing the tasks finds them interesting and enjoyable.

With each new step of the process, a new person takes up a leading role, based on their character attributes, professional background, education, or culture. Individuals often have different interpretations of the same concept or idea, because of their varied backgrounds and experiences, but most of the time, they give the lead to the most qualified person in a certain area.

The interviewees themselves pointed out that working together in the DT process in a collaborative fashion, by means of which ideas are shared and combined by team members, criticised and scanned for weaknesses, does not require strong leadership of one person. Here is what they said:

- "I believe that it is natural, and not everybody is built for everything, but they have at least one step where they drive our performance with specific know-how. I am a good listener, for example, and speaking to people openly does not require a lot of effort from me, so the other girl and I took the lead in empathy. However, one person is not capable of being the strongest figure all the way through." (Interviewee 10)

– “There is no need for a leader in such a project, and we understand each other well in our team. The collaborative nature of DT circumvents all difficulties by including all team members in a workshop-based approach from the very beginning. As each participant has what it takes to carry that burden to their final destination, each of us takes a little bit of the burden. “ (Interviewee 3)

Furthermore, when the talents of every single member are clear from previous experience, a different person takes the lead with each step based on their appropriateness. This significantly improves the process flow.

– “Our team functions with multiple leaders. As we are a team of friends, we know what talent each of us has at their disposal, so I believe we will come to the finish line without one person who would be holding our hands. Everyone was somehow assigned a certain part of work even before the start-up weekend has begun. Also, DT is much more methodical than other projects I have been a part of, where there is a definite need for a leader. Project cycles are easier to handle because you have some steps and bounds between steps to guide you. You see a clear path, and it is much easier than working on everything at the same time.” (Interviewee 5)
– “One guy brought the idea, introduced it to us, and was in charge of it to a degree, albeit at the very start. The other one is guiding because he used the DT method before, so he knows all the steps well. Otherwise, I would not describe him as a leader. The third person knows how to put together all the pieces, and so on. For each stage, I think we have got a different person leading, but basically, we are all working on everything.” (Interviewee 2)

Students understand, though, that even in such a project where they do not need a strong leader when competing in the development of their ideas, the corporate level requires one:

– “It is not the same as at the corporate level where each project needs its very unique leader who will bear all the pressure and eventually take full responsibility for the entire team's success or failure.” (Interviewee 3)

Hence, with all the steps previously explained in detail, at workshops, team members have a simple understanding of the task in their minds, which is organised, systematic, and unambiguous in all respects. Unless they have been very inattentive, team members know what to do, and mostly need very little further attention and guidance, at least from the task-focused part of the project.

In an atmosphere of a structured organization, where the whole mentality and culture of the company are about the development of career ladders and power, leadership is more necessary and a kind of precondition even with projects that use tools like DT, which are already systematic enough. In the corporate environment, the project has to be initiated by one person, and the same person with the help of others has to bring it to completion.

This person is viewed as a pretty obvious leader, especially with the possession of visionary leadership style:

– "We had a leader who was assigned from the highest level to be the project initiator for our region. She worked hard to keep us all focused, as the project lasted half a year. We all understood what had to be done at every step of the way, but she was making sure it was finished. It is hard to coordinate a team of eight people, each with many responsibilities, the projects they lead, the divisions they are in charge of, and so on. She was a visionary leader. Through inspiring team members to share new ideas, she had a strong ability to drive progress and lead in times of transition. She has continued to point out to our small successes and inspire us to continue with the same enthusiasm. Even when she was on sick leave, she would call or email all of us with tailor-made instructions, so the rest of us can have a productive meeting without her. I do not think we would have made it with all the other things on our plate if it were not for her leadership and energy." (Interviewee 12)

Even though sometimes the project leader is not the most harmonic person and is lacking leadership competencies, he or she continues to be one, as the corporate environment dictates so:

– "A colleague from the development department presented his idea, which was approved by the Board. First, they suggested that seven employees, including myself, take part in it, and the development started with DT workshops. Of course, the idea generator became the leader. He played an important part in encouraging us to meet and getting as many members as possible to attend. I cannot say that he has been very successful in doing this. We had mild arguments, and he was not a great motivator." (Interviewee 11)

When the team of students in which the fundamental idea generator works focuses on the task and collaborates well together, the members of the team will act as effective leaders in the areas which suit them best, build motivation, and show the way forward:

– "My friend and I developed the initial idea, though none of us is a team leader today. We lacked both business and technical knowledge to be able to cultivate our own product. We have put together a team to be able to do that, and if someone else takes the lead, I will not feel less accomplished because of that." (Interviewee 9)
– "In the beginning, two idea creators were leaders and were the most active members trying to motivate the rest of us to begin working on improvements. They seemed to know what they wanted from this project, and we were glad to follow them, as our skills were greeted with pleasure. However, the rest of us did not end up taking a back seat, but with each new task, someone else was a new guide and decision-maker." (Interviewee 6)

It is odd to some students not to feel a desire for guidance in the DT team, as they have never encountered such comfort in their previous team projects. Those used to being in charge and taking up the majority of work on themselves feel relieved:

– "It is strange, every time before when I worked in a team, there was one clear leader. This time, we do not have the urgency for one. There has always been one person in charge of my former teams, and it has made life easier, but this kind of structure makes more sense in this process. I was always a leader who assigns what to do to others, but I feel much more comfortable in this role. If everyone is going to do what they are meant to do, I am not stressed out, and everyone is motivating each other." (Interviewee 2).

On the contrary, one interviewee admitted that they needed a leader urgently to tell them what to do because they do not have a clue. While observed, most of the time, they seemed quiet and too shy to seek help. They did not want to give up their dream idea, but could not see its bright future if the two of them continued to work without adding new members to the team:

– "I am an artistic soul, a designer, just like the other team member, my friend. This whole method is understandable to us, although we were totally lost with all the phases, except for the prototyping. I cannot even think about what is going to happen when we get to calculating costs and similar things." (Interviewee 1)

5.2 Urgency for divergent specialties

Team diversity, in terms of a broad spectrum of views, experiences, and diverse understandings, has many positive attributes that make the most out of the DT process, which seeks innovation. Cross-functional collaboration endorses creativity, innovation, and problem-solving, consequently, resulting in a better outcome of teamwork. Both students and employees find this kind of multidisciplinarity becoming a need for ever-expanding new technologies sooner or later in the process.

Although it can be a bit daunting to build a team that involves people from different backgrounds, such as education, profession, age, or just personal characteristics, outcomes seem to be worth the effort. The need for a high level of diversity within teams was assessed by both students and employees to have a positive influence, and is fundamentally vital for success. However, they tend to come to a deeper understanding of this gradually, and toward getting to more complex development phases:

– "Brainstorming is the weakest point of our team. When you are working on an application with two more computer scientists and keep getting too much input, it is tough to keep everyone on the same page. There are many questions – why we would not do this or that. We are skilled in this sphere and able to create whatever adaptation, so the whole team is going too wide, and we lose two hours in a second. A fresh eye

with different backgrounds, such as design or marketing, for example, would probably immediately eliminate 80% of our ideas and probably even direct us to a different path." (Interviewee 2)

A preference to meet people with different skill sets is something that brings certain people to competitions like this start-up weekend at the School of Economics and Business. They are enthusiastic about working on some idea developments aside from school and in need of different competencies, so they plan and seek out for them.

- "As a student from the textile school, I was brought on the team to downturn the homogeneity of the computer science team, and I think they see great value in my contribution. However, we could use many more different backgrounds. The economy student is going to be urgent, because we do not really understand how the price creation works, or where to turn for investment later on. I believe, however, that these two faculties really complement each other, since textiles are typically far from technology and are actually becoming increasingly popular with electronic textiles. However, I would benefit a lot more if a team had a lot more disciplines on board." (Interviewee 8)

Interestingly, a couple of interviewees were particular on lacking people with more exceptional social skills to help them perform the empathy stage of DT. In this situation, all team members showed unwillingness and discomfort to go out into the field and approach strangers.

- "Interviewing random people was the most frustrating thing. First of all, we did not know how to approach the person without creating an awkward situation. Each member was reluctant to do it. I wish we had at least one totally open-minded person who would have gotten us the most out of those conversations." (Interviewee 4)
- "If we decide to continue with this idea, we desperately need more people with great interpersonal skills to be able to empathise and help us understand customers better. We are IT people, and it is not a secret that we are not great with this. I wish we had thought about that before we started building a team." (Interviewee 6)

The corporate environment seems to be more mindful of the multidisciplinarity criteria before the project even begins, in the team creation phase. Even if they make a construction error, it is the employee pool to choose from that can be easily reached and applied to the team to fill the necessary skill gap.

- "I was the only one with a different background until after the workshops. Soon after, we realised that a fresher brain is what we need, and ended up making the team more heterogeneous, by adding people from finance and marketing. There was a need for divergent points of view. Specific ethnic backgrounds have also been integrated." (Interviewee 11)

Nonetheless, trying to make a perfect combination of staff by minding all the parameters, corporations sometimes go to extremes, which causes loss of know-how and incomplete participation of worthy members.

– "I have been involved in the creation of this team, and I cannot complain, but let us look critically at it. At the outset, we took our time to think about the right combination of people for a project, their backgrounds, their past corporate and project contributions, their personalities, and their careers. I have to admit, however, that maybe we produced it in such a way that it looked good on paper, and thereby missed some of the natural flow of action through our collaboration. For example, two of our entry-level and ambitious employees had an urge to show off due to the presence of senior management officials, while we were all on the same level within the team. This resulted in more experienced team members riding freely. They saw someone else is ready to do the majority of the work, so that caused a totally divided attention from their side. The other flaw was a significant age gap, which caused incapability to find common ground in some cases." (Interviewee 12)

While there was no interculturality in the student team with all the members being Slovenians, employees are open to different cultural backgrounds in DT teams, and they worship the diversity. They are, however, used to it, as their both corporations are international.

– "Diversity in cultures is something we benefited from. We had a mixture of Serbian, Montenegrin, Greek, and Irish employees." (Interviewee 12)
– "Specific ethnic backgrounds have also been integrated. There were two of us from Serbia, one guy from Belgium, and the rest of the team were Slovenians. Our company generally has a welcoming multicultural atmosphere that embraces this as a great benefit, so all projects often include people with different cultural backgrounds." (Interviewee 11)

It may be worthwhile to add new people to achieve higher levels of diversity and occupy more fields, but at the same time, certain participants should be excluded from the team, so that it does not reach the overstuffing point, which would be hard to coordinate. This is difficult to do in the later stages of the project, but the interviewees conclude that it should be achieved with the first recognition of some particular knowledge deficit and surplus of the other. The takeaway, however, is reconsidering the structure of the team before the project has started.

– "I would have made a much more diverse team. It would certainly not have too many IT professionals from the beginning. There are so many of us now. I cannot recall a meeting where all nine of us showed up, five tops." (Interviewee 11)
– "We currently lack a technologist to test quality levels. We are also short on an economist to work out the cost and profitability. However, I am worried that adding

new members will cause chaos without excluding one or more of us. It now depends on whether we profit from new knowledge more than we could lose with disrupted coordination." (Interviewee 9)

Interviewees also shared their views on the perfect size of the team based on the conditions given in the project of interest, which is concluded using a DT method. On average, they picked a five as a reasonable number of members, four being a lower border and six an upper border.

5.3 Tight relationships and predominance within a team

The interviewees have the understanding that they should be searching for the useful skills and character features in the potential team members to create an effective collaborative team culture. Moreover, they know that they have to choose team members based on skill expertise or traits, such as abilities, bringing value to the team, openness, efficiency, accountability, and trust. Nonetheless, because of one trait – trust – they tend to create a team of friends, if possible, to stay in their comfort zone, which can make a decision-making later on very troublesome.

Teams of people with close personal relationships typically start with an idea development quickly, as they know each other well and can express themselves freely, bypassing the initial meetings meant to figure out who is more or less eligible and in which segments. However, this lead is not in their favour for long, because once the group of total strangers or people who do not have close personal relationships break the ice, they tend to be more productive due to fewer conflicts. The interviewees point to the ease of pushing their own ideas while interacting with friends in the team, which leads to opposing views that no one is willing to step away from, as well as the inability to point out each other's mistakes:

- "Since high school, all five of us have been friends, and we agreed it would be great to work on the idea development together. It seemed appealing because you trust them, you know how they think, and what their talents are beforehand, so it seemed we would be complementing each other well with everybody contributing their expertise. Nevertheless, collaboration can get tricky and tough because people lose breaks and keep pushing their ideas to the point of exhaustion. We already had such an issue with everybody standing strongly behind their own opinion and not allowing others to change it with their point of view." (Interviewee 4)
- "Teaming up with close people is not as advantageous as I thought. We are not listening to each other. That is why we needed a very long debate to resolve the conflict and decide on something. We wasted an hour to end up going back to the original idea. We are having fun, too, but internal jokes, in the meantime, are prolonging everything. When we get back to work, we are tired and not as inspired." (Interviewee 5)

The interviewees told a story about the negative experience from the past, where they had a formal or informal project with close friends. They struggled during the whole process, facing disagreement at each corner, and put friendship at a serious risk.

– "I remember starting a small project with the intent of throwing 30th birthday party for one of my close friends. I divided the work with three friends and started organizing a celebration for 100 people. We put much time in through speaking on the phone about it, meeting over drinks or dinner to see where everybody is standing with their assignments. I have to say that we had many conflicts over that time. We disagreed a lot. I think this high cohesion and closeness among us for 15 years did not help us a lot in working as a team. The road to the final destination was rough." (Interviewee 12)
– "I used to have a few negative experiences, because telling friends they are doing something wrong is tough. That is why, last year, I lost contact with a friend for a few months. When we know each other personally, we tend to trust each other, and we believe that we are aware of all their traits and capabilities, but you mostly get proven wrong, and have to tell your friend that their ideas are not that great. The personal aspect in relationships tightens my hands, and I cannot be completely frank about business-related things, because friends mostly take that personally." (Interviewee 2)

Nonparticipating observation of 48 teams during the start-up weekend has shown that close relationships among team members can sometimes create a "team-within-the-team" phenomenon that tends to dominate the rest of the team members. This occurs when a group of friends engages additional members to fill some kind of norm or simply get additional points, or when a couple of friends are allocated to the same team by chance.

– "The positive side is knowing each other's habits, skills, and the way to encourage each other. Though probably the worst case is if you are a part of a team and a couple of other teammates are friends. I had an experience of three out of five members knowing each other well, and they functioned as a team within a team. They were aggressive with their points of view and held a strong unity that resisted anything the remaining two of us would have said. I felt trapped and useless. I totally lost my interest in the project and continued to free ride along. I felt very uncomfortable." (Interviewee 6)

Domination of two or more friends in the team is something that other members are instantly anxious about at the beginning of the project, although it does not occur every single time. If people create the team with a firm purpose of the idea being successful, they will be appreciative of additional input and will not try to dominate.

– "I was afraid that two girls who came up with the idea would be bossing us around as they have known each other for a long time, and we are not in such a close relationship with them. It turns out, though, that they are equally open to all of us and we all

appreciate each other's input. It is inspirational to work in such an environment." (Interviewee 7)

- "When I joined this team, I only knew one of the team members personally. Surprisingly, in this project, I have a positive experience working with a well-known person. " (Interviewee 2)

A single member's predominance is also a common occurrence. Individuals that display higher levels of superiority within a team often achieve higher levels of control. Some actions can make a person seem more capable then they might actually be. The other members get silent and start losing interest in helping out with the project, because they feel left out, silenced, and unappreciated. Some of the interviewees have been in such a position:

- "He would thank us all sarcastically and say that it would be done his way. At that point, I started losing interest, and my work was based only on the fact that I had to do it. I could not add value to the project in the same way I could if I had been heard." (Interviewee 9)
- "We had to come up with a message that our video was trying to communicate to potential customers for test purposes. There was a lot of discussion and brainstorming. Still, no one was able to change his idea even slightly. Soon after, I started losing interest and motivation. He seemed to listen, but what he ended up doing was a completely different story. " (Interviewee 11)

5.4 Attitudes toward assessing or being assessed by fellow teammates

The majority of students stated that it was the first time they were asked to participate in the assessment of their peers, while the interviewed employees reported that they were asked to assess the performance of their colleagues before. The general views of both students and colleagues towards being peer-reviewed by their teammates and evaluating them were unevenly divided, with the majority of the interviewees having a negative attitude towards being assessed and evaluating their peers. They mostly implicate bad feelings caused by certain words from their peers and see no benefit in this kind of an evaluation.

- "I did face bad feedback before, and it made me feel very upset, but I think it was mostly because I knew I had to change certain performance, and I did not do it. It somehow doubles the bad feeling because you are aware you have made this mistake before." (Interviewee 10)
- "I was evaluated before by my fellow colleagues during other projects. It was anonymous, but some comments were so improper, as if that person wanted to cause some harm to me as a colleague. I do not mind evaluating co-workers, though, but you have to be fair and objective in doing that." (Interviewee 11)

– "I did a lot of evaluation of my subordinates, and it is much easier than assessing fellow teammates, for example. I do not think I can be objective and reasonable in grading my colleagues from the team of interest, only because this project was not recent. Otherwise, I believe peer evaluation is a tool that can help people to make great progress and be more open to each other." (Interviewee 12)

Some students were reluctant to provide negative feedback because they value their relationship with peers and want to be liked. The main reason was that they found it quite difficult to pass judgment on their fellow teammates whom they considered friends:

– "I do not feel comfortable grading others, especially because we have had a great collaboration so far. I would not like such a small thing to cause damage to what we have. If I am looking from my own perspective, I would not feel well if they were writing negative comments about my contribution to the team." (Interviewee 7)
– "To be honest, I am not sure if I want to evaluate my only teammate and friend at the same time. You see, grading someone you have known for a long time is not so easy… I would probably feel bad if she would evaluate me in some negative way, and I would get to read it." (Interviewee 1)
– "I like my friends, and they like me. We work together on a project now, and for the sake of staying this way, I am not going to comment on how they do what they do." (Interviewee 5)

Approximately half of the students agreed to fill out the questions, while the other half refused to do it. Employees from five different companies who attended DT seminars for three days were asked to complete the questionnaire, and they all declined to do it, as there was no absolute anonymity, because their colleagues were sitting next to them. Nonetheless, after some time, in a neutral environment, a member of one of those teams was interviewed, and when presented with the same questionnaire, it was completed without hesitation. The questionnaire can be found in Appendix 4.

On the other hand, peers will be more receptive to negative criticism if they are also given some positive comments right after, and the other way around, if they have to point out negative performance, they will ease it with positive contributions made by their peers. They emphasised the importance of creating an atmosphere where teammates would regularly give praise to one another, so that they can build on their strengths:

– "If I criticise, I tend to do it in a subtle way, not straightforwardly. You have to be attentive, because if feedback to one person is too harsh, it can affect the whole team poorly. It can start the whole avalanche of criticism among team members, and cause negative energy that cannot be erased easily." (Interviewee 10)
– "When somebody directly criticises me, I experience a blackout and get very mad. It deeply hurts my feelings, and my ego is attacked. If the same person would have

dropped some positive comments on my performance afterward, I think I would seriously reconsider myself without getting so upset." (Interviewee 2)

One interviewee likes to get feedback, but considers himself to be rough when sharing his:

- "I am a very open person and not socially restrained, so it is not hard for me to criticise someone or to get criticised. I can be very stubborn and sometimes appear to be very mean to people, although I know I could work on a more friendly approach, which will not seem like an attack. When somebody gives me feedback, I know how to work on myself further." (Interviewee 8)

Many students stressed that they value only the teacher's response and are not so willing to use the input they get from peers, because any assessment-related activity should be carried out by an instructor, a performance judge, or a very qualified professional in a specific field:

- "I think that our generation of millennials, in general, gets insulted easily and that every criticism is not so welcome. Feedback from a person who is very experienced in their profession matters a lot to me, and I really think twice when I am in a similar situation again. I like feedback and seek out for it from my professors as well, at every chance I get l. But I am cautious about to whom I am offering mine." (Interviewee 9)
- "What is the purpose of mentors, teachers, and judges, except to give feedback, so that we can improve? It is not the role of my peers to do that." (Interviewee 4)

5.5 The effect of team-building activities and motivation

For the most part, team-building activities are perceived as an essential part of creating a collaborative team culture. Team-building builds confidence, mitigates conflict, fosters communication, and increases collaboration. Effective team building ensures that both students and employees are more involved, which is suitable for team culture and productivity boosting.

- "Team-building exercises are great and very useful in such projects where we are meant to show our creative side. After doing something that is fun and engaging for everyone, we always come back full of energy, and brainstorming afterward brings many innovative ideas." (Interviewee 3)
- "I am sure that if we were hanging out more, outside of work, in some neural environment, we would have reached greater cohesion and escaped some tension that appeared every now and then." (Interviewee 12)

Unfortunately, employees are mostly too busy to be spending additional time with their colleagues, due to packed schedules and responsibilities:

– "Team-building activities in this kind of a team are very welcome. Once all the formalities are put aside, the outcomes are more excellent, and cohesion grows. The responsiveness to emails and completing tasks grew, and people are more prone to helping each other out. The main issue is the lack of time to do it with all the other things waiting for you in the office." (Interviewee 11)

When asked about team-bonding activities that student teams experienced at least once over the start-up weekend**,** 75% of them took part in alcohol-related activities, followed by 50% of teams who attended food-related events (like team lunches), and 25% who had a different type of team building. Team-building activities put the team in a productive mood and can be a base for long-term business or personal relationships.

– "We had lunch and drinks together, and some knowledge was exchanged. This is a perfect way to stabilise relationships with them, because as we are people with similar interests, we can attend some future hackathons or start-up weekends." (Interviewee 7)
– "We often take a coffee break, where we talk about totally different things. For example, tonight we are going to see a movie. This connects us all and helps relocate the focus from the ongoing project, so that when we work, we are more productive." (Interviewee 1)

At the same time, short team building games are viewed as unnecessary and even awkward if performed within a team without some kind of outside instructor, while tasting alcoholic drinks changes the vibe and loosens the atmosphere.

– "There is no time for having some huge team-building now, and if we would try some games, I think everybody would be uncomfortable, not having fun. We tasted some alcoholic drinks today when we went to interview storeowners. This put us in a better mood after small conflicts were encountered." (Interviewee 4)
– "Last night, we all went out for a beer together to meet each other and have some fun, fill our batteries for today. It was nice to escape the formal atmosphere. Today, I can already see the mood change." (Interviewee 2)

In most cases, the motivation to work on projects was both extrinsic and intrinsic. The extrinsic motivation was focused on the use of external factors that, in the case of students, motivated them to visit the start-up weekend and make them eligible to pass the entrepreneurship course, which all interviewed students attended as an elective or obligatory course and to achieve a good grade. While the external factor of the motivation of employees was simply to perform job-related tasks in the form of a project that they were assigned to.

– “Primarily because of the course. I like my weekends for myself and I like to spend them with my family. But I also like the challenge and meeting new people, so I am okay with being here.” (Interviewee 8)
– “The project was mostly HR's point of interest, so it was natural that I join.” (Interviewee 12)

Intrinsic motivation was about having a personal desire to overcome a challenge, to produce high-quality work, or to interact with team members you like and trust. However, this was not the primary motivator for 11 out of 12 interviewees, and they did not hesitate to admit this. Their personal desires included learning how to conduct business, preparing for an entrepreneurial professional future, or learning how to create for people.

– “I came to the start-up weekend because of the entrepreneurship course. But I am more of an artistic kind of a person and I am eager to get knowledge about leading a company and developing my ideas.” (Interviewee 1)
– “Other than getting graded in an entrepreneurship course, I came because I cannot get this kind of experience at my school, because we concentrate only on technical stuff. I came to learn new things, not to win.” (Interviewee 4)
– “I think I have this entrepreneurial nerve in me, and while studying computer sciences, I do not really have the opportunity to work on its development. With such projects, I have a feeling that I am working on something of my own. Also, it represents 50% of the grade, so I have to do it.” (Interviewee 9)

An interviewee added that the lack of extrinsic factors of motivation after a certain point made her lose interest, and she became less involved gradually. She is not part of the team anymore, as nobody gave her recognition for her helping hand.

– “It would all be great if it would be a part of my job. Joining this project was more of an exercise, gained knowledge I could use later on in my projects after workshops, as a part of employees’ additional education. Afterward, I did voluntary work that did not motivate me enough to do more work than needed. The project leader was the only one who could write down his working hours in his report at the end of the day. The rest of us were coffee or relaxing instead of working on it. In my own project, to which I would be dedicated 100%, everything would be different.” (Interviewee 11)

5.6 Limitations to the methodology

A larger research sample would enable more meaningful relationships to be identified within the data set, resulting in more accurate findings. The study limits its scope to just two team members from two different corporations, and ten students from four different teams, so the results cannot be generalised. Furthermore, there is an issue of the inability to verify the results objectively against the scenarios stated by the respondents, and the research is mostly based on opinion, perception, and judgment, rather than the on

measurable results. In addition, to achieve a broader range of results and ideas, the diversification of data collection techniques as well as analytical methods would have to be implemented.

6 DISCUSSION

The overarching aim of this study was to examine how people with specific attributes assigned to a multidisciplinary team with a collaborative team culture carry out the DT process to create innovative solutions. Students as well as employers have identified the need for a high level of diversity within teams; they believe diversity to have a positive influence on the team and to be essentially crucial for success. Nonetheless, the lesson they learned is reconsidering the team structure before the project starts, as adding people with new expertise at latter stages, without excluding any, can lead to over-staffing. Student interviewees expressed that working together in a collaborative manner in the DT process does not require a prominent leader. They can freely exchange ideas, which are further integrated by team members, challenged, and tested for flaws, while with each new step of the process, a new person takes up a leading role. Effective team building ensures greater involvement of both students and employees in their teams, which is quintessential for team culture and productivity-boosting, since it builds trust, reduces tension, facilitates cooperation, and, eventually, improves collaboration. While interviewees expressed the temptation to create teams with friends, collaborative culture of such a composition can be sentenced to failure due to communication pitfalls. The majority of interviewees saw being peer-reviewed and judged by their teammates in a negative way, and they did not see how such an assessment could contribute to their team culture or how they could benefit from it.

Four questions underpinned the study, and will be further discussed in this chapter.

What is the effect of a multidisciplinary approach for the creation of teams for the DT process?

For developing ideas in an environment of ever-expanding new technologies, teams with different views, backgrounds, and diverse professions offer many positive attributes. The results of this study show that the interviewees find it worthwhile to take on the challenge of selecting people from different age groups, backgrounds, and with different individual characteristics. Moreover, a field of study and an occupation were the most interesting characteristics for the purpose of this study. It is essential not to leave the innovation challenge through DT only to people with a creative background (Brown and Katz, 2011), which is evident from the results presented. Baker (2014) suggests that in one-person innovation, the individual is directly responsible for the success of the idea developed, which is why one person would prefer to go with a safer option, while multiple sets of skills in the team and different perspectives choose the riskier option that brings greater success. While students are becoming aware of the need for multidisciplinarity at later

stages of idea development, corporate team creators already understand this at the team-building stage. The benefit of the corporation is in having a large pool of careers to choose from when they recognise that there is a shortage of expertise in the team. However, since it may be worthwhile to extend the team at a later point in order to cover more areas with new expertise, care should be taken not to reach the level of over-staffing, as the teamwork within the team is more complicated. Similarly to the study by Hackman and Vidmar (1970), who argue that the optimal satisfaction with the team size is found between four and five members, this research shows that the perfect size of the team is five members, with four being a lower border and six being an upper border. In larger teams, members seem to be less happy with the reasoning in the difficulties of coordination they encounter. For example, the team 1 only had two members, both coming from the same field of study, and they clearly stated and showed the urgency for more disciplines and additional pairs of hands. At the same time, the team 6 with eight members and highly a diverse professional background at hand performed well, but team management got challenging from time to time, especially for the team leader.

What influences the creation of a collaborative team culture for fostering innovation, and what are team attributes essential for bringing out the most from the DT process and developing an innovative product/service?

The second and third questions underpinning the present study were researching influencers of the creation of collaborative team culture and attributes in team members for a group seeking innovation. Five main highlights emerged, the first of them being a diminishing need for one-person leadership throughout the whole process. With followers already motivated to work, prominent leaders do not bring added value to the team, so they disappear in the early stages of the DT process. With each new step of the process, a new person appears to assume a leading role based on their expertise and skills that are at hand in multidisciplinary teams. Dam and Siang (2019) suggest that all the stages of DT require everyone to be involved, sometimes less sometimes more. Collaborative fashion of work reduces the need for guidance, as ideas are shared and combined, scanned by others, and approved or disapproved. This, however, is not the case with the homogeneous teams, where there is a lack of knowledge from various fields. Even though unambiguous tasks explained thoroughly by instructors leave very little need for a strict leadership, corporations as very structured organizations with a culture of power and career development, and they still assign strict leaders to projects. Recent studies encourage leadership decentralization as the vital skill that pushes the team forward.

The next highlight is tight relationships, which give comfort, but mostly slow down the DT process. To stay in their comfort zone, people tend to bring friends on the team, despite the awareness that a collaborative culture, trust and familiarity are not enough in business. Each new member can add value to the team by means of openness, efficiency, emotional intelligence, accountability, and objectivity. Teams of people with close personal relationships typically start with an idea development quickly and take the lead

on the market; the advantage, however, is quickly lost due to many little conflicts that follow, because of the team's inability to look objectively at each other's points of view, and as they keep pushing their own ideas. The collaborative culture of such a team is not one where improvements and innovations occur, because, in most cases, team members lose other vital attributes. A similar situation is the creation of a team of friends within a team, which leads to a new focal point – the predominance of a single member or a team within a team. This situation is in opposition to the ideal of a flat hierarchy culture, in which all members are allowed to share their opinions equally, and no one can prevail just because an individual insists on it (Dam & Siang, 2018b). In such a situation, the team can be doomed, because a high level of ungrounded superiority is concentrated in one part of the team. This creates an environment in which other team members start feeling worthless and unappreciated, and, consequently, lose interest in the project. According to Miles (2017), conditions where a person cannot feel the importance of their role causes the loss of a sense of purpose. It further prevents a person from finding motivation to work to their full potential, and their contribution is diminishing. Team members' motivation as the fourth highlight deeply affects collaborative culture. Research shows that intrinsic motives, such as overcoming a challenge, producing work of high quality, meeting new people, etc., are present, but are not primary. They come only after extrinsic motivational factors. Without ensuring motivation at the individual level, it cannot be discussed at the team level, because both types of motivation are functionally similar and interconnected, meaning they perform similarly (Chen et al., 2009). Team-building activities are another focal point and are considered to be an integral part of building a collaborative team culture. They build trust, mitigate tension, encourage cooperation, improve collaboration, and, consequently, encourage greater involvement of both students and staff, which is beneficial for cohesive team culture and efficiency.

What is the effect of a regular feedback and peer rating, as a part of the team culture, on team performance?

The fourth question that drove this study was to know how a regular feedback and peer rating, as a part of the team culture, affects team performance. Due to peer-reviewed practice, students seem to be free to ask more questions about what they do not know, as they get more comfortable through a constant peer-review, and they also seem to share more ideas and knowledge under these conditions (Dewi, Nurkamto & Drajati, 2019). The general views of both students and employees on being peer-reviewed and assessed by their teammates in this study, however, were unevenly divided and less inclined toward a positive attitude towards this type of a practice. Nevertheless, the importance of creating an atmosphere where teammates would constantly give praise was emphasised, since receptiveness to negative criticism increases if peers offer some positive comments right after the negative ones.

CONCLUSION

The need for innovation is recognised by businesses as the key strategy for gaining and sustaining advantage over their competitors in today's setting of ever-expanding new technologies and new product development. Because of the knowledge and opportunities that customers and users can provide, companies, fast-moving start-ups, or outside innovators are turning to human-centred innovation approaches, such as DT. Yet, innovation through the DT process cannot be attained with the brainpower of one person, but rather with a team of people from different backgrounds working in a synchronised collaborative team manner. The creation of such a team environment is complex, and a set of characteristics required is different for various destinations that have to be reached. However, here are some repetitious qualities and establishments that seem to fit diverse innovation destinations, which emerged from this study:

- Teams engaged in the DT process are showing an immense necessity for innovation seekers with different points of view and culture, diverse education, profession, and skillsets, as well as distinct personality aspects.
- An establishments like this do not require strict one-person leadership all the way through idea development. Instead, there is the need for interchanging guidance from one step to another, based on competences and expertise that members have to offer. In other words, multidisciplinarity eliminates the need for a unique guidance.
- Close prior relationships among all team members are a double-edged sword. Such a comfortable environment causes a lack of efficiency: teammates are being either too closed to offer their sincere opinion as it can be seen as a personal attack on their friends, or they are too open and aggressive in imposing their ideas.
- The predominance of a group of friends within a team or one-person superiority causes other members to lose their sense of purpose, which prevents them from reaching motivation to work to their full potential, and their contribution is decreased.
- Even though negative peer evaluation is not well-received, especially among millennials, its receptiveness increases if peers offer some positive comments right after the criticism. At the same time, authorities like mentors, teachers, judges, or experts in certain fields are viewed as the only legitimate evaluators.
- Team-building activities positively contribute to a collaborative team culture.

Still, teams are being constructed mostly by luck, happenstance or circumstance, and rarely by a considerate design. Yet, leaving things to chance can be hazardous when it comes to fostering innovation and DT as a process that upholds it.

This research proposed further research avenues, most importantly in examining the right combination of disciplines that are desired for a specific innovation destination. Moreover, the same research questions could be studied within start-ups working as a part

of an accelerator. Lastly, it would be interesting to further investigate the team leadership in the corporate context.

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APPENDICES

Appendix 1: Povzetek (Summary in Slovene language)

Podjetja in izobraževalne institucije prepoznavajo inovativnost kot enega ključnih načinov za pridobivanje in ohranjanje konkurenčnih prednosti. Ključen vir inovativnosti pa so slabo zadovoljene in nezadovoljene potrebe uporabnikov, zato podjetja iščejo načine, kako uvesti k uporabniku usmerjen pristop k inovacijam. Dizajnerski pristop k razvoju rešitev (ang. Design Thinking) pospešeno pridobiva zagon tako pri podjetjih kot pri izobraževalnih institucijah. Podjetja, kot so IDEO in institucije, kot je Stanford d.school pa črtajo pot, ki ji drugi sledijo. Univerze, podjetja in vrsta drugih organizacij so sprejeli metodologijo in jo prilagodili, da bolje ustreza konkretnemu namenu in kontekstu. Ustvarjalnost in inovativnost pa nista le individualni ampak tudi posledica skupinskega dela in sta tako veščini, ki jih je možno razviti in spodbujati. Zato je pri uporabi dizajnerskega pristopa pri inoviranju bistvenega pomena, da imamo učinkovito in uspešno skupino inovatorjev, ki prispe do želenega cilja. V magistrski nalogi raziskujem, kako ljudje z različnimi lastnostmi, ki so dodeljeni v multidisciplinarno ekipo, ki sčasoma ustvari skupno ekipno kulturo, uporabljajo dizajnerski pristop k inoviranju za ustvarjanje inovativnih rešitev.

Raziskave o vlogi članov skupine, ki uporabljajo dizajnerski pristop, predstavljajo multidisciplinarnost ekipe v kateri so posamezniki z različnimi znanji in stališči, kot eno od osrednjih lastnosti skupine. Ker pa so ekipe pretežno sestavljene slučajno ali vsaj nenačrtno, z vidika multidisciplinarnosti, je bil namen magistrske naloge raziskati način dela in potencialne sinergije med mešanimi univerzitetnimi in podjetniškimi ekipami, kjer način dela temelji na dizajnerskem pristopu k inoviranju, člani ekipe pa niso bili izbrani načrtno z vidika multidisciplinarnosti.

V prvem delu naloge podajam teoretične osnove. Prvo poglavje na kratko predstavi ustvarjalnost in inovativnost, drugo pa teoretično interpretira ekipno delo in učinkovito sestavo ekipe. Sledi teoretičen povzetek dizajnerskega pristopa k inoviranju in njegovi praktični primeri pri ustvarjanju inovativnih rešitev. Drugi del magistrske naloge je empirična raziskava z uporabo kvalitativnih metod, ki sem jo izvedla v obliki opazovanja in odprtega intervjuja z desetimi študenti Univerze v Ljubljani in z dvema zaposlenima v večjih multinacionalnih podjetjih. Vsi intervjujani so se naučili dizajnerskega pristopa na večdnevnih delavnicah, ki so jim bile dodeljene s strani delodajalca oziroma so bile del študija in vsi člani ekip so delali na določeni inovativni rešitvi s pomočjo tega orodja. Vsi intervjujanci so izpolnili vprašalnik za oceno dela skupine, ki je bil izdelan na podlagi podobnih vprašalnikov, ki jih najdemo v obstoječih raziskavah.

Kvalitativno analizo podatkov sem izvedla v dveh korakih. Analizirala sem intervjuje s pomočjo Boyatzisove (1998) tehnike tematske analize podatkov z namenom prepoznavanja, trendov in vzorcev ter posledično ustvarjanja skupnih tem. Opazovanja so bila izvedena v obliki senčnega opazovanja, kjer nisem delila nobene aktivnosti s člani

ekip pri čemer so ugotovitve služile kot dodatek k podatkom, ki sem jih zbrala s pomočjo intervjujev.

Rezultati študije kažejo, da si ekipe želijo visoko stopnjo raznolikosti in to razumejo kot enega ključnih dejavnikov uspeha, a za to pogosto ne skrbijo načrtno. Iz tega razloga bi morali pred začetkom projekta temeljiteje razmisliti, kakšna bo struktura ekipe in razviti kriterije vključevanja posameznikov v ekipo. Medtem, ko intervjujanci iz vrst študentov raje uporabljajo demokratično vodenje brez izrazitega vodje ekipe, udeleženci iz večjih podjetij vodstvene sposobnosti znotraj ekipe postavijo kot nekakšen pogoj, tudi za projekte, ki uporabljajo dizajnerski pristop k inovativnosti. Načrtna sestava ekipe zagotavlja večjo vključenost tako študentov kot zaposlenih v skupine, kar je nujno za ekipni duh in rast produktivnosti skozi grajenje zaupanja, zmanjševanja napetosti in povečanje poglobljenega sodelovanja. Skušnjava gradnje ekipe s prijatelji pa je še vedno močno prisotna, ker ljudje cenijo zaupanje in udobje, ki ga prijateljstvo prinaša, vendar so lahko ravno podobnosti med člani v taki sestavi ekipe odgovorne za neuspeh ekipe. Člani imajo hitro občutek, da drugi ne pripomorejo k rezultatom, določenih nalog, ki so neprijetne vsem se ne izvaja in v procesu pridobivanja idej ni pluralnosti.

Nadaljnje raziskave bi lahko podrobneje preučile optimalno kombinacijo disciplin, ki so potrebne, da ekipa doseže želen inovacijski cilj. Eno od zanimivih okolij za tovrstno raziskovanje bi bili pospeševalniki, kjer ekipe razvijajo prebojne, pogosto tehnološke, inovacije. Zanimivo bi bilo tudi raziskati vlogo vodenja pri doseganju ciljev ekipe v različnih kontekstih in v primeru različnih ciljev.

Appendix 2: Interview guide for students

Ten post-it notes were placed on the table in front of the interviewee. Five of those included names of the faculties that students who were participating in the startup weekend were attending, and the other five included the phases of DT, from empathy to the test.

Warm-up questions:

1. What brings you to this weekend?
2. What does this startup weekend mean to you?
3. Can you, please, arrange post-it notes in order according to how difficult you find the stages of the DT process?
4. Now, can you assign them post-it notes with the name of the school from which your teammate who is contributing the most in it comes from?

In-depth interview open-end questions:

1. Tell me a little bit about how formed your team for this weekend?
2. Can you, please, describe how your team for this project would look like, in the

perfect world?

3. Can you tell me a story of one project work where you were feeling the most comfortable, but also productive, and/or a situation where you were a part of a dysfunctional team, and how it ended?
4. Can you please describe your experience with your current team members and how well did you know them before, if so?
5. Can you please describe how you are spending your free time this weekend? Does it include any activities with your teammates? Can you, please, tell me about something fun you have done with your teammates?
6. What was the main issue with (the stage of DT which they classified as the most difficult)?
7. Tell me more about why you did not assign anybody from your teammates to the (stage where they did not put any post-it note with a school name)?
8. Describe your feelings about having a leader during the whole procedure, or is it a different person in each phase?
9. Can you, please, describe how you divided the work among each other? Was your team leader the one who assigned what has to be done by whom?
10. Can you, please, describe how does a leader react to different opinions, and how would you characterise his or her leadership style?
11. How important is it to you to have people that you have a close relationship with in your team?
12. Can you, please, recall a time when you were working in a group where you were all friends, or as another extreme, when you worked with people you saw for the first time?
13. Think about your personal life now. Have you ever formed a team with your friends or been a part of one for the purpose of anything, and if yes, how collaborative were you?
14. Can you, please, tell me a story about the tensest moment so far in this project, and if you overcame it, who contributed to this and how?
15. How do you feel about grading the performance of your teammates? What if I tell you they are all asked to do it as well, and it is anonymous?

Source: Own work.

Appendix 3: Interview guide for students

Warm-up questions:

1. What is the main business activity of your company?
2. Can you please tell me about the service or product that you have been developing using the DT tool?
3. Can you tell me what the three-day DT workshop was like?

In-depth interview open-end questions:

1. Tell me a little bit about how you formed your team for this project?
2. Can you please describe how your team for this project would look like, in the perfect world?
3. Can you tell me a story of one project work where you were feeling the most comfortable, but also productive, and/or a situation where you were a part of a dysfunctional team, and how it ended?
4. Can you, please, describe your experience with your current team members, and what was your relationship before like?
5. Please explain to me on what level (from 1 to 10) do you respect each other's unique capabilities?
6. Can you, please, describe some fun moments you had with your teammates over the lasting of a project?
7. Which stage of DT would you classify as the most difficult, and where was the main issue?
8. Was there any part of idea development where your team was lacking skills and capabilities and how that affected the whole process?
9. Describe your feelings about having a leader during the whole procedure, or is it a different person in each phase?
10. Can you, please, describe how you divided the work among each other? Was your team leader the one who assigned what has to be done by whom?
11. Can you, please, describe how does a leader react to different opinions, and how would you characterize his or her leadership style?
12. How important is it to you to have people that you have a close relationship with in your team?
13. Please recall a time when you were working in a group where you were all friend, or as another extreme, when you worked with people you saw for the first time?
14. Can you, please, tell me a story about the tensest moment so far in this project, and if you overcame it, who contributed to this and how?
15. How do you feel about grading the performance of your colleagues, and have you ever been in a position where you had to evaluate your teammates?

Source: Own work.

Appendix 4: Peer assessment questionnaire (In Slovene language)

Medsebojno ocenjevanje je anonimno!

1. Na splošno, kako učinkovito je vaša skupina sodelovala pri tem projektu?

Za svojo trditev izberite mnenje od slabo do zelo dobro, ki glede na dosedanje izkušnje, najbolje opiše sodelovanje.

Slabo **Ustrezno** **Dobro** **Zelo dobro**

2. Katero menite, da bi bilo optimalno število ljudi v vaši skupini?

3. Katere so tri značilnosti, ki ste jih imeli kot ekipa in so vam pomagale pri dobrem delu v skupini?

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4. Koliko članov skupine je večino časa aktivno sodelovalo?

5. Poimenujte osebo, ki je po vašem mnenju največ prispevala na vsaki stopnji DT:

Razumevanje -

Definiranje izzivov -

Iskanje idej (rešitev) -

Prototipiranje -

Testiranje -

6. Ste imeli kakšne težave v komunikaciji znotraj ekipe?

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7. Kaj predlagate (aktivnost, sprememba načina dela, drugi udeleženci, ipd.), da bi pomagalo ekipi naslednjič bolje sodelovati?

8. Navedite vsaj en specifičen primer nečesa, kar ste se naučili od ekipe, česar se verjetno sami ne bi sami naučili.

Source: Own work.