



**MPM – Master of Project Management**

# Do Icelandic Startups Dream of Project Management?

Exploring the experience of participants in  
Icelandic Business Accelerators

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## **ABSTRACT**

The article provides a snapshot of the Icelandic startup ecosystem and how project management is used by startups in Icelandic startup accelerators. The study was conducted in two phases, phase 1 involved online research and informal interviews and online research and phase 2 involved quantitative data collection through a questionnaire. The questionnaire was designed to measure behaviour and opinions regarding skills, knowledge, and use of project management methods. The study findings provide insights into the presence of project management by startups. Focus is on technology-driven solutions in Icelandic accelerators. Other key findings suggest that project management is lacking to some degree, and the accelerator programs may not be successful in providing participants with the necessary knowledge and skills to find and use the appropriate project management methodology.

## 1 INTRODUCTION

Innovation can be regarded as a driving force in human history. First trace of start-up can be tracked in the 60's and 70's in the early days of the computer industry. Many entrepreneurs started small companies to develop computer hardware and software. These companies often lacked resources and support to start a larger business. The term "startup" was popularized in the 90's during the dot-com boom, when many internet-based companies were founded and received larger amounts of venture capital funding. Since then, the term has come to be associated with any new and innovative business, regardless of industry or funding source. Today, startups are seen as a key driver of economic growth and innovation, and are often associated with high-risk, high-reward ventures that have the potential to disrupt traditional industries and create new markets. Here is a definition of a startup from The Startup Owner's Manual by Stevens and Dorf:

*"A startup is not a smaller version of a large company. A startup is a temporary organization in search of a scalable, repeatable, profitable business model" (Blank & Dorf, 2012).*

Iceland's startup ecosystem is small but growing, and it receives support from government initiatives, venture capital firms, startup hubs, incubators, and accelerators. The Technical Development Fund (Tækniþróunarsjóður) was restructured in 2004, and in 2007, the Icelandic parliament enacted laws to supply additional support for innovation and startups (Jónasson, 2010). Some consider the incubator Innovit, founded in 2007 (Unknown, 2007, p.50), or the innovator competition Gulleggið first held in 2008 for Icelandic students and recent graduates (Unknown, 2008, p.41), as the origin of startup accelerators. Since then, more initiatives have emerged, and currently, there are over 10 active accelerators running each year. These support systems, including hubs, incubators, and accelerators, differ in their internal design, duration, mentoring, and approach. While some have a structured curriculum, others provide more flexible support. Most emphasize mentorship, and their approach may focus on refining business models, technical support, or fundraising. The study will use the term "accelerator" to refer to any of these support systems mentioned above. The overarching goal of these accelerators is to assist startups in growing and scaling their businesses. Various types of accelerators exist, including vertical, corporate, general, university, regional, bootcamp, hackathons, and virtual accelerators. Accelerator is defined as a

*"...fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day" (Del Sarto et al., 2022).*

In recent years project management has been a growing field and Icelandic companies are increasingly adopting project management techniques and methodologies. Verkefnastjórnunarfélag Íslands (e. Project Management Association of Iceland) was established in 1984, with the goal of promoting project management as a profession in Iceland and providing support and resources for project managers (Verkefnastjórnunarfélag Íslands., e.d.-a). Here is a definition on project management from the European Commission in their PM<sup>2</sup> Project Management Methodology Guide 3.0.1:

*"Project management can be described as the activities of planning, organising, securing, monitoring and managing the resources and work necessary to deliver specific project goals and objectives in an effective and efficient way." (European Commission, 2021)*

Here is a definition on project management according to PMBOK 7<sup>th</sup> addition:

*"The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements." (Project Management Institute, 2021)*

To strengthen the positive evolution of project management Icelandic startups should start practicing techniques, skills, apply methods and gain knowledge of project management. Startups are in their early stages when participating in accelerators and are mentored in strengthening their business plans with their focus on market analysis and on the consumer. The discourse of importance of startups in Iceland is prominent, meanwhile the project management way of thinking is emerging in Icelandic companies. There seems to be a gap in knowledge between the startup ecosystem and established business. It is common to

hear people within different sectors talk about projects just being tasks, there are projects everywhere. It is important to realize that a project is not just a project. Let us review a few definitions on a project. Here is a definition on a project from the European Commission in their PM2 Project Management Methodology Guide 3.0.1:

*“A project is a temporary organisational structure set up to create a unique product or service (output) with certain constraints such as time, cost and quality.” (European Commission, 2021)*

Here is a definition on a project according to PMBOK 7<sup>th</sup> addition:

*“A temporary endeavour undertaken to create a unique product, service, or results.” (Project Management Institute, 2021)*

As seen in the definitions of a project then time plays a role in framing a project. Our thesis focuses on examining how project management practices are used in the context of startups. Our problem statement seeks to understand the extent to which startups employ project management practices and how it affects their success. “How is project management used by startups in Icelandic startup accelerators?”

## **2 LITERATURE REVIEW**

Exploring the literature landscape in relation to startups and project management in the Icelandic ecosystem provided only a few academic results. Thereby thesis at the master’s level on Icelandic startups and accelerators have been included in this literature review alongside other published articles, journals, and books. The literature review is sectioned into three different parts: startups, accelerators, and project management.

### **2.1 Startup**

Many researchers mention a research gap in relation to startups (Giardino et al, 2016; de Faria & Zaidan, 2021; Del Sarto et al., 2022; Zaman et al., 2021). There are mentions of startups being creative and flexible but also about reluctancy of process building and having inefficient work processes (Giardino et al, 2016). Oliva and Kotabe (2019) explore the relationship between startup maturity, developmental stage, and knowledge management adoption among startups. The authors argue that startups play a critical role in driving social change through innovation, and they must leverage dynamic capabilities and knowledge management to seize opportunities and create value for society (Oliva & Kotabe, 2019). By disrupting established market patterns, startups have the potential to catalyze meaningful change. The authors highlight the importance of a well-defined knowledge management plan for startups to enhance decision-making and facilitate change processes across their administrative procedures.

The process of setting up a startup involves a significant shift in organizational structure. According to Morgan et al (2007), the adoption of a strong matrix organizational structure is crucial, with decision-making responsibilities distributed across customer-facing, product, and line managers (Morgan et al, 2007). This emphasis on efficient decision-making and a responsive organizational structure reflects the importance of meeting customer needs and demands. This approach aligns with a decentralized project management model, which empowers project teams to make autonomous decisions based on their specialized knowledge and ability.

### **2.2 Accelerators**

Master’s thesis from 2015 by Svava Björk Ólafsdóttir, investigates what character traits successful teams at the accelerator “Gulleggið” (e. Golden Egg) have. The research indicates that startups that are established by teams are more likely to succeed than startups that are driven by individuals (Ólafsdóttir, 2015). Anderson et al. (2022) discussed the best practices for projects in the NIH accelerators, highlighting the significance of utilizing milestone-based project management for the teams (Anderson et al., 2022). Honing and Hopp (2016) mention that it is not one-size fits all for startups in business plan competitions (Honing and Hopp, 2016), this is backed up by Cohen et al (2019) when explaining that design of startup accelerators might not fit all

types of startups (Cohen et al, 2019). According to Hofer then 80-90% of traditional business plans created in business plan competitions are proven to be incorrect by venture capitalists (VCs) (Hofer, 2016).

Del Sarto et al. (2022) found that startup accelerators are generally for-profit organizations, while incubators are primarily non-profit organizations (Del Sarto et al., 2022). The study also suggests that to overcome the liabilities of being new and small, startups should be receptive to external knowledge and integrate it with their internal knowledge. Additionally, the physical proximity of startup teams has a positive effect on their ability to access external knowledge. Moritz et al. (2022) assert that accelerators play a crucial role in fostering a competitive ecosystem among startups, in which they cooperate and compete simultaneously (Moritz et al., 2022). These accelerators provide non-financial support, including networking, mentoring, and educational workshops, culminating in a semi-public event in which startups pitch their business models to potential investors and partners. According to the authors, top accelerators can significantly reduce startups' time to exit and follow-up funding. The combination of educational programs and basic services offered by accelerators can substantially enhance the performance of new ventures and provide under-resourced and inexperienced startups with valuable resources, networks, and mentoring. Additionally, the duration of the accelerator program has been shown to be linked to startup performance, where longer programs with value-adding inputs lead to better value-added outcomes.

Many innovators who participated in the study on National Institutes of Health (NIH) accelerator said their most important coaches and mentors, was their project manager and that they learned the most about commercialization and product development from (Anderson et al., 2022).

### **2.3 Project Management**

IPMA has identified three key areas of competence that are required for effective project management in ICB4 (IPMA Competence Baseline): Perspective, People, and Practice. These areas are further divided into 28 competencies that project managers should possess in order to perform effectively (International Project Management Association, 2015). Perspective covers competencies related to the overall project context, such as strategy, governance, and risk management. People includes competencies related to leadership, communication, and teamwork. Practice covers competencies related to the technical aspects of project management, such as planning, execution, and monitoring and control.

Eythorsson (2015) investigates, in his master's thesis, traditional project planning and if it benefits early startups. Preliminary results suggest that startups would benefit in applying project management methodologies and they need to set goals and revise them regularly (Eypórsson, 2015). Furthermore, Eythorsson concludes that a lack of project management in a startup project can hinder their progress from a startup to a sustainable company. In contrast Azevedo and Silva (2021) conclude that traditional project management is not suitable for early-stage startups because it is largely based on predictions in that stage (Azevedo and Silva, 2021). The authors discuss two strategies for managing innovation: trial and error learning and selectionism (Azevedo and Silva, 2021). Agile methods fall under trial-and-error learning, while selectionism involves systematically selecting the most promising ideas for development and commercialization. They propose a fast-learning experimentation framework that uses visualization, rapid prototyping, and iterations to balance project resources, foster creativity, and collaboration, and facilitate faster adaptation to flexible methods. The framework's well-defined steps and techniques help professionals trained in phased approaches adapt more easily.

Silva et al. (2020) contend that Lean Startup (LS) methodology is particularly useful for early-stage digital startups in managing tensions between managing existing resources and combining them into new and innovative ones (Silva et al., 2020). Regardless of the startup's field, after validating the initial Minimum Viable Product (MVP) and achieving product-market fit, entrepreneurs should continue to adopt the Build-Measure-Learn (BML) approach. LS, drawing on the Japanese concept of Kaizen from Lean philosophy, emphasizes continuous improvement. In this phase, the purpose of testing shifts from validating the business model to optimizing it. As mentioned earlier then the focus is on building a good business plan in the Icelandic startup accelerators. Honing and Hopp say that it is difficult to evaluate the effectiveness of business model canvas and lean startup in terms of success (Honing and Hopp, 2016). They go further to explain that it suggests that business preparations activity is much less significant without appropriate control and adaptive approach to the plan in later stages.

Zaman et al. (2021) explains that high-tech startups often face challenges in achieving sustainability due to frequent project failures. These failures provide valuable learning experiences, but around 60 percent

of projects fail due to various reasons, such as a lack of effective resource management, unclear project mission, unrealistic schedules, and personnel incompetency (Zaman et al., 2021).

## **2.4 Summary**

In this literature review, the current state of startups, accelerators, and project management in the Icelandic ecosystem has been discussed briefly. Although there is a research gap related to startups, it is noted that they are generally known for their creativity and adaptability. However, they often lack efficient work processes and are hesitant to establish formal procedures. Despite these challenges, startups have a significant impact on driving social change through innovation. Furthermore, the literature review delves into the topic of accelerators and their importance in cultivating a competitive environment for startups, in which they collaborate and compete simultaneously. These accelerators offer non-monetary assistance such as networking opportunities, mentorship, and educational workshops, culminating in a semi-public event where startups present their business models to potential investors and partners. The close physical proximity of startup teams has a beneficial impact on their ability to obtain external knowledge. Studies have shown that the duration of the accelerator program is correlated with startup performance, with longer programs featuring value-adding inputs resulting in better value-added outcomes.

The literature review also looks at the relationship between startups and project management. Preliminary findings suggest that startups could benefit from using project management methods and setting and reviewing goals regularly. However, it is important to note that traditional project management may not be suitable for early-stage startups, as it relies heavily on predictions during this phase. Agile methods involve trial-and-error learning, while selectionism involves systematically selecting the most promising ideas for development and commercialization. These approaches may be more suitable for early-stage startups.

## **3 METHOD**

The success of startups depends on various factors, including management practices. Project management is one such practice that has been shown to be essential for the success of startups. However, the extent to which startups use project management in their journey is not well understood, especially in the context of Icelandic startup accelerators. This research aims to address this knowledge gap by investigating how project management is used by startups in Icelandic startup accelerators. Specifically, the study aims to explore the presence of project management in the startup journey and whether entrepreneurs consider startups as a project. To achieve this, the research was designed in two phases: Phase 1 involved online research and informal interviews, while Phase 2 involved quantitative data collection.

### **3.1 Phase 1: Online Research and Informal Interviews**

The research design involved conducting online research and informal interviews with experienced experts to identify the key business accelerators in Iceland, mentors associated with the accelerators and the startups that have participated in them. Various approaches were used to gather data and information about the startups and accelerators due to the lack of clear information and different structures of information in the startup accelerator websites. The methods to improve the data were using search engines to identify presence of the startups, lookup in the company register of the Icelandic Revenue and Customs (Skatturinn, n.d.), and reaching out via social media platforms and emails to entrepreneurs.

### **3.2 Phase 2: Quantitative Data Collection**

In the second phase of the study, a quantitative method was used for the questionnaire design, where a 5-point Likert scale was used to measure behavior and opinions. The questionnaire was created in Microsoft Forms and sent out to innovators that have participated in the identified accelerators in phase 1 and suggested Facebook groups mentioned in the interviews. The questionnaire is designed in three sections, data gathered about the startup, data regarding skills, knowledge and use of project management methods, and background data of participant. Statements regarding skills and knowledge where design to reflect “people,” “practice,” and “perspective” from ICB4. Questionnaire and ICB4 categories in Appendix A: Questionnaire and ICB4 categories.

### 3.3 Participants

The participants in the study were startups that had participated in selected accelerators, mentors with experience in Icelandic startup accelerators, startup founders with over ten years of experience in the Icelandic startup ecosystem, and the manager of a program managing several of the Icelandic startup accelerators.

### 3.4 Data Collection

Data was collected through online research, informal interviews, and an online questionnaire over 12 days. In phase 1, information was gathered about the startups and mentors from startup accelerator websites, the Icelandic Revenue and Customs company register, Google searches, and social media platforms. In phase 2, the questionnaire was sent to all startups via email gathered in phase 1, and it was also shared as a post in different Facebook groups with over 10000 followers, see Appendix B: Facebook Groups for list of Facebook groups. Contact information of researchers was supplied to receive more information from willing participants, see Appendix C: Contact Methods, for contact methods.

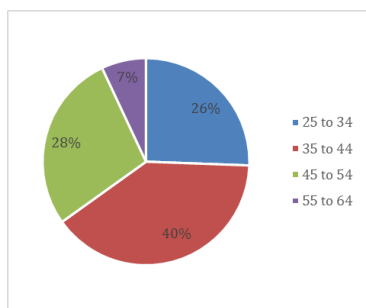
### 3.5 Limitations

The study has limitations in terms of the sample size, as it only included startups that had taken part in selected accelerators. Additionally, the data collection methods used in phase 1 resulted in missing data, and at least few hundred startups not answering the questionnaire in phase 2. Finally, the study was limited to the time of the research and the availability of information.

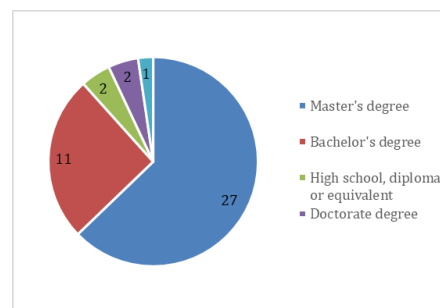
## 4 RESEARCH RESULTS

In course of the study 46 responses were collected over a period of 12 days and after a data clean-up 43 responses were left. 6 participants reached out with added information, see Appendix D: Responses from Startups. Of the respondents, 91% were Icelandic while the remaining 9% were of other nationalities. The gender distribution of the participants was 53% male, 42% female, and 5% identified as other. Figure 1 displays the age distribution of the participants, while Figure 2 shows the distribution of the highest education level achieved by each participant, with 63% having obtained a master's degree. The survey also found that 77% of the participants reported that their current startup was their first one.

**Figure 1**  
*Age distribution of participants*



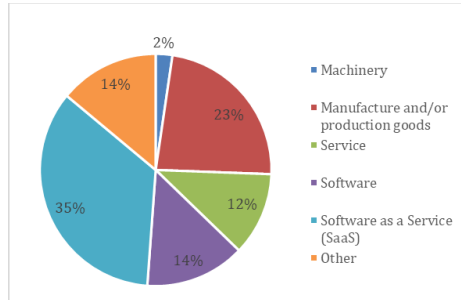
**Figure 2**  
*Highest education level of the participants*



Participants were asked within what product type category their startup fits. The distribution of product type spans from 12% to 35% across the 5 categories. Notably, SaaS product types account for the highest proportion of the total at 35%, followed by software at 14%, as is illustrated in Figure 3. When combining SaaS and software categories, these two categories account for 49% of the total product types. The startups represented a diverse range of industries, with over fifteen industry categories identified.

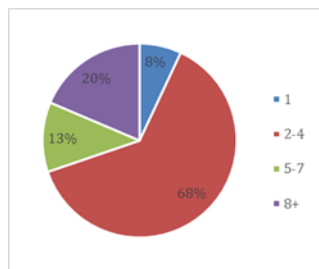
Technology and engineering were the most represented industry or 23% of the startups, followed by tourism at 12%, and "Other" at 12%. See Table 3 in Appendix E: Industry categories.

**Figure 3**  
*Startup product type*

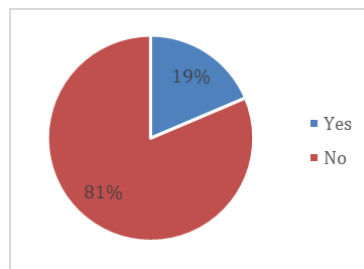


The survey responses indicated that most of the startups or 68%, had 2-4 team members, while 20% had teams of 8 members or more, with the remaining startups had smaller teams, as illustrated in Figure 4. Additionally, 19% of the startups had ties to an existing company, Figure 5. The survey also found that 77% of the startups had not participated in another accelerator program before, Figure 6

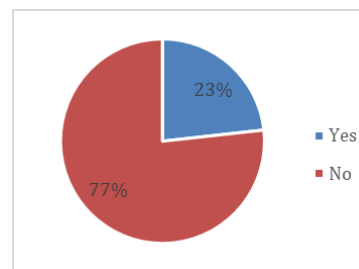
**Figure 4**  
*Team size*



**Figure 5**  
*Connected to existing company*

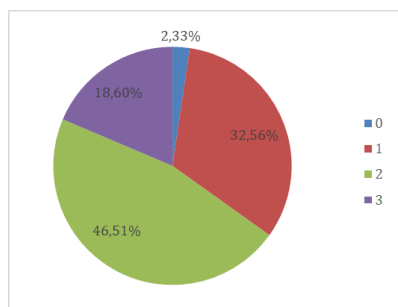


**Figure 6**  
*Participated in another accelerator*



Success levels of the startups were extracted from question 8: Current status of the startup. Each option was assigned a numeric value and the highest value was regarded as the success value of the startup, see Figure 7. 18.6% of the population fell into the highest success tier.

**Figure 7**  
*Success level*

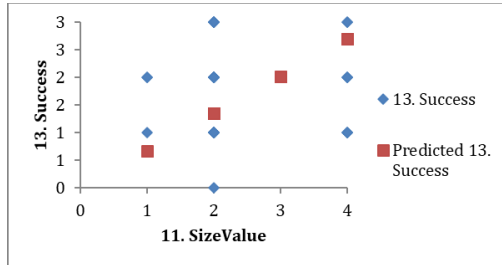


Based on the data, there is a positive relationship between the success levels of a startup and the size of its team, as revealed by the regression analysis, see Figure 8. Specifically, the analysis indicates that larger teams tend to result in higher success levels for startups. After performing regression analysis on the relationship between understanding the startup as a project and success levels, the results suggest that defining

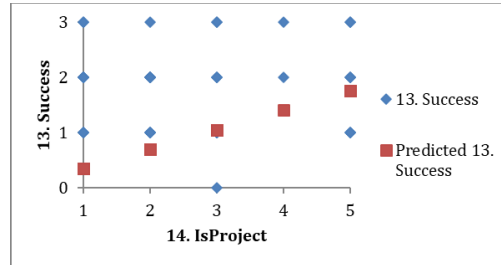


the startup as a project may lead to higher success levels. However, the relationship between these two factors is not entirely clear, Figure 9.

**Figure 8**  
*Team size line fit plot*



**Figure 9**  
*Is project line fit plot*

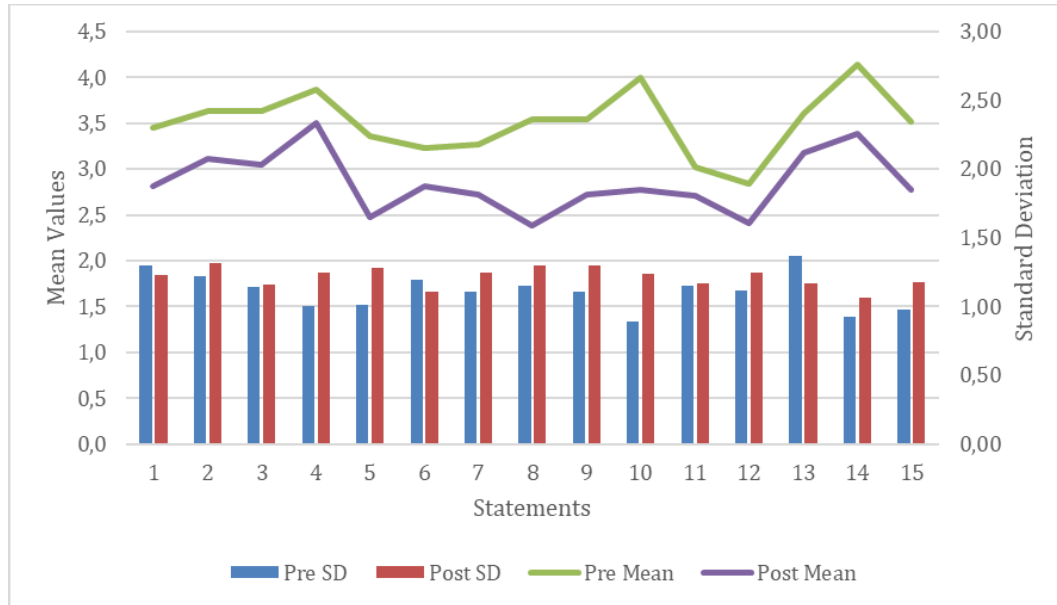


Based on the survey results, it was found that 26% of the participants had participated in an accelerator program in 2022, with the participation ranging from the year 2013 to 2022. Startup Supernova had the highest number of participants total of 10, followed by Gulleggið and Startup Reykjavík. The data is further detailed in Appendix F: Startups in selected Accelerators. From Phase 1 a list of all mentors and people working for the accelerators was gathered and compared to a list from the Project Management Association of Iceland that holds information about all certified project managers in Iceland. There are 2385 certified project managers in Iceland and in 8 accelerators that had information about mentors and people in steering groups, 4 were certified (Verkefnastjórnunarfélag Íslands., e.d.-b).

Statements in question 15 and 16 were rated on a 5-point Likert scale from strongly agree to strongly disagree, converted to values were strongly agree received the value 5 and strongly disagree 1. The mean values and standard deviation of the pre- and post-accelerator phase statements were compared in Figure 10, see Table 6 in Appendix G: Pre- and Post-Accelerator statements, for more details. The highest mean value for the pre-phase was for the statement 15.14 "Before we took our startup through the accelerator, we had the necessary skills to professionally communicate and collaborate", while the highest mean value for the post-phase was for the statement 16.4 "The accelerator encouraged me/us to define milestones for short term successes." The two mean values that were lower than 3 for the pre-phase were for the statements 15.12 "Before we took our startup through the accelerator, we had the necessary skills to use Agile methods for success" and 15.11 "Before we took our startup through the accelerator, we had the necessary skills to use Lean-startup methods for success." In contrast, ten mean values were below 3 for the post-phase, with the statement 16.8 "The accelerator provided me/us with the appropriate project management IT tools" and 16.12 "The accelerator introduced me/us to Agile methods for success" having the lowest mean values.

**Figure 10**

*Comparison between rating of pre- and post- accelerator statements*



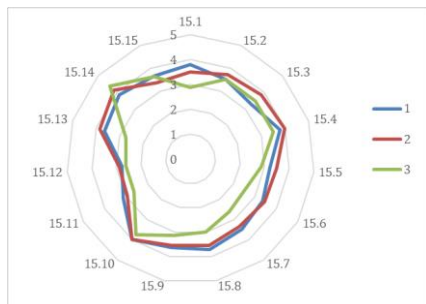
The largest gap between means was observed in statements 15.10 “Before I/we took our startup through the accelerator I/we had the necessary skills to break the work down into smaller manageable tasks” and 16.10 “The accelerator encouraged me/us to break the work down into smaller manageable tasks” and 15.8 “Before I/we took our startup through the accelerator I/we had the necessary knowledge to find/use the appropriate project management IT tools (e.g., Asana, Teams Planner, Trello, Jira, Monday, Microsoft Project, etc.)” and 16.8 “The accelerator provided me/us with the appropriate project management IT tools (e.g., Asana, Teams Planner, Trello, Jira, Monday, Microsoft Project, etc.)”, while the smallest gap was in statements 15.4 “Before I/we took our startup through the accelerator I/we had the necessary skills to define milestones for short term successes” and 16.4 “The accelerator encouraged me/us to define milestones for short term successes” and 15.11 “Before I/we took our startup through the accelerator I/we had the necessary skills to use Lean-startup methods for success” and 16.11 “The accelerator encouraged me/us to use Lean-startup methods for success”. The standard deviation for statement 15.1 “Before I/we took our startup through the accelerator I/we had the necessary project management knowledge” was found to be the highest, while it was lowest for statement 15.10 “Before I/we took our startup through the accelerator I/we had the necessary skills to break the work down into smaller manageable tasks”. In the post statements, the standard deviation was highest for statement 16.2 “The accelerator assisted me/us in creating a business plan” and lowest for statement 16.14 “The accelerator taught me/us important lessons about professional communication and collaboration”.

**Figure 11**  
*Statements compare who participate in more than one accelerator*

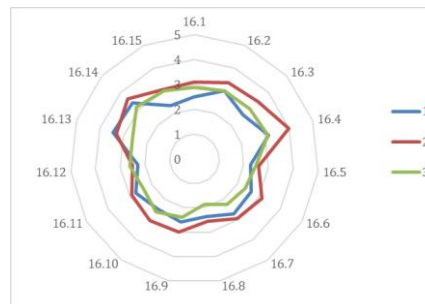


Figure 11 shows the results of an investigation into the statements by isolating question 3, "Did you participate in another accelerator?" More details can be found in Table 7 in Appendix G: Pre- and Post-Accelerator statements. Notably, for those who have participated in more than one accelerator, 9 Pre-accelerator phase statements had higher means than those who had not, while 13 post-accelerator phase statements had lower means. In the Pre-accelerator phase, if the answer to question 3 was "Yes," four statements had larger mean values than 4 15.4 "Before I/we took our startup through the accelerator I/we had the necessary skills to define milestones for short term successes", 15.10 "Before I/we took our startup through the accelerator I/we had the necessary skills to break the work down into smaller manageable tasks", 15.13 "Before I/we took our startup through the accelerator I/we had the necessary skills to defining the Minimum Viable Product (MVP)", and 15.14 "Before we took our startup through the accelerator, we had the necessary skills to professionally communicate and collaborate", while only one did for "no," which was 15.4 "Before I/we took our startup through the accelerator I/we had the necessary skills to define milestones for short term successes". In the post-accelerator phase, statements 16.4 "The accelerator encouraged me/us to define milestones for short term successes" and 16.14 "The accelerator taught me/us important lessons about professional communication and collaboration" were rated highest for both startup groups, but for those who answered "yes," 16.13 "The accelerator aided/required me/us in defining the Minimum Viable Product (MVP)" was also rated among the highest. The smallest gap in the Pre-accelerator phase was in statements 7, 11, and 12, while in the post-accelerator phase, it was statement 2.

**Figure 12**  
*Success levels on Pre-Accelerator Phase*



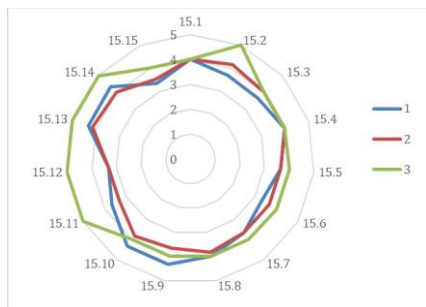
**Figure 13**  
*Success levels on Post-Accelerator Phase*



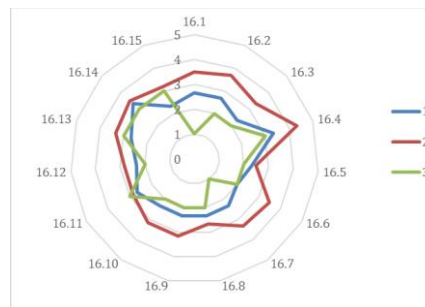
The mean responses of pre-accelerator phase statements were analyzed based on the success levels of the startups, as illustrated in **Error! Reference source not found.** Success level 0 was excluded from the analysis due to the presence of only one startup in that category. The results show that startups at success level 3 had a higher rating in statement 15.14 "Before we took our startup through the accelerator, we had the necessary skills to professionally communicate and collaborate" and similar scores in statements 15.15 "Before I/we took our startup through the accelerator I/we had the necessary skills to create and use an internal communication plan/process", 15.10 "Before I/we took our startup through the accelerator I/we had the necessary skills to break the work down into smaller manageable tasks", and 15.2 "Before I/we took our startup through the accelerator I/we had the necessary skills to create a business plan" compared to other success levels. The gaps between success levels 1 and 2 and 3 were most prominent in statements 15.1 "Before I/we took our startup through the accelerator I/we had the necessary project management knowledge", 15.6 "Before I/we took our startup through the accelerator I/we had the necessary skills to define an end date where the initial startup would be seen as accomplished", 15.7 "Before I/we took our startup through the accelerator I/we had the necessary knowledge to find/use the appropriate project management methodology", and 15.13 "Before I/we took our startup through the accelerator I/we had the necessary skills to defining the Minimum Viable Product (MVP)".

During the post-accelerator phase, significant differences were observed in the ratings of the statements compared to the pre-accelerator phase, see **Error! Reference source not found.** Success level 2 rated all but one statement higher than the other success levels, except for statement 16.13 "The accelerator aided/required me/us in defining the Minimum Viable Product (MVP)". The highest score of 4 was given to statement 16.4 "The accelerator encouraged me/us to define milestones for short term successes", which also showed the largest gap between success level 2 and the other levels. Statements with similar scores for all success levels were 16.5 "The accelerator made me/us define an end date where the initial startup would be seen as accomplished", 16.12 "The accelerator introduced me/us to Agile methods for success", and 16.14 "The accelerator taught me/us important lessons about professional communication and collaboration".

**Figure 14**  
*Technology and engineering, Pre-Accelerator*



**Figure 15**  
*Technology and engineering, Post-Accelerator*



The Technology and Engineering industry category accounted for 10.23% of the surveyed population, as depicted in **Error! Reference source not found.** and **Error! Reference source not found.** which display the Pre- and Post-accelerator phase statements, respectively. Out of the ten startups in this category, only one had a success level of 3. Upon analyzing the difference in mean between Pre- and Post-accelerator phase statements, it was observed that the scores were generally higher in the Pre-accelerator phase. The smallest gap was found in statements 15.4 "Before I/we took our startup through the accelerator I/we had the necessary skills to define milestones for short term successes" and 16.4 "The accelerator encouraged me/us to define milestones for short term successes", with a difference of 0.10. The most common scores among the success levels were 16.4 "The accelerator encouraged me/us to define milestones for short term successes" and 16.14 "The accelerator taught me/us important lessons about professional communication and collaboration". Other mentions are 16.2 "The accelerator assisted me/us in creating a business plan" by success level 2 and 16.11 "The accelerator encouraged me/us to use Lean-startup methods for success" and 16.13 "The accelerator aided/required me/us in defining the Minimum Viable Product (MVP)" for success level 3.

Only 1 startup is behind the success level 3. Noticeable is the success level 2 which rates the support from the accelerator in the post accelerator phase above success level 1 in all cases.

## **5 DISCUSSION**

The survey results provide a snapshot of the startup ecosystem in Iceland and can be useful for policymakers, investors, and entrepreneurs looking to start a new business. However, it is important to note that the results cannot simply be transferred to other geographical areas due to the distinctive characteristics of entrepreneurial finance markets and cultural differences (Del Sarto et al., 2022). Several research gaps exist in relation to startups, including issues with process building and inefficient work processes (Giardino et al., 2016), which may be hindering their growth. Despite these challenges, startups play a critical role in driving social change through innovation (Oliva & Kotabe, 2019), making them an important part of the economy.

### **5.1 Startups**

There is an interesting difference between startups that regard themselves with great knowledge and skills about project management in all the questions and those who have mixed answers with low scores in some factors. The interesting difference was that startups scored lower in success where the startups rated themselves highly, compared to those who scored high in success. There is a talk about some startups missing humility and thereby not being fruitful in acquiring learning from mentors. This suggests that the lack of humility among some startups may be hindering their growth.

Ólafsdóttir's research suggests that startups established by teams are more likely to succeed than those driven by individuals (Ólafsdóttir, 2015). Our regression model also indicates that having more team members increases the likelihood of success. It is worth noting that many startups surveyed had relatively small teams, with 2-4 team members being the most common size. This indicates a need for lean and agile team structures among startups, driven by a desire to minimize costs and maximize flexibility. The statements mean scores for lean startup and agile where the only ones below neutral which suggests a missed opportunity to provide knowledge about it. No noteworthy results were found about the experience of the entrepreneurs.

### **5.2 Accelerators**

Regarding accelerators, analyzing the skills and knowledge of participants pre- and post-accelerator phases does not provide significant results but rather indicates the state of skills and knowledge of the startups and the support received. In all statements the mean scoring was higher for the pre-accelerator phase statements, in only 5 of them the rating was neutral. This suggests that the accelerator provided support in business plan matters, defining milestones, focusing on MVP and collaboration and communication. According to the research made by Anderson et al. their participants one of the most important coaches were their project managers (Anderson et al., 2022). In our findings only 4 certified project managers are tied to the Icelandic accelerators. This suggests that focus on project management is lacking in the Icelandic accelerator programs.

Another key finding is the high proportion of SaaS and software product types, which together account for nearly half of the total product types represented in the survey. This indicates that there is a strong focus on technology-driven solutions among Icelandic startups. Technology related startups with success level 2 rate the support by accelerators higher than other startups, which is another indication that the accelerator programs might be focused more on the technology aspect.

### **5.3 Project Management**

The findings suggest that considering a startup as a project could potentially increase the likelihood of success. However, according to Azevedo and Silva (Azevedo and Silva, 2021), conventional project management approaches may not be suitable for early-stage startups as they rely heavily on making predictions during this phase. Eythorsson's emphasis on the importance of project management in startup project to progress from startup to sustainable company (Eyþórsson, 2015). In our data we explore 15 statements for pre-accelerator and post-accelerator phase in relation to skills and knowledge, one of the statements is an overall understanding of Project Management and others divided into three key areas according to the ICB4 for effective project management: Perspective, People, and Practice. There was a wide

range of opinions among the participants about their level of project management knowledge pre-accelerator and the response post-accelerator were neutral. It is possible that the accelerator provided some help in providing some project management knowledge for a few of the participants. Our assumption is that project management knowledge sharing is lacking to some degree.

### **5.3.1 Perspective**

There was an indication that the participants believed they had the necessary knowledge to manage the startup before going through the accelerator program. The lower score in post-accelerator phase might suggest that the accelerator program may have had a positive effect on the participants' perceived knowledge of managing the startup. On the other hand, the findings suggest that the accelerator program may not have been successful in providing participants with the necessary knowledge and skills to find and use the appropriate project management methodology.

### **5.3.2 People**

It seems that before taking their startup through the accelerator, the participants felt confident in their skills related to professional communication and collaboration. However, after going through the accelerator, they might have realized there were still important lessons to learn in this area. Indicating that the accelerator had a significant impact on the participants' perception of their communication and collaboration skills. It appears that participants in the study felt more confident in their ability to create and use an internal communication plan/process before going through the accelerator program compared to after. This suggests that the accelerator program may have introduced challenges or obstacles in implementing an internal communication plan/process. However, further analysis would be needed to determine the specific factors that contributed to this difference as it could be lack of support or unexpected challenges.

### **5.3.3 Practice**

#### **5.3.3.1 Business Plan**

Generally positive perception of their pre-accelerator skills in creating a business plan. In contrast, participants had a slightly less positive perception of the accelerator's assistance in creating a business plan. It seems that the accelerator had a moderate impact on the participants' ability to create a business plan. According to Hofer then 80-90% of traditional business plans created in business plan competitions are proven to be incorrect by VCs (Hofer, 2016). However, Hofer's work is not directly related to the 18.6% success rate of the startups in the survey, as it discusses the accuracy of traditional business plans in predicting startup success. Although, the relatively low percentage of startups in the highest success tier could be seen as supporting Hofer's argument that traditional business plans may not be accurate predictors of success. This suggests that other factors beyond a business plan may be more important in determining a startup's success, such as the team's ability to execute their plan, adapt to changes in the market, and pivot when necessary.

Generally felt somewhat confident in their ability to adjust their business plan before going through the accelerator. It seems that the participants found the accelerator's assistance in adjusting their plan during the startup life cycle somewhat helpful. According to Honing and Hopp (Honing and Hopp, 2016), having an adaptive approach to the plan is crucial for success in later stages of business preparations.

#### **5.3.3.2 Milestones**

There is an indication that the participants believed they had the necessary skills to define milestones for short-term success before going through the accelerator program. In contrast indicating that participants felt that the accelerator encouraged them to define milestones for short-term success. It seems that the accelerator program had a moderate impact on the participants' ability to define milestones for short-term success. It is worth noting that Anderson et al. (Anderson et al., 2022) also highlighted the significance of utilizing milestone-based project management in accelerators, emphasizing the importance of setting clear objectives.

#### **5.3.3.3 End Date**

Defining an end date indicated that the participants perceived the accelerator program to be unhelpful in supporting them to define an end date for the initial startup. Which is contradicting to their initial confidence in defining an end date.

#### **5.3.3.4 Tools**

Generally, the participants did not feel they had the necessary knowledge to find and use project management IT tools before participating in the accelerator program and that the accelerator program did not provide them with the appropriate project management IT tools, or that they may have wanted more training or guidance on how to use these tools effectively.

#### **5.3.3.5 Requirements**

It appears that participants felt moderately confident in their ability to define and revise requirements before going through the accelerator program. The accelerator program might have introduced challenges or requirements related to defining and revising requirements that the participants did not feel fully prepared for or did not receive the support according to their needs and wants.

#### **5.3.3.6 Work Breakdown Structure**

The data indicates that the participants felt confident in breaking their work down into smaller manageable tasks, although only moderate support from the accelerator.

#### **5.3.3.7 Lean**

Participants generally felt that they did not have the necessary skills to use Lean-startup methods before participating in the accelerator program. In the support from the accelerator, it had a slightly positive but mixed response. This indicates that some participants found the accelerator's emphasis on Lean-startup methods helpful, while others may have found it less relevant to their specific needs. It is worth noting that LS methodology is particularly useful for early-stage digital startups, as it helps manage tensions between managing existing resources and combining them into new and innovative ones, according to Silva et al. (Silva et al., 2020).

#### **5.3.3.8 Agile**

The data suggests that respondents may have felt less prepared or less confident in using Agile methods for their startup and missing support from the accelerator.

#### **5.3.3.9 Minimum Viable Product (MVP)**

We can infer that before going through the accelerator, the respondents felt that they had the necessary skills to define the Minimum Viable Product (MVP). However, after going through the accelerator, the respondents perceived that the accelerator aided or required them to define the MVP. This could indicate that the accelerator provided some guidance or support in defining the MVP, but the respondents still felt that they had some level of competency in this area even before going through the program.

#### **5.3.3.10 Communication.**

Based on the data, it seems that before taking their startup through the accelerator, the participants felt confident in their skills related to professional communication and collaboration. However, after going through the accelerator, they realized there were still important lessons to learn in this area. Indicating that the accelerator had a significant impact on the participants' perception of their communication and collaboration skills.

#### **5.3.3.11 Internal Communication.**

It appears that participants in the study felt more confident in their ability to create and use an internal communication plan/process before going through the accelerator program compared to the support. This suggests that the accelerator program may have introduced challenges or obstacles in implementing an internal communication plan/process. However, further analysis would be needed to determine the specific factors that contributed to this difference.

## **5.4 Biases and Errors**

As the researchers themselves are devote advocates of the use of professional project management, we might have a more comprehensive understanding of the concepts than our participants. This might have skewed the results due to “high level” project managerial wording of the questions. This came to our awareness as one of the participants sent us an email expressing how complex the survey was to understand. Additionally, some parts of the questionnaire could have been clearer as we assumed that the startups must be using some essential knowledge, skills, and competences of project management.

## **5.5 Future Research Directions**

Design of startup accelerators in Iceland, the effect of knowledge sharing between the startups in accelerators, selection of mentors in accelerator programs and suggestive research is to follow one accelerator from selection to program to end of program and monitor the startups from start to finish. Another interesting perspective to research further is the self-confident and go-do attitude that entrepreneurs seem to embrace and what role that plays in their knowledge gathering and learning throughout the startup journey and what affect it has on their success.

## **6 CONCLUSIONS**

On one hand the data suggests on that formal project management method are not the primary focus of the Icelandic startup accelerators, even though some of the identified project management methods used do relate to business plan creation and development of technical products. On the other hand, the data does not confirm that lack of project management influences the success of the startups. The study results are, therefore, inconclusive regarding how project management is being used by startups in Icelandic startup accelerators and if it is a principal factor for success. There is also not a conclusive link between success and any skill, knowledge, experience, nor tool factors. However, team size seems to be a critical factor in the success of startups, indicating that using project management methodology may be important. As it suggests, the need of management and planning through the startup ideation to operation are essential. Effective project management can help increase the chances of success and prevent damaging financial effects. It's important for startups to recognize the importance of project management and to utilize it throughout the lifespan of their venture. It is important to note that accelerators vary in design and duration, which can influence the results of this study as the generalization of those aspects. However, from a project management perspective an interesting question remains unanswered, i.e., whether a startup should be considered as a project or an operational phenomenon, as startups do not always view themselves as projects. Additionally, as identified in the literature review, there is a research gap in when it comes to exploring the potential potentials of project management for startups in accelerators. This research highlights that gap and provides a starting point for future research about startups in this regard.



## REFERENCES

- Anderson, B. J., Leonchuk, O., O'connor, A. C., Shaw, B. K., & Walsh, A. C. (2022). Insights from the evaluations of the NIH Centers for Accelerated Innovation and Research Evaluation and Commercialization Hubs programs. *Annual Review of Anthropology*, 6(1), e7-e7.
- Cohen, S., Fehder, D. C., Hochberg, Y. V., & Murray, F. (2019). The design of startup accelerators. *Research Policy*, 48(7), 1781–1797. doi:10.1016/j.respol.2019.04.003
- de Faria, V. F., Santos, V. P., & Zaidan, F. H. (2021). The business model innovation and lean startup process supporting startup sustainability. *Procedia Computer Science*, 181, 93–101. doi:10.1016/j.procs.2021.01.106
- Del Sarto, N., Cruz Cazares, C., & Di Minin, A. (2022). Startup accelerators as an open environment: The impact on startups' innovative performance. *Technovation*, 113, 102425. doi:10.1016/j.technovation.2021.102425
- Dutra de Abreu Mancini de Azevedo, P. H., & Passos Silva, L. (2021). Finding the roots: experimentation in innovation project management. *International Journal of Managing Projects in Business*, 14(5), 1116–1134. doi:10.1108/IJMPB-08-2020-0260
- European Commission, Directorate-General for Informatics, (2021). *PM<sup>2</sup> Project management methodology: guide 3.0.1*, Publications Office of the European Union. <https://data.europa.eu/doi/10.2799/08869>
- Eyþórsson, Axel Rúnar. (2015). Verkefnastjórnun sprotafyrirtækja: nýtist hefðbundin áætlanagerð sprotafyrirtækjum á byrjunarstigi. (MPM) tækni- og verkfræðideild Háskólans í Reykjavík, Reykjavík.
- Giardino, C., Paternoster, N., Unterkalmsteiner, M., Gorschek, T., & Abrahamsson, P. (2016). Software Development in Startup Companies: The Greenfield Startup Model. *IEEE Transactions on Software Engineering*, 42(6), 585–604. doi:10.1109/TSE.2015.2509970
- Hofer, C. (2016). The evolution of business plans in international business plan competitions. In *Advances in Entrepreneurship, Firm Emergence, and Growth*. Advances in Entrepreneurship, Firm Emergence and Growth (pp. 145–211). Emerald Group Publishing Limited.
- Honig, B., & Hopp, C. (2016). New venture planning and lean start-up activities: A longitudinal empirical study of entrepreneurial success, founder preferences and venture context. In *Advances in Entrepreneurship, Firm Emergence, and Growth*. Advances in Entrepreneurship, Firm Emergence and Growth (pp. 75–108). Emerald Group Publishing Limited.
- International Project Management Association. (2015). Individual competence baseline: for project, programme, portfolio management (ICB 4.0). Nijkerk, The Netherlands: International Project Management Association (IPMA). ISBN: 978-94-92338-01-3.
- Jónasson, H. (2010). *Áhrifamat á Tækniþróunarsjóði 2004 til 2008*. Reykjavík: Rannsóknamiðstöð Íslands. Retrieved April 29, 2023, from [https://www.rannis.is/media/utgafur-og-skyrslur/Ahrifamat-a-Taeknithrounarsjodi-2004-2008\\_1595574079.pdf](https://www.rannis.is/media/utgafur-og-skyrslur/Ahrifamat-a-Taeknithrounarsjodi-2004-2008_1595574079.pdf)
- Morgan, M., Levitt, R. E., & Malek, W. A. (2007). *Executing Your Strategy: How to Break it Down and Get it Done*. Retrieved from <https://books.google.is/books?id=A38eAQAAIAAJ>
- Moritz, A., Naulin, T., & Lutz, E. (2022). Accelerators as drivers of coopeition among early-stage startups. *Technovation*, 111, 102378. doi:10.1016/j.technovation.2021.102378

- Oliva, F. L., & Kotabe, M. (2019). Barriers, practices, methods and knowledge management tools in startups. *Journal of Knowledge Management*, 23(9), 1838–1856. doi:10.1108/JKM-06-2018-0361
- Ólafsdóttir, Svava Björk. (2015). Frumkvöðlakeppnin Gulleggið: hver eru einkenni teymanna sem ná bestum árangri? (MPM) tækni- og verkfræðideild Háskólans í Reykjavík, Reykjavík.
- Project Management Institute (Ed.). (2021). *The standard for project management and a guide to the project management body of knowledge (PMBOK guide) (Seventh edition)*. Newtown Square, Pennsylvania: Project Management Institute, Inc.
- Silva, D. S., Ghezzi, A., Aguiar, R. B. de, Cortimiglia, M. N., & ten Caten, C. S. (2020). Lean Startup, Agile Methodologies and Customer Development for business model innovation: A systematic review and research agenda. *International Journal of Entrepreneurial Behaviour & Research*, 26(4), 595–628. doi:10.1108/IJEER-07-2019-0425
- Skatturinn (n.d.). Fyrirtækjaskrá. Skatturinn. Retrieved April 23, 2023, from <https://www.skatturinn.is/fyrirtaekjaskra/>
- Unknown. (2007, July 1). Stuðningur við háskólamenntaða frumkvöðla. *Frjáls verslun*, 69(7), pp. 50-51. Retrieved April 29, 2023, from <https://timarit.is/page/6252314>.
- Unknown. (2008, February 2). Yfir 100 hugmyndir í frumkvöðlakeppni. *Morgunblaðið*, 32, p. 41. Retrieved April 29, 2023, from <https://timarit.is/page/4182593>.
- Verkefnastjórnunarfélag Íslands (e.d.-a). Um VSF. Verkefnastjórnunarfélag Íslands. Retrieved April 23, 2023, from <https://www.vsf.is/is/um-vsff/um-vsff>
- Verkefnastjórnunarfélag Íslands (e.d.-b). Vottaðir verkefnastjórar. Verkefnastjórnunarfélag Íslands. Retrieved February 27, 2023, from <https://www.vsf.is/is/vottun-4/vottadir-verkefnastjorar>
- Zaman, U., Florez-Perez, L., Fariás, P., Abbasi, S., Muddasar, G. K., & Tri, I. W. (2021). Shadow of your former self: Exploring project leaders' post-failure behaviors (resilience, self-esteem and self-efficacy) in high-tech startup projects. *Sustainability*, 13(22), 12868. doi:<https://doi.org/10.3390/su132212868>

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## APPENDIX

### Appendix A: Questionnaire and ICB4 categories

Here are the questions from the questionnaire sent out via Microsoft forms. Information provided in brackets [ ... ] are explanatory text for the reader to understand certain rules added in the form and if there are same questions. In the beginning of the questionnaire the participants might answer sets of same questions if they have participated in more than one accelerator, we fixed this to three accelerators because our data did not show any startups going through more than three. Questions 15 and 16 include 15 statements that have a connection ICB4, see table 2.

**Figure 16**

*Statements in 15 and 16 categorized according to ICB4*

Practice	Perspective	
<ul style="list-style-type: none"> <li>... skills to create a business plan</li> <li>... skills to adjusting my/our business plan regularly</li> <li>... skills to define milestones for short term successes</li> <li>... skills to define an end date where the initial startup would be seen as accomplished</li> <li>... knowledge to find/use the appropriate project management IT tools (e.g., Asana, Teams Planner, Trello, Jira, Monday, Microsoft Project, etc.)</li> <li>... skills to define the needed requirements and to revise them regularly</li> <li>... skills to break the work down into smaller manageable tasks</li> <li>... skills to use Lean-startup methods for success</li> <li>... skills to use Agile methods for success</li> <li>... skills to defining the Minimum Viable Product (MVP)</li> </ul>	<ul style="list-style-type: none"> <li>... knowledge to manage the startup</li> <li>... knowledge to find/use the appropriate project management methodology</li> <li>The accelerator...</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Project management</li> <li><span style="color: red;">■</span> Practice</li> <li><span style="color: green;">■</span> Perspective</li> <li><span style="color: purple;">■</span> People</li> </ul>
<ul style="list-style-type: none"> <li>The accelerator assisted me/us in creating a business plan</li> <li>The accelerator assisted me/us in adjusting the...</li> </ul>	<ul style="list-style-type: none"> <li>People</li> <li> <ul style="list-style-type: none"> <li>... skills to professionally communicate and collaborate</li> <li>... skills to create and use an internal communication plan...</li> </ul> </li> <li>Project management</li> <li> <ul style="list-style-type: none"> <li>... project management...</li> </ul> </li> </ul>	

Here the list of questions starts.

**1. What startup accelerator did you participate in? [Question 4 and 7 same]**

Options:

- Gulleggið
- Hringiða
- Til sjávar og sveita
- Snjallræði
- Startup Supernova
- Startup Energy Reykjavík
- Startup Reykjavík
- Dafna
- Other [Free text]

**2. What year? [Question 5 and 8 same]**

Options:

- 2012
- 2013
- 2014

- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022
- Other [Free text]

**3. Did you participate in another accelerator? [Question 6 same]**

Options:

- Yes
- No [If no participant is sent to question 9]

**9. Specify your startup industry category.**

Options:

- Academy and science
- Consultancy
- Culture and entertainment
- Design and architecture
- Energy
- Farming and agriculture
- Finance, insurance, and banking.
- Fishing industry
- Food and restaurants
- Government and public service
- Healthcare
- IT and telecommunications
- Law
- Manufacturing
- Marketing
- Retail
- Teaching and education
- Technology and engineering
- Tourism
- Transportation

**10. Specify your startup product type.**

Options:

- Software
- Software as a Service (SaaS)
- Service
- Machinery
- Manufacture and/or production goods

**11. Size of your team?**

Options:

- 1
- 2-4
- 5-7
- 8+

**12. Did the startup have any connection to an already existing company or organization?**

Options:

- Yes
- No

**13. Current status of startup? (Please select all that apply).**

Options:

- It did not fully actualize.
- It has received grants.
- It has paying customers.
- It is still seeking funding and financing.
- It is matured and financially sustainable.

**14. How well does your startup fit this description: “A temporary endeavour with a beginning and an end undertaken to create a unique product, service, or results”? [5-point Likert scale ranging from “Strongly disagree to Strongly agree]**

15. Before I/we took our startup through the accelerator I/we had the necessary... [5-point Likert scale ranging from “Strongly disagree to Strongly agree]

Statements:

- ... project management knowledge.
- ... skills to create a business plan.
- ... skills to adjusting my/our business plan regularly.
- ... skills to define milestones for short term successes.
- ... skills to define an end date where the initial startup would be seen as accomplished.
- ... knowledge to manage the startup.
- ... knowledge to find/use the appropriate project management methodology.
- ... knowledge to find/use the appropriate project management IT tools (e.g., Asana, Teams Planner, Trello, Jira, Monday, Microsoft Project, etc.)
- ... skills to define the needed requirements and to revise them regularly.
- ... skills to break the work down into smaller manageable tasks.
- ... skills to use Lean-startup methods for success.
- ... skills to use Agile methods for success.
- ... skills to defining the Minimum Viable Product (MVP).
- ... skills to professionally communicate and collaborate.
- ... skills to create and use an internal communication plan/process.

16. Rate the following statements based on your experience of the startup accelerator you participated in. [5-point Likert scale ranging from “Strongly disagree to Strongly agree]

Statements:

- The accelerator provided me/us with the needed project management knowledge.
- The accelerator assisted me/us in creating a business plan.
- The accelerator assisted me/us in adjusting the business plan regularly during the startup life cycle.
- The accelerator encouraged me/us to define milestones for short term successes.
- The accelerator made me/us define an end date where the initial startup would be seen as accomplished.
- The accelerator provided me/us with the necessary knowledge to manage the startup.
- The accelerator provided me/us to find/use the appropriate project management methodology.
- The accelerator provided me/us with the appropriate project management IT tools (e.g., Asana, Teams Planner, Trello, Jira, Monday, Microsoft Project, etc.).
- The accelerator required me/us to define the needed requirements and to revise them regularly.
- The accelerator encouraged me/us to break the work down into smaller manageable tasks.
- The accelerator encouraged me/us to use Lean-startup methods for success.
- The accelerator introduced me/us to Agile methods for success.
- The accelerator aided/required me/us in defining the Minimum Viable Product (MVP).
- The accelerator taught me/us important lessons about professional communication and collaboration.
- The accelerator encouraged me/us to create and use an internal communication plan/process.

17. Age

Options:

- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 or older

18. Was this your first startup?

Options:

- Yes
- No

19. Gender

Options:

- Woman
- Man
- Non-binary
- Prefer not to say

20. Nationality

Options:

- Icelandic
- Other [Free text]

21. Highest education

Options:

- High school, diploma or equivalent
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

22. Please rate your level of... [5-point Likert scale ranging from "Strongly disagree to Strongly agree"]

Statements:

- ... experience in effectively managing projects, tasks, and timelines for your startup.
- ... skills in developing and executing strategic plans to achieve the goals and objectives of your startup.
- ... managing the financial aspects of your startup, including budgeting, financial analysis, and financial decision-making.
- ... capability in building and managing relationships with stakeholders, such as customers, partners, investors, and employees, for your startup.
- ... efficiency leading and managing teams, including motivating, and developing employees, in the context of your startup.



## Appendix B: Facebook Groups

**Table 1**

*Facebook groups posted in and how many followers for each.*

Facebook groups	Followers
Íslenskir frumkvöðlar (e. Icelandic entrepreneurs)	7677
Icelandic startups	593
Kvenn - Konur í nýsköpun (e. Kvenn - Women in innovation)	40
Korka – konur í nýsköpun og sprotafyrirtækjum (e. Korka - Women in innovation and startup)	2500

## Appendix C: Contact Methods

**Table 2**

*Contact Methods*

Contact method	Purpose	Count
Email	Startup reach out	133
Email	Accelerators reach out	9
Email	Mentors and specialist reach out	3
Social media personal messages	Startup reach out	32
Social media personal messages	Accelerators reach out	10
Social Media posts	Startup reach out	12

## **Appendix D: Responses from Startups**

In phase 2 when reaching out to the startups via the email list created in phase 1, few responded with additional information. Responses were in Icelandic but have been translated to English, and here below is an excerpt from those responses.

### ***Startup 1***

Icelandic startups focus well on arranging their time well in constructive projects. They need to understand what their gain is to participate in any endeavors.

### ***Startup 2***

Startups get a lot of requests all over the place to participate in this and that. It doesn't amaze me that you have a hard time to get them to answer your questions. Your questions cover a lot of different accelerators and startups from different phases. It is hard to understand the purpose and learning of an accelerator.

### ***Startup 3***

Generally, in these accelerators then the startups are in some kind of early development phase, but not in a research or product development phase. There is a difference, if talking about small business or product development startup. In other programs it is mandatory to use at least 10% in research and development. One recommendation regarding one of the questions about the current status, add "Not seeking funding and currently bootstrapping". My experience being around many startups in different phases that often in the start they are not thinking of project management and in these (the selected accelerators) they do not cover project management. It is also important to point out that most of the accelerators are focusing more on startups in software.

### ***Startup 4***

People in startups are usually busy thereby probably not interested in answering your questions.

### ***Startup 5***

The respondent had worked for Klak from 2013 to 2019 and had introduced project management methodologies within the accelerators during that time. Although she knows that the content isn't being used anymore, she hosts presentations at the university on how to use project management in innovation and describes project management and innovation as their passion. They have ties to startups, having gone through a startup accelerator themselves with their new company, and managing a new startup accelerator where they focus on project management methodologies. When introducing project management for startups, she views the journey from ideation to operation as a project with a clear beginning and end and emphasizes the importance of managing the work breakdown in between.

### ***Startup 6***

Respondent claims that he might be an outlier because he needed a special permission to be allowed to participate in the accelerator as he has professional diploma in Culinary Arts. He has managed kitchens for over 20 years and has experience with managing people and as a purchasing manager. He was struggling a bit with the program because it was more academic focused than practical, and he felt like he had to put in more effort than many others.

## Appendix E: Industry categories

**Table 3**

*Industry categories participated in the questionnaires*

Industry Category		
Academy and science	2	5%
Circular Economy & data	1	2%
Culture and entertainment	2	5%
Energy	1	2%
Finance, insurance, and banking.	1	2%
Fishing industry	1	2%
Food and restaurants	4	9%
Healthcare	3	7%
Manufacturing	2	5%
Marketing	1	2%
Retail	1	2%
Teaching and education	3	7%
Technology and engineering	10	23%
Tourism	5	12%
Transportation	1	2%
Other	5	12%
	43	100%

## Appendix F: Startups in selected Accelerators

Other accelerator mentions were TINC, Startup Tourism, AWE, Dafna, and Startupbootcamp.

**Table 4**

*Overview of startups in selected accelerators from phase 1 and participants from phase 2*

Accelerator	Year range	Startups per accelerator	Active (Unknown)	Total answers
Gulleggið	2008 – 2022	147	53 (12)	9 (3)
Hringiða	2022 – 2022	7	7	1 (3)
Snjallræði	2022 – 2022	9	9	3 (2)
Startup Energy Reykjavík	2014 – 2016	21	12 (1)	4 (1)
Startup Reykjavík	2012 – 2019	68	25 (7)	8
Startup Supernova	2020 – 2022	30	23 (2)	10
Til sjávar og sveita	2019 – 2021	25	20	4
Other				4 (4)
Total: 7	2008 – 2022	307	149 (22)	43 (13)

**Table 5**

*List of which year the startups participated in the accelerator*

Year	Singular year	Multiple year
2013	4	4
2014	2	2
2015	2	2
2016	6	9
2017	5	6
2018	3	4
2019	3	5
2020	5	5
2021	2	4
2022	11	17
Total: 7	43	56

**Appendix G: Pre- and Post-Accelerator statements**

**Table 6**  
*Pre- and Post-Accelerator statements*

<b>Pre-</b>	<b>15.1</b>	<b>15.2</b>	<b>15.3</b>	<b>15.4</b>	<b>15.5</b>	<b>15.6</b>	<b>15.7</b>	<b>15.8</b>	<b>15.9</b>	<b>15.10</b>	<b>15.11</b>	<b>15.12</b>	<b>15.13</b>	<b>15.14</b>	<b>15.15</b>
Median	4	4	4	4	3	3	3	4	4	4	3	3	4	4	4
Mean	3,23	3,39	3,28	3,63	3,12	3,02	3,07	3,33	3,21	3,73	2,84	2,66	3,51	3,86	3,22
SD	1,30	1,22	1,14	1,00	1,01	1,20	1,11	1,15	1,11	0,89	1,15	1,12	1,37	0,93	0,98
<b>Post-</b>	<b>16.1</b>	<b>16.2</b>	<b>16.3</b>	<b>16.4</b>	<b>16.5</b>	<b>16.6</b>	<b>16.7</b>	<b>16.8</b>	<b>16.9</b>	<b>16.10</b>	<b>16.11</b>	<b>16.12</b>	<b>16.13</b>	<b>16.14</b>	<b>16.15</b>
Median	3	3	3	4	2	3	3	2	3	3	3	2	3	4	3
Mean	2,82	3,11	3,05	3,50	2,48	2,82	2,73	2,39	2,73	2,77	2,70	2,41	3,18	3,39	2,77
SD	1,23	1,32	1,16	1,25	1,28	1,11	1,25	1,30	1,30	1,24	1,17	1,24	1,17	1,06	1,18

**Table 7**  
*Pre- and Post-Accelerator statements comparison between startups participated in one accelerator or more*

Statement	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pre Mean - No	3,48	3,73	3,70	3,76	3,24	3,24	3,21	3,48	3,55	3,88	3,00	2,76	3,42	4,03	3,39
Post Mean - No	2,97	3,15	3,15	3,64	2,58	2,97	2,88	2,48	2,94	2,91	2,88	2,61	3,15	3,48	2,91
Pre Mean - Yes	3,20	3,20	3,30	4,10	3,60	3,00	3,30	3,60	3,40	4,30	2,90	2,90	4,10	4,40	3,80
Post Mean - Yes	2,50	3,20	2,90	3,30	2,30	2,50	2,40	2,20	2,20	2,50	2,30	1,90	3,50	3,30	2,50
GAP PRE	0,28	0,53	0,40	-0,34	-0,36	0,24	-0,09	-0,12	0,15	-0,42	0,10	-0,14	-0,68	-0,37	-0,41
GAP POST	0,47	-0,05	0,25	0,34	0,28	0,47	0,48	0,28	0,74	0,41	0,58	0,71	-0,35	0,18	0,41