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SUCCESS AND FAILURE FACTORS OF POST-CONTEST PERFORMANCE OF AJUJAHT START-UP COMPETITION PRIZEWINNERS

Master's Thesis

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Tartu 2020

Recommended for defense: signed digitally

(supervisors' signatures)

Accepted for defense " " 2020

I have written the Master's Thesis myself, independently. All of the other authors' texts, main viewpoints and all data from other resources have been referred to.

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ABSTRACT

Purpose − The aim of this paper is to find the factors affecting the post-contest success and failure of prizewinners of business plan competitions (BPC).

Design/methodology/approach – An explanatory research using combined approach of Likert survey, media research and interviews was conducted to find the factors affecting the success or failure of the prizewinners of Ajujaht start-up competition.

Findings –Issues with the business model, age, experience, dedication and choosing the right partners are identifiable as factors of success and failure. Problems with outside expertise was a factor for failure, whereas successful prizewinners were actively looking for investments. These factors are not inherent to Ajujaht projects, but Ajujaht may have its role in the failure of these startups.

Practical implications – As an opportunity to learn from past mistakes; it highlights the factors that new start-up founders should consider when working on their project. It also offers the organizers of BPCs some key points to focus on during their evaluation process and for investors to consider when planning investments.

Originality/value − This paper contributes to the existing, but insufficient literature on BPC prizewinners. This paper explores currently active start-up companies. It offers an approach for defining success. It provides potential negative factors that the participants of BPCs may encounter after competition.

Keywords − business plan competition, mixed method, entrepreneurship, start-up companies.

Paper type – Mixed method study.

CERCS – S189, S190

INTRODUCTION

Start-ups draw attention: discussions about what start-ups are, what they do and what they offer for general public emerge periodically. As the wider audience further acknowledges the start-up industry, entrepreneurial competitions for business plans and fresh ideas have become globally widespread over the last decade, with participants getting benefits without much to lose.

Previous research has shown that pitch competitions help entrepreneurs learn, which in turn increases the likelihood of success (Howell 2016), public exposure, potential investors, validation and funding. McKenzie (2016) claims that BPCs enable firms to get more capital and workers, without negative effects on business networks, mentors, self-efficacy, or uses of other sources of finance. He explains that winning allows firms to overcome credit constraints by using capital grants to purchase more capital inputs, hire more labour, and use this to produce more varied inputs. This corresponds with Cooper *et al* (1994), who find that firm survival and growth are limited by initial financial capital, and Carpenter and Petersen (2002), who conclude that the growth of small firms can be limited by internal finance. However, McKenzie and Sansone (2019) find that business plan scores from judges, in other words results in these competitions, do not correlate with business survival, employment, sales, or profits three years later. Tipu (2019) reviewed academic literature on BPCs in developed and emerging economies and indicated a need to focus more on BPCs. He proposes questions for future research, one of which is: „Do the winning and/or losing teams continue to develop the idea and eventually initiate the venture?" (Tipu 2019:94) — a question that partially, among others, this paper seeks to answer.

The follow-ups of competition-winning start-ups show varying performance history; competition results do not lead to definitive success. Nevertheless, successful companies have launched from BPCs, showing that due to the early exposure and attention BPCs offer, winning can lead to success. Still, researches on entrepreneurial competitions are

scarce. Estonia's biggest entrepreneurship competition Ajujaht concluded for the 13th time in the spring of 2020. The whole groundwork for the paper started out of a notion that the contestants of Ajujaht rise into the media spotlight every spring, but fade away soon after. Of all the contestants throughout the history of this competition, only few companies have remained in the public sight. This raised a hypothesis that there is a set or sets of factors that negatively affect the ensuing progress of Ajujaht participants after the competition's finale. As the overall predictive power for picking competition winners is weak for different approaches (McKenzie and Sansone 2019), this paper is less with predictive inclination and more a retrospective. The aim of this paper is to explore factors affecting post-competition failure or success of Ajujaht competition prizewinners. Surveys and interviews with key people in top three companies from years 2008 to 2014 have been conducted to see if there are any specific factors that played for and against the success of these businesses.

The paper proceeds as follows: Section 1 is a literature review that points out the possible factors of success and failure following the competition. Section 2 describes the empirical approach and the sample. Section 3 contains the results, discussion and conclusion.

1. LITERATURE REVIEW

1.1. Possible factors of business success and failure

Successful entrepreneurship is a complex phenomenon and both internal and external factors impact on business performance. However, the first question is, what to consider as a successful or unsuccessful business? Academic literature provides different forms for success: survival (e.g. Lussier and Pfeifer 2001), profit (e.g. Lussier and Halabi 2010), longevity (e.g. van Praag 2003), sales growth (e.g. Smallbone & Wyer 2000), number of employees (van Praag 1996) and many more. There are also many definitions of failure. Perhaps the simplest is the one of Merriam-Webster, where failure is considered lack of success (Failure – Merriam-Webster 2020). Gilad *et al* (1985) interpret failure in business as a situation where perceived future gains are lower than the effort of staying in business (Gilad *et al* 1985 via Salminen 2012). It is possible to interpret failure as something continuous; as a business process based on a cycle of trial and error (Stokes and Blackburn 2002). This paper avoids the narrow conception of failure as bankruptcy or liquidation (Peat 2007) and conflates two interpretations: firstly, failure as the termination of a business that has fallen short of its goals (McGrath 1999; Politis and Gabrielsson 2009), and secondly, failure as a loss of capital and an inability to "make a go of it" (Cochran 1981). This conflicts with Headd (2003), who claims that when defining failure, it is vital not to conflate failure with business closure, as this may involve voluntary venture termination for reasons like retirement or pursuing other activities.

With small new ventures, the founder's influence in defining business concept and mode of operation is of paramount importance (Watson, Hogarth-Scott and Wilson 1998). As the founder's influence to the principals of a business is singular, especially in founding stages, it is difficult not to agree with. Albeit the entrepreneur's psychology is more important in predicting chances of starting a business than in business being successful (Rauch and Frese 2000), there are multiple reviews that suggest a relationship between personality traits and both business creation and business success (Chell, Haworth and

Brearley 1991; Cooper and Gimeno-Gascon 1992; Rauch and Frese 2000). It was already the personal qualities of a Schumpeterian entrepreneur, such as intelligence, alertness, thrive and determination, that were important in terms of the ability to innovate (Schumpeter 1934). Martin (1999) identified traits that are most frequently associated with the success of the entrepreneurs: creativity, positiveness, problem-solving, persistence, need for independence, self-confidence, and high-risk propensity, which all reflect the Schumpeterian qualities for innovation, further emphasizing the connection between innovation, entrepreneurship and success.

Rauch and Frese (2007) showed traits which were correlated with business success: innovativeness, proactive personality and self-efficacy, while stress tolerance was consistently related to business creation. Self-efficacy and proactiveness suggest that successful entrepreneurs may occasionally come out as overconfident, perhaps even arrogant. Ciavarella *et al* (2004) claim that out of "Big Five" personality attributes, only entrepreneur's conscientiousness was positively related to long-term venture survival, but a negative relationship between entrepreneur's openness and long-term venture survival was also found.

Vivek Wadhwa of Carnegie Mellon University and Harvard Law surmises that BPCs do not produce winning businesses (Wadhwa 2009). According Wadhwa (2009): „losing in a business plan contest is actually more beneficial than winning". He suggests that BPC winners may be influenced by praise that comes too early and too easily, and abstain from putting in the persevering effort to make the business work in the long term. Instead, those who are initially seen as having room for improvement, seem to perform better than their peers in the long term. He highlights some crucial factors that could be part of „winner's curse ": a lack of solid understanding of market needs and missing real-world validation of the ideas. (*Ibid* 2009)

The study of Duchesneau and Gartner (1990) found that lead entrepreneurs in successful firms worked long hours. Van Gelderen *et al* (2005) shows the decision to switch from part-time to full-time may be grounded on clear indications that the entrepreneur can indeed start the business. The decision of either working full- or part-time may indicate entrepreneur's determination. The association with success of starting part-time or full-time appears to be a circular finding; the amount of time one can put in is a success

measure by itself. The aspect of motivation is also addressed: Push motivation works negatively in combination with high ambitions. If forced to start a business, and on the lookout for organizational employment, it is better to start an operation limited in scope and scale. (*Ibid* 2005) Duchesneau and Gartner (1990) found that entrepreneurs with bigger ambitions are more successful. Hodgetts and Kuratko (2000) found that being independent, creative and doing enjoyable work relate to survival of small firms.

Knight (1967) and Drucker (1985) claimed entrepreneurship to be about taking risk. Boermans and Willebrands (2017) found a connection between risk propensity and success and claim that those with low risk perception and high-risk propensity perform the worst. People who perceive less risk start their business earlier, whether their risk perception is accurate or not (Van Gelderen *et al* 2005). Based on this, the author suggests that low risk perception leads to rushed business decisions that in turn may prove detrimental to company's future.

One key for start-up success is finding sufficient financial resources to develop an idea, especially in phase when the start-up does not generate revenue. Because of this, start-ups must look for financial resources from the external environment: family, friends, banks, venture and, development capital, state support, or crowdfunding. (Bednár and Tarišková 2017) Nascent entrepreneurs intending to use more start-up capital have lower probabilities to get their business running. Amount of intended start-up capital relates to intended size; smaller companies are easier to get started. (Van Gelderen *et al* 2005) Howell (2016) studied ventures sector-wise and found software and education ventures more likely to succeed in raising angel or venture capital (VC) and growing staff, while social and biotech ventures not. Media and entertainment ventures were more likely to only raise angel/venture capital. (Howell 2016)

Studies of BPCs show that team characteristics may influence results in BPC. There are some gender-related differences in venture outcomes. Poczter and Shapsis (2016) show that women generally receive lower valuations and less capital than men do and that it is partly because women initially ask for less. There is evidence that outside investors who observe women doing better on the Shark Tank televised pitching show (i.e., receiving more offers) are less likely to approach them relative to their male counterparts (Smith and Viceisza 2017). *Ibid* (2017) claim that in Shark Tank, teams with greater proportion

of women receive more offers during the negotiation process but are less likely to exist in the longer run (relative to teams with a comparable proportion of men and offers). Poczter and Shapsis (2016) found that women-owned teams receive lower company valuations and less capital than their male counterparts, partly because women initially ask for less. They also found that the likelihood of a team receiving an offer from an angel investor is still independent of the entrepreneurs' gender. (Poczter and Shapsis 2016)

Smith and Viceisza (2017) noticed that larger teams often have proportionally more women, suggesting women are less likely to pitch or work alone. Kolvereid (1996) and Mazzarol et al. (1999) found that men over women were more likely to be founders of new business. Walters, Stuhlmacher and Meyer (1998) show that females value cooperation more than males and exhibit more cooperative behaviour. More contestants pitching for the same team are likely to be more effective; team members tend to remediate mutual weaknesses. Specifically, the number of people pitching and their attractiveness are determinants of an intention-to-fund. (Smith and Viceisza 2017). The likelihood of quitting start-up efforts decreases with organization size (Carroll and Hannan 2000). Firms with more than one shareholder during initiation were significantly more likely to survive (Lechler and Gemuenden 1999; Westhead et al. 1995). Chatman and Flynn (2001) say that communication issues diminish over time as team members get used to working with one another. The problem is that the team might disband before it can work through these differences (Williams and O'Reilly 1998).

On the subject of reviewed literature, some contradictory findings are highlighted in Table 1. The author acknowledges the connection between traits and success might not always be discernible. Entrepreneur's personality might not make for an easy prediction of firm success (Storey 1994); Gadenne (1998) is more sceptical: entrepreneur's personal characteristics are not related to successful management. These concepts are opposed by multiple papers. The existence of entrepreneurial traits affecting business success has been repeatedly discussed, in different contexts and cultures. In the matter of whether connections exist or not, the sheer volume of findings leads the author to take the position of the majority.

Studies on previous entrepreneurship experience have had varying results. Cassar (2014) made a jury-related observation, finding no support for start-up experience, whether

within the industry or otherwise, improving entrepreneur forecast performance. This suggests that better prediction of new business performance is achieved by those with industry, but not entrepreneurial, experience (Cassar 2014). Cooper *et al* (1994) and Azoulay *et al* (2018) claim that industry experience relates to success. Van Gelderen *et al* (2005) confirm that those with limited entrepreneurial experience benefit from information and guidance. Corbett (2007), Raman (2004), Cliff *et al* (2006) and Wijewardena and Cooray (1996) attribute experiences a significant importance. Agnieszka and Mackiewicz (2020) claim that diverse educational and professional backgrounds raise the chances of starting a company and entrepreneurial success.

Table 1. Contradictory findings in reviewed literature

Author	Findings	Topic	Findings	Author
e.g. Rauch and Frese 2007; Ciavarella *et al* 2004	Entrepreneur's traits strongly correlated with business success	Importance of traits	Ostensible relations between entrepreneur's personality and firm success	Storey 1994; Gadenne 1998
Gottschalk *et al* 2014,	Venture outcomes are unrelated to prior successful entrepreneurial experience	Previous experience	Education and prior experience in business are critical success factors; individuals with more diverse educational and professional backgrounds have greater chances of starting a company and it being successful.	e.g. Raman 2004; Wijewardena and Cooray 1996; Kurczewska and Mackiewicz 2020
Tipu and Arain 2011; Chrisman and McMullan 2004; Duchesneau and Gartner 1990	Positive relationship between venture survival and seeking support from an outside expert	Outside experts	"There are several studies that show weak, zero or even negative correlation between taking start-up courses or counselling, and successfully launching and/or running a business on the other"	Davidsson 2002: 6
Headd 2003; Van Gelderen *et al* 2005; Brockhaus 1980, Prasad *et al* 2015	Young owners considered more successful at closure; older people were less likely to get the business started; younger considered more successful;	Young vs old founders	Students/younger founders more likely to abandon the business idea; average age of founders for high-growth ventures is usually >40; older BPC applicants more likely to be running firms among the non-winners, and to run more successful firms.	Howell 2016; Azoulay *et al* 2018; McKenzie and Sansone 2019; Prasad *et al* (2015)
Brockhaus 1980	Those with an internal locus of control are more successful in their business ventures.	Locus of control	Successful entrepreneurs believe in having less control over success in business (external locus of control)	Duchesneau and Gartner 1990

Source: Compiled by the author.

Gottschalk et al (2014) found that venture outcomes are unrelated to prior successful entrepreneurial experience but once failed, the entrepreneur is more likely to fail again. The author recognizes that although the panel study of Gottschalk et al (2014) was large-scale (8400 German entrepreneurs), the results are not confirmed by other studies. As most start-ups in this paper came up with an idea that is extensive in the amount of research and knowledge required, the influence of previous experience, either in field or managing, is expected to be of significant importance. In addition, higher entrepreneurial or technical education is seen as a critical business success factor (Wijewardena and Cooray 1996; Indarti and Langenberg 2004).

Drucker (1985) noted that the most plausible reason for high failure rates of start-ups is simple: most people do not know what they are doing. New ventures should compensate knowledge gaps by using the support of outside experts, as it benefits firm survival (Tipu and Arain 2011; Chrisman and McMullan 2004, Duchesneau and Gartner 1990), emphasizing the relevance of Ajujaht as a support system for nascent entrepreneurs. Davidsson (2002) contradicts; but when closely inspecting Davidsson's (2002) claim on counselling and success, one can see that he mainly refers to his own previous research. The underlying causes for his results might come from the boom of entrepreneurship assistance industry in the early 1990s; which resulted in questionable assistance quality (Davidsson 2002b via Chrisman and McMullan 2004:230).

The age of founder has been studied repeatedly, giving mixed results. Headd (2003) concluded that young owners were common in businesses considered successful at closure. Among nascent entrepreneurs showing limited ambition, older people were less likely to get the business started (Van Gelderen et al 2005). Howell (2016) found somewhat opposite results in the context of entrepreneurial competition: students and younger founders are more responsive to the option to abandon the business idea. Prasad *et al* (2015) found a negative relationship between entrepreneur age and performance for "innovative" ventures; Azoulay *et al* (2018) found that the average age of high-growth venture founders is >40, the exact number depending on followed criteria. McKenzie and Sansone (2019) found that older BPC applicants were more likely to be running firms after the competition among the non-winners, and to run bigger firms, but several attributes that were predictive for non-winners, were much less predictive of outcomes

for winners. Based on this literature review, the author has no expectations on age-related differences in success/failure results. It is clear that this matter needs further research.

The author identified a gap between Duchesneau and Gartner's (1990) and Brockhaus' (1980) results on locus of control. Duchesneau and Gartner (1990) claim successful entrepreneurs to believe in having less control over success in business. Analysis of Duchesneau and Gartner (1990) highlights a conflict in their study results, as successful entrepreneurs are found to mitigate risks more, but feel less in charge of the results. Raises a question: if the locus of control is external for successful entrepreneurs, why still mitigate the risks? The results of Brockhaus (1980), where the locus of control of successful entrepreneurs is significantly more internal, links to the findings of Ciavarella *et al* (2014), as people deemed as conscientious are also perceived less risky. This leads the author to favour the position of Brockhaus (1980).

Although there are numerous publications on the factors of success, these rarely provide a holistic approach to success and failure. Furthermore, business failures and causes for start-up failure in particular are less common in modern literature. Still, few publications exist; these are explored in the next chapter.

1.2. The results of ex-post studies on start-up failure

On the subject of start-ups' performance, few recent ex-post studies highlight the causes of failure. Although studies are scarce, the number of published datasets is even smaller. Importantly, the causes of failures are not sole causes; companies may have had multiple causes, which is why the percentage rates do not add up to 100%. A summarised chart of causes is presented in Figure 1.

One of the most broad-based studies of start-ups' failures is by CB Insights, a tech market intelligence platform that analyses data points on VC, start-ups, patents, partnerships. Their dataset includes 300+ start-up post-mortems. Economics papers, blogs and business websites usually refer to CB Insights' research results when compiling their top list of failure causes. As a side note, blogs and sites often present CB Insights' research results as their own. Their study identified the most common cause of failure among start-ups is the missing necessity for the product/service (42%), which meaning the start-ups solved problems that did not serve the market need. It damages the product/service and the

success of the business model. Marc Andreessen (2007) has defined product/market fit as being in a good market with a product that can satisfy that market.

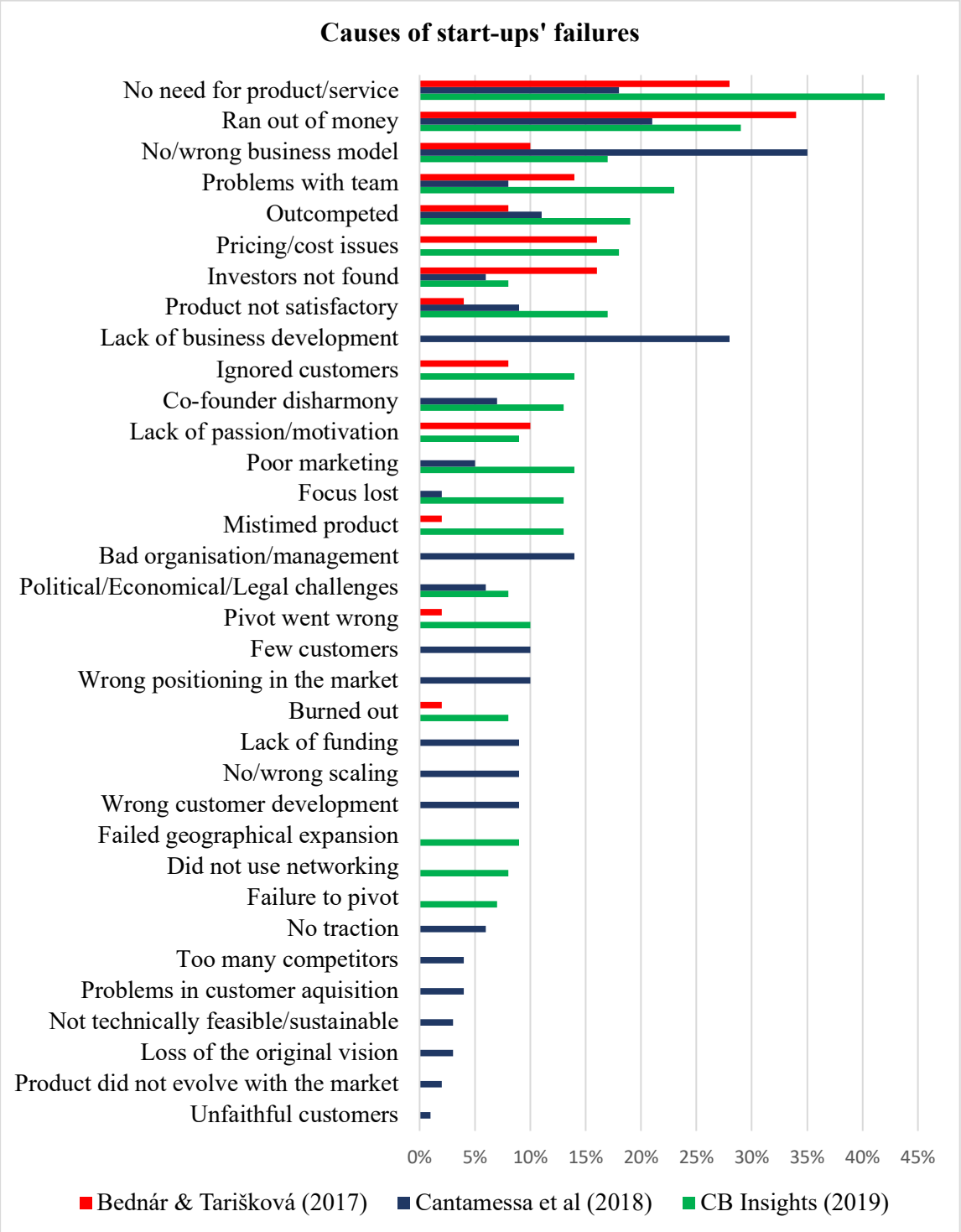

Figure 1. Compiled causes of start-ups' failures.
Source: (The TOP 20… 2019, Cantamessa *et al* 2018, Bednár and Tarišková 2017), compiled by the author

On the opposite, wrong positioning implies wrong knowledge of the product/service with consequent bad performance or the risk to begin in the "stuck in the middle" position of Porter's generic strategies (Porter 1980). Missing product/market fit was followed by running out of money (29%) and not having the right team (23%) (The TOP 20… 2019), the last of which is linked with Smith and Viceisza's (2017) results.

Cantamessa *et al* (2018) use compiled data from CB Insights' cases and from Autopsy.io's restricted database of failures. Although similar results with CB Insights' findings could be expected, that is not the case. Their study shows the wrong or missing business model as the most frequent cause of start-up failure (35%). Business model describes how organisation offers value for customers and captures part of it to generate profits (Osterwalder and Pigneur 2010). Although a basis for value creation, firms need to change it as the core logic for operating a firm changes over time in order to stay profitable (Linder and Cantrell 2000). The right model is rarely clear early on in new/innovative sectors: entrepreneurs who have a good—although an imperfect business model—but who are pro-learning and can make it evolve, are more likely to succeed (Shirky 2008; Teece 2000). 28% of the observed start-ups listed poor business development as a cause for their breakdown. The highly technical teams show that focusing on the product is a risk to have a lack of business development, which leads to the absence of commercial perspective. This means sub-par studies on increasing customers, sales and profits, and on how to make the business more profitable and self-perpetuating. 21% of observed start-ups ran out of money. Missing product/market fit was a factor for 18% of participants. followed by bad organisation/management (14%). (*Ibid* 2018)

Compared to Cantamessa *et al* (2018) and CB Insights' studies, the study of Bednár and Tarišková highlighted significantly less factors. (2017). *Ibid* (2017) also uses Autopsy.io's data, and also differs from both CB Insights' and of Cantamessa *et al* (2018) in results. They highlight insufficient funds as the most common (34%) cause of failure. In over 1/3 of analysed start-ups, companies had not defined sufficiently the amount of funds needed for the launch and for the investment time schedule. They noted that some did not reach the sales stage and obtain additional financial resources from customers. Scant funds led to other problems: reimbursement of capital expenditures, financing of

expansion, covering operating costs for staff, offices, infrastructure, etc, and covering other costs. The second biggest problem was the missing customer interest for the start-up's solution or alternatively, no product/market fit (28%). The start-up founders defined this problem as insufficient real market testing. They had met with customers and asked about problems, analysed solutions. However, when the product launched, they found out that people, despite previously claiming they were interested, really did not want to buy it. (Bednár and Tarišková 2017)

Third most common cause was the lack of investors (16%). The reasons for it can either be that the start-ups have hurt its investors several times and failed to fulfil the required goals in the basic series, thereby losing confidence, or by not producing evidence to convince the investor of its exponential growth potential (pre-contract with buyers, a large number of applications downloads, sales, success in the crowdfunding campaign, etc.), or the shortcomings of the business model from the investor perspective, or insufficient investor awareness of all issues or simply lacking understanding between the start-up team and the investor. The incomplete cost calculations were a cause for 1/6 of the firms. In such cases, founders did not make accurate finance plans that included direct and overhead expenses. Incorrectly defined costs resulted in incorrect price formation and therefore the market price did not cover costs. (Bednár and Tarišková 2017)

The literature on business success and failure has identified a number of different factors affecting the success and failure of businesses. Although the literature is reasonably extensive, it provides a fragmented picture on influential factors. In broad perspective, it has a reasonable explanation. To comprehend the scope of respective studies, researches have to make certain choices on study design, which in turn leads to more detailed, but narrowed results. It also reflects on the outcomes of ex-post studies on start-up failure, where different methodology and use of databases provides different results. The methodology of this paper is discussed in Section 2.

2. METHODOLOGY, DATA AND RESEARCH SUBJECTS

2.1. Methodology and data

The methodology for this study involves a mixed method approach. Creswell and Plano Clark (2006) define mixed methods research as a research design with philosophical assumptions as well as methods of inquiry. It involves philosophical assumptions that guide the direction of data collection and analysis and the mixture of qualitative and quantitative data in a single study or studies. The combined use of different approaches provides a better understanding of research problems than either approach alone. (*Ibid* 2006) Although quantitative research dominates in business research, mixed methods have now become established as a legitimate methodological choice and utilised by researchers from a variety of disciplines (Cameron and Molina-Azorin 2011).

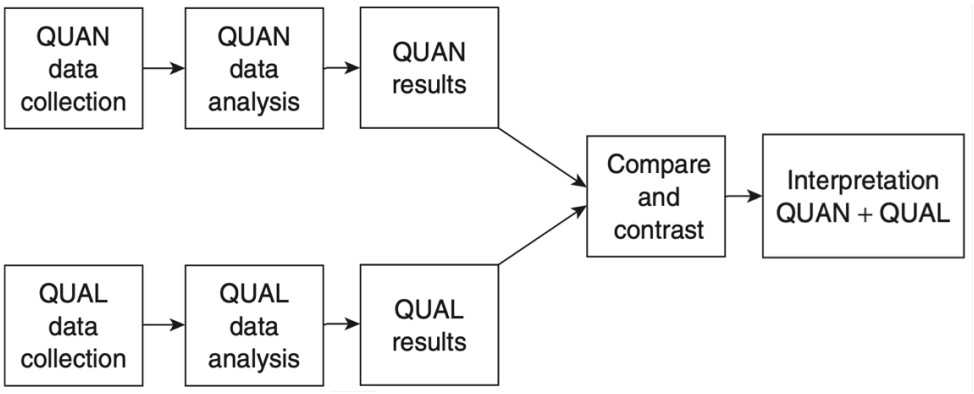

Figure 2. Mixed method — triangulation design, convergence model.
Source: Creswell and Plano Clark (2006: 63)

The traditional or convergence model of a mixed methods triangulation design (Figure 2) involves the researcher in collecting and analysing quantitative and qualitative data separately on the same phenomenon, followed by the convergence of results during interpretation. Researchers use it for comparing results or validating, corroborating or confirming quantitative results with qualitative discoveries. The purpose of this model is

to find valid, well-substantiated conclusions on a phenomenon. (Creswell and Plano Clark 2006)

As Ajujaht concluded its 13th season, numerous projects have taken part in Ajujaht throughout the years. BPCs explicitly try to select entrepreneurs with the best growth prospects, so that any comparison of winners and losers is likely to overstate the effects of the program due to selection bias (McKenzie 2016). This is why all ideas or companies discussed here are considered as winners, and achieved top three places in their participation year. The selection of the final applicable Ajujaht season for this paper derives from the study of Hechavarria *et al* (2016), who found that, in average, a start-up reaches some kind of outcome in 46 months or nearly four years. The latest newest business reports for all companies were from 2018 at the time of writing, therefore it is necessary having data for at least four complete financial years after their participation in Ajujaht, which means the most recent participants in this study are from 2014, season 7.

The prerequisite of interpreting possible findings is to determine whether these Ajujaht projects/ideas/teams/companies (used as equivalents throughout the next chapters) have failed or succeeded. This paper avoids the narrow conception of failure as bankruptcy or liquidation (Peat 2007) and follows interpretations of failure as the termination of a business that has fallen short of its goals (McGrath 1999; Politis and Gabrielsson 2009), and failure as a loss of capital and an inability to "make a go of it" (Cochran 1981). Brush and Vanderwerf (1992) claim that growth is the most appropriate indicator of surviving small-medium enterprises (SME's) performance. In addition, according to Pasanen (2003): „survival and growth may be the most appropriate measures of success in small firms." Based on this, business success is considered in this paper as the status of continuously operating a start-up with a growth in sales over the last 3 years. A successful start-up must, in the context of this paper, meet the following criteria:

- The idea must have been developed into a company;
- the project must be ongoing or must have offered its founders a successful exit;
- the core idea of the start-up must have remained the same over time;
- that service or product has generated increasing revenue for last 3 years.

Due to the small number of subjects and for the sake of comparison, the subjects are classified as either successful or failed. As definitions of success often depend on context and perspective, the selection of success criteria came down to the context of this study and publicly available data. In general, the criteria reflect how well the teams have put their presented ideas into life. The reasoning behind the first criterion is that ideas need a business platform on which to prosper on, therefore the teams must have founded a company with a purpose of pursuing their Ajujaht idea. Most did it, some stopped right after Ajujaht.

A wide-used conception of business success comprises of its survival. As businesses are generally founded either with a goal of long-term success or a successful exit, successful projects should not have ended prematurely, which is why start-ups in the paper must still be actively developed or must have offered its founders a successful exit.

The idea's success could not be discussed without observing the continuity of the idea in the business process. Although business angels and venture capitalists have emphasized the importance of good teams in company development, the core idea and its effectuation were what led the Ajujaht teams to their initial success. In this paper, the core idea involves a service/product and a goal that are at least similar to the idea presented during Ajujaht. To exemplify, Click & Grow's change of emphasis from a providing smart gardens to providing pods for their smart gardens is not considered as a change in core idea, it still serves the aim to provide people with fresh produce. Virtual Garden's change from a gardening platform to a consulting company is a change in the core idea of their business.

The revenue growth is the quantifiable criterion for evaluating success for small businesses/start-ups. Paul Graham, co-founder of Y Combinator start-up accelerator, highlights the significance of revenue growth as a marker of success (Graham 2012). "If there's one number every founder should always know, it's the company's growth rate. That's the measure of a start-up. The best thing to measure the growth rate of is revenue." As Ajujaht looks to produce high-growth start-ups, it is necessary to define a threshold of high growth. OECD defines high-growth companies as enterprises with average annualized growth greater than 20% per annum, over a three-year period (Eurostat-OECD 2007). Annual growth exceeding 20% has also previously defined rapid-growth firms

(Fischer et al. 1997). For evaluation, compound annual growth rate for the last three years was calculated, if possible, for all applicable teams using geometric means.

The eventual outcome for these teams is defined as their current status of either being successful or unsuccessful/failed. Appendix 2 compiles success evaluations for all TOP3 contestants from 2008 to 2014. Based on these criteria, 5 out of 21 ideas are deemed successful.

The core of this paper is a sequential explanatory research implemented by using a combined approach of survey and interviews. The key for initial data collection was simplicity for participants, since there was no real motivation for them to participate. Since data from media and public records is insufficient to make any conclusions on the possible causes of success and failure, it was essential to contact with the participants to obtain the necessary data and knowledge. The data was collected by using a combination of survey and a follow-up semi-structured interview, both conducted in Estonian. The data was then processed and content overlaps were searched. The survey was intended to address the possible factors already highlighted by previous studies on failure factors. The methodology for the survey analysis of start-up success/failure is partly based on the SHELL approach of Cantamessa *et al* (2018); the survey statements are divided into corresponding SHELL categories to highlight the results better.

The survey methodology for the analysis of start-up success/failure is partly based on the approach of Cantamessa *et al* (2018), where they used an adaption of the SHELL model, a conceptual tool used for examining the interaction of system elements. It was originally implemented to classify aviation incidents, and adapted to fit the entrepreneurship sector by *Ibid* (2018). The SHELL name is formed by Software, Hardware, Environment, Liveware Individual and Liveware Group, and was first developed by Elwyn Edwards in 1972 and later modified by Frank Hawkins in 1984 to illustrate the interactions between the person (central Liveware) and other four systems (Hawkins and Orlady 1993). Reinhart (1996) has defined SHELL model as the relationship between human factors and aviation environment. The framework focuses on identifying human factors and the relationships between human interfaces and other resources in the aviation system, highlighting how these aspects affect the realization of incidents. The model suggests that a human is rarely the sole cause of an incident. The simplicity and ability to bring out the

effects of human factors make the SHELL approach is appreciated by researchers. (Cantamessa *et al* 2018)

Cantamessa *et al* (2018) conducted an analysis on a database of failure reports, identifying a high number of failure categories, which were subsequently clustered. The SHELL categories were used to better highlight the survey results. The author has added a number of factors from other studies, corresponding with the following SHELL macro-categories (Cantamessa *et al* 2018):

- Software — the non-physical and impalpable part of the start-up and principally consists of the business model. Here, the term software includes all aspects of making the product/service commercially successful.

- Hardware — the physical element of start-ups, mainly represented by the qualities of the product.

- Environment — the physical context of start-ups' operation. It involves the internal environment: the impact of competitors, and the external: stakeholders' operations, and the economic, legal and political situation around the start-up.

- Liveware — the human side of the start-up (customers, management, and workers). This component considers human performance, organization, capabilities, and limitations. It is divided into two parts: one refers to the external part, the customers' side (L1), and the other to the internal part, people and the organization within the start-up (L2).

Factors and macro-categories are listed in Appendix 6. The 7-point Likert scale survey, of 5 sections and 33 questions, was intended to highlight the possible factors and was conducted in April-May 2020. The timeframe for statements was the first 4 years of business. Appendix 3 lists survey statements in their presented order. The statements were with both negative and positive connotations to avoid perceivable bias. Whereas Likert scales often have labels for each data point, this survey identified only extremal values (1 as "disagree completely" and 7 as "agree completely"), the rest were left as numeric values. These were later divided as having positive, neutral or negative influence. The analysis of the survey will be limited to graphical and descriptive analysis as more

complex statistical methods (i.e. factor analysis) would require significantly bigger number of data entries, which would be feasible only if all contestants of Ajujaht throughout the years were surveyed.

The interviews mainly addressed the observations highlighted in literature review, in addition providing background information. Semi-structured interviews of ~50 minutes were conducted in May-June 2020 with only those participants who had already finished the survey. The planned questions served often as an introduction to the topic; answers were often wider than the scope of the question. The interview questionnaire and its basis are listed in Appendix 4. The answers of interviewees were put through the process of inductive coding. The author followed the coding procedure described by Creswell (2002), illustrated in Figure 3. The transcripts were read several times to identify themes and categories. A coding frame was developed, after which the transcripts were reread and checked to meet to the new structure.

Initial read through text data	Identify specific segments of information	Label the segments of information to create categories	Reduce overlap and redundancy among the categories	Create a model incorporating most important categories
Many pages of text →	Many segments of text →	30-40 categories →	15-20 categories →	3-8 categories

Figure 3. Coding process in inductive analysis
Source: (Creswell 2002), compiled by the author

The approach implemented in this paper differs from Creswell's (2002) in the final step; a model has not been created here as firstly, it is not the aim of this paper and second, it may lead to overly simplified conclusions. It would have been possible to somewhat reduce the number of categories but it would have had marginal benefits. The themes, along with eventual categories are listed in Appendix 5.

A total of 21 projects qualified to be included in this paper. Of 21 a total of 10 teams (47.6%) provided data for this paper. Two other teams provided a laconic explanation of their project's upshot, but not enough to be considered as participants of this study. All 10 took part of the survey; seven of the 10 also agreed to partake in a 50-minute semi-structured interview. The responded companies and individuals are listed in Table 2. Four out of ten teams that took the survey did not answer all questions; as they never made it to the market, they skipped the sales and customer analysis section. Unfortunately, based

on the total number of respondents, the representativeness has room for improvement for future studies.

Table 2. Responded companies and individuals

Idea/company	Representative	Completed the survey	Gave an interview
CellTells/Flipper	Mikk-Alvar Olle	Yes	No
Flow	Ülari Kalamees	Yes	Yes
Growfish	Martin Liiv	Yes	Yes
ReUse Republic	Mari Martin	Yes	No
Vetmed	Hannes Küün	Yes	Yes
Click & Grow	Martin Laidla	Yes	Yes
Virtual Garden	Annika & Martin Goroško	Yes	No
Like a Local Guide	Ülane Vilumets	Yes	Yes
Jomi Interactive	Andre Eistre	Yes	Yes
Timbeter	Anna-Greta Tsahkna	Yes	Yes

Source: Compiled by the author

By mixing the methods of survey and interviews, the intention is to gain in breadth and depth of understanding and corroboration, while remediating the weaknesses that are inherent to solely one or the other method. Nevertheless, there are some homothetic and idiographic limitations for the paper in hand.

A methodical concern of this paper is the selection of success/failure criteria, as this is a possible occurrence of selection bias. This is, in itself, due to the multitude of interpretations of business success. Other criteria would not necessarily produce the same results. Also, it is impossible to indefinitely say whether a company is successful or not; one can only assess it up to a given moment. This classification could change in the future.

Using data obtained from the subjects themselves could lead to a skewed reflection on the matter. There is a possibility for social desirability bias for both Likert and interview questions, although questions that might insinuate to an evaluation of respondent's social or moral conduct were avoided. As an additional precaution, interviewees only received a brief overview of the study at the outset to avoid priming respondents to answer in particular socially acceptable ways (Steenkamp, De Jong and Baumgartner 2010).

Validity of the gathered information is contingent on respondents' honesty. Interviewees were briefed that there were no right or wrong answers; the author encouraged them to use examples and evidence to support their opinions.

Likert answers could be influenced by previous questions, be heavily concentrated on one response side (agree/disagree) or in the middle. Also, relying on participant's memories means that some respondents may have already forgotten key details, as the scope of the paper reaches up to 12 years back. To mitigate it, respondents received the questions beforehand to have time to recall facts and events.

2.2. Research subjects

The pool of subjects of this research are the top 3 business ideas from Ajujaht competitions of 2008 to 2014 (seasons 1-7), a total of 21 business ideas. Nearly all teams formed a company to proceed with the implementation of their business ideas; the outcome evaluation is largely based on the performance of corresponding companies. All numbers and descriptions of revenues, profits and losses are based on the data and annual business reports from the Estonian Business Register, except if referred otherwise, and are listed in Appendix 1. The descriptions of teams that did not part-take in this research are listed in Appendix 7.

The first season of Ajujaht ended in 2008 with the win of CellTells, a duo proposing to create a voice-activated interface for inserting new entries in mobile device calendars. This team developed a prototype but did not manage to find any additional investors. By next spring, this idea had evolved into a location-based advertising service Flipper that relied on co-operation with cell service providers. Except for the first two years, both the CellTells and Flipper businesses were at a loss up until 2018, when the businesses were shut. The runner-up for that season was team Flow, with a solution for optimising usage of storage spaces in warehouses by using the free space in the corridors located between rows of shelves. As the funding for this project was pulled right at the beginning of 2008 economic crisis, it never started to work as a business.

The winner of the 2009 season was team Growfish, which had the idea of making a wireless system for fish farms that allows more comfortable management and oversight. The team did try to proceed with the idea business-wise, but they never managed to get

their business running. According to Aasmäe (2014), the bad start of their company was due to a poor summer season for fish farms, which in turn meant that it was really difficult to find a client for their prototype. The team has no intentions pursuing the idea in the near future. Second place was claimed by ReUse Repulic. The idea was to produce clothes from the leftover garments and damaged products from the clothing industry by redesigning these into unique products, therefore reducing the overproducing of fabrics. ReUse Republic held a limited but stabile revenue for the first five years of operation but has not succeeded to do so afterwards. Throughout the years, it has had sporadic profits and losses. The founder of ReUse Republic now operates other clothing brands.

2010 was the first season to have a big breakthrough. The winning team Click & Grow came up with the idea of a smart herbal indoor garden device that would allow people to grow different plants indoors with minimal effort. Their device regulates watering and light exposure to the exact amount the plants need. Click & Grow's revenue has grown significantly every year and reached nearly 6.5 million EUR in 2018. Click & Grow tried to expand to new markets quickly and, due to significant costs of entering to new markets, has reached profit only in 2017. They currently operate in Europe, Asia and the US. Runner-up of 2010 was team VetMed, who developed new testing equipment for testing animals for infectious and genetical diseases. They started with their business idea at the time; the award money was used as a seed fund for investments, but team members soon after pursued other activities.

The winning team of 2011 season was VirtualGarden. They developed a platform where customers could be farmers without actually owning a plot of land themselves. The customers of VirtualGarden were supposed to select a plant that VirtualGarden would then plant and grow. During harvesting season, they would harvest the crops and deliver it to their clients. The team tried to get it running for two years but stopped eventually.

Third-place winner in 2012 was team Like a Local Guide, a platform for tourists to find travel info and recommendations from local experts. The service was and is free for tourists; the source of income is publishing commission from travel and tour operators. The platform is operating internationally. It is a company with a growing revenue, but is yet to be profitable. The original founders sold most of their shares in the company in 2020.

The runner-up of 2013 was Jomi Interactive, a smart device designed to monitor daily water consumption. The team developed their product within the first year of their operation but turned to other activities afterwards. The company was shut in 2016. Season 7 in 2014 has been the most successful season of Ajujaht so far. The winner was team Timber Diameter, now Timbeter, which developed an app to precisely measure the volume of timber by photographing the logs. After an extensive development process, the company has now over 20000 users in 61 different countries. Their revenue is growing rapidly but they are yet to reach to a profit.

As a number of participants did not respond to or denied participation offers, the number of participants with complete input was 7, three only finished the Likert survey and two declined from both the survey and interview, but offered a brief insight to their corresponding projects. Although the jury highlighted some factors during the competition that may have influenced the future progress of those teams, their decisions were on occasions based on gut feeling and experience. The following chapter looks more closely onto the possible factors of failure and success for the participants of this study.

3. RESULTS AND DISCUSSION

3.1. Results of the survey

The results of the survey are divided into five SHELL categories based on Cantamessa *et al* (2018), with the results of each category split based on the success of projects. Figure 4 shows survey replies in SHELL category Software for unsuccessful projects. As four teams responded partially to questions in this category, these are presented by markers.

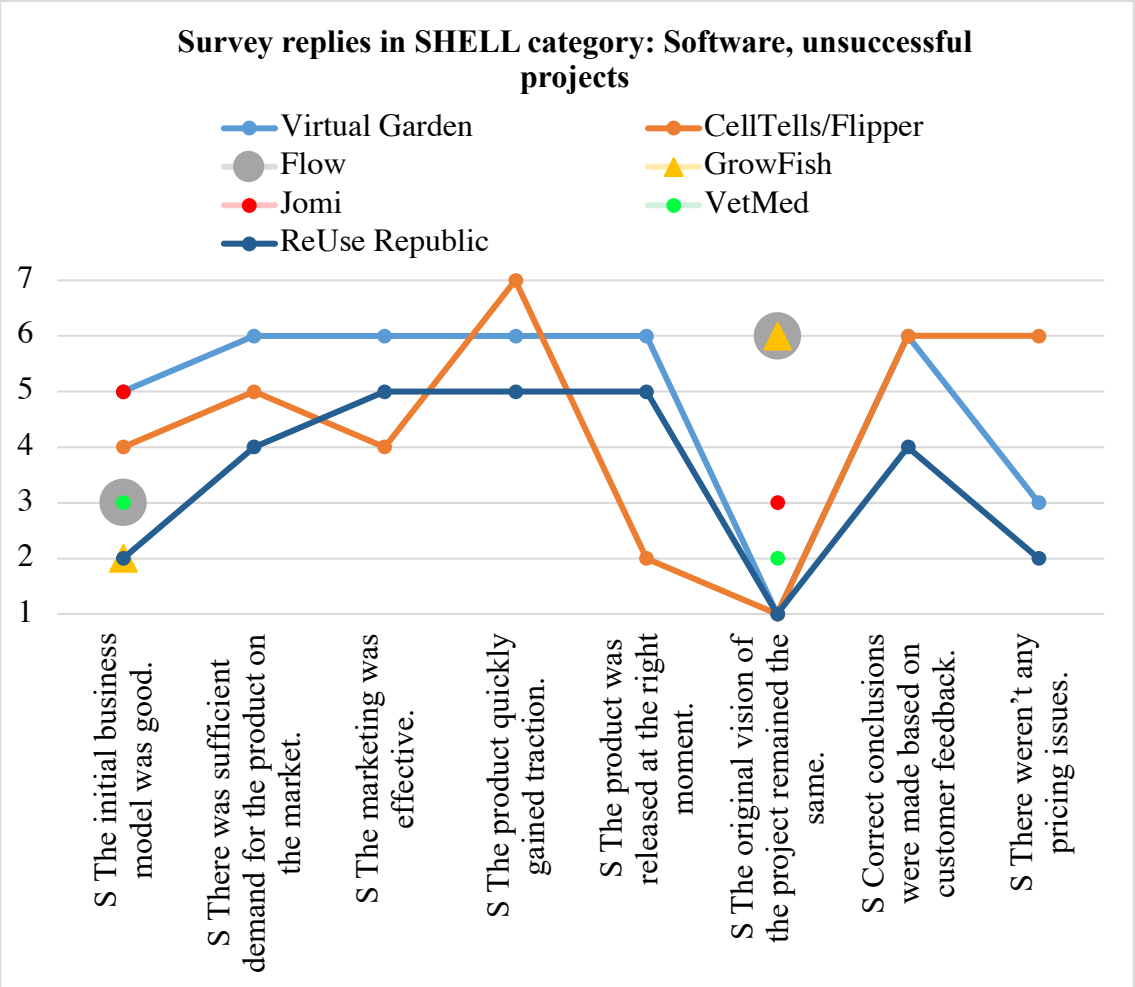

Figure 4. Survey replies in SHELL category: Software, unsuccessful projects (values 1 as "disagree completely" and 7 as "agree completely").
Source: compiled by the author

This survey identified only extremal values (1 as “disagree completely” and 7 as “agree completely”). Figure 5 shows survey replies in SHELL category Software for successful projects. Based on figures 4 and 5, evaluations show that unsuccessful teams did not rank their business models very highly, whereas successful teams agreed that their business model was good. Unsuccessful teams were quite positive about the demand for their service/product, albeit less than successful companies. The evaluation for marketing effectiveness is mostly similar for both outcomes; but Like a Local Guide was somewhat negative. Unsuccessful companies claim to have had even better traction than successful teams, as Timbeter was neutral. The timing for product launch was evaluated quite poorly by CellTells, other teams from both sides evaluated this similarly. Majority of unsuccessful teams changed their vision of the project, successful teams have changed it less. All companies, except ReUse Republic, were positive about the conclusions based on customer feedback. Except for CellTells, unsuccessful projects had some pricing/cost issues, as did Click & Grow. Their low rating was discussed during interview; their initial product was too complicated and expensive to make. They later rectified that issue.

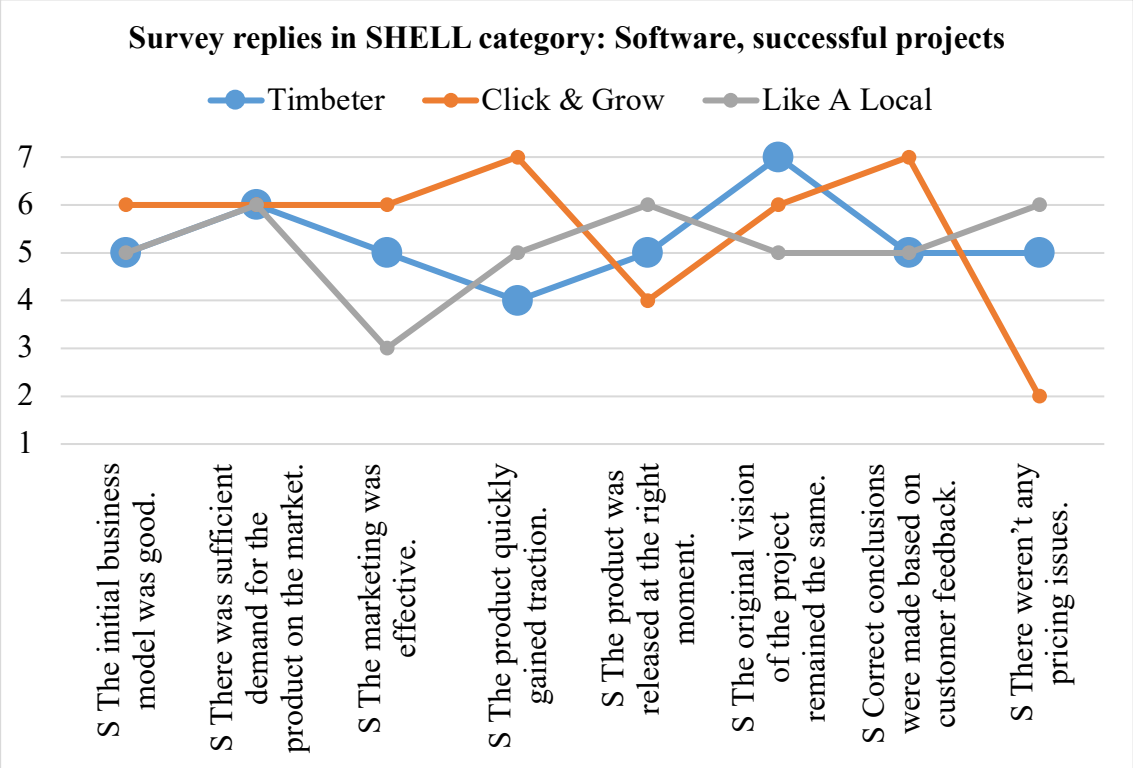

Figure 5. Survey replies in SHELL category: Software, successful projects.
Source: compiled by the author

Figures 6 and 7 show that successful companies rated their emphasis on product development a little higher, but teams from both sides were definitely positive about it.

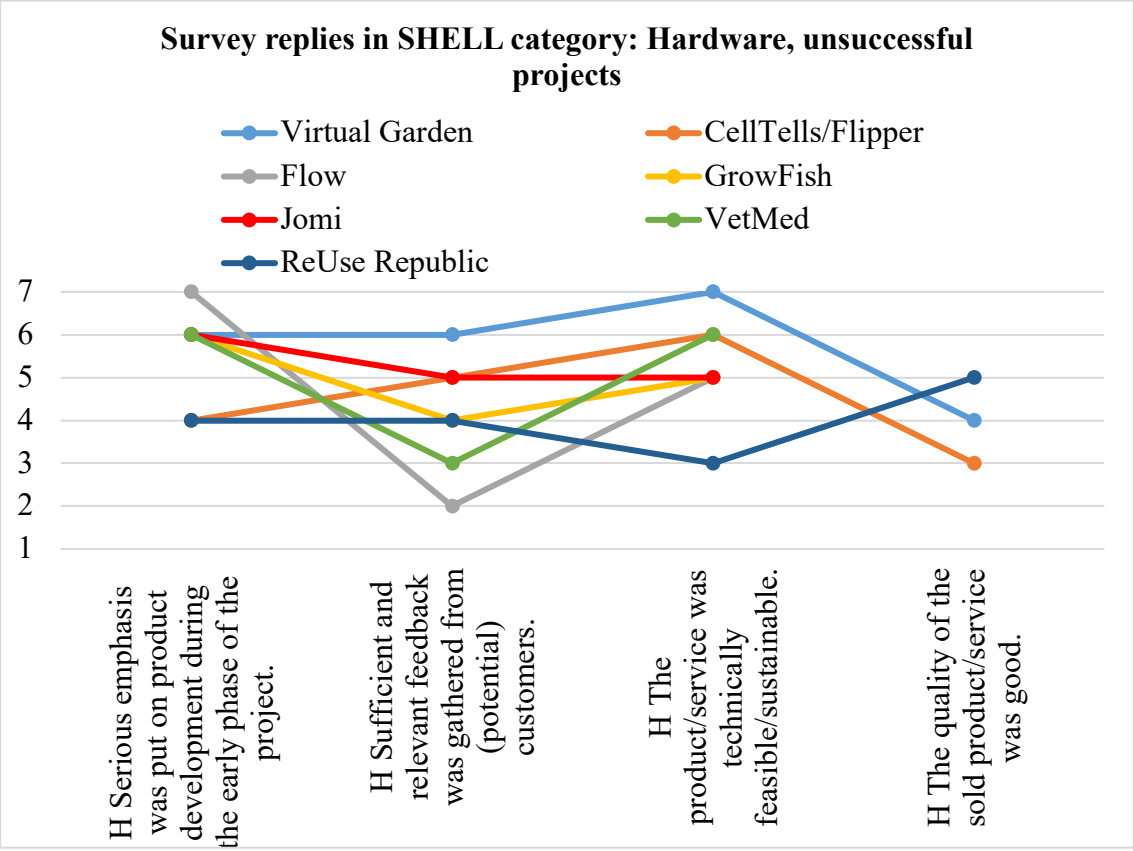

Figure 6. Survey replies in SHELL category: Hardware, unsuccessful projects.
Source: compiled by the author

Unsuccessful teams were less in agreement about gathering relevant feedback from customers; answers were spread almost throughout the scale. Similar sight was with successful companies; Like A Local was negative about their conduct. Product's feasibility/sustainability was rated high by all successful and unsuccessful teams, except for Click&Grow and ReUse Republic. As ReUse Republic was manufacturing unique products by hand, it is comprehensible.

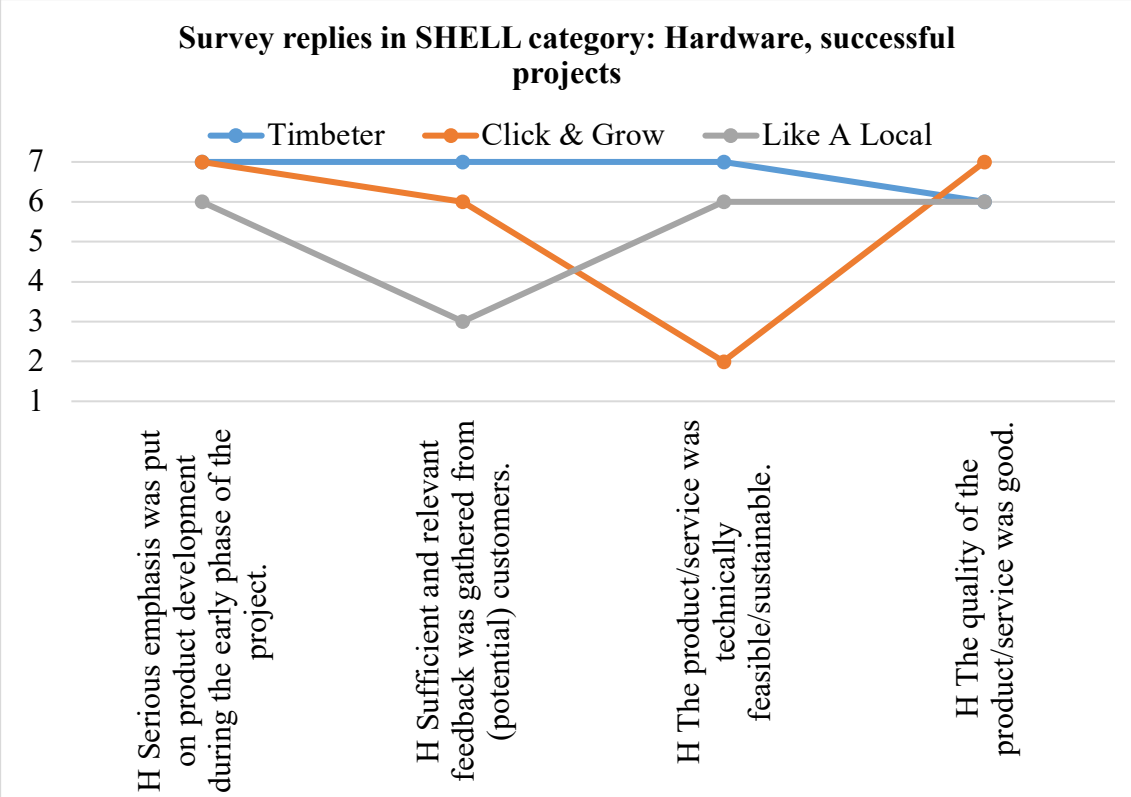

Figure 7. Survey replies in SHELL category: Hardware, unsuccessful projects.
Source: compiled by the author

Click & Grow explained their low rating during interview; it was given because their first products were indeed too complicated. Unsuccessful companies that managed to sell their service/product were less optimistic about its quality; only ReUse Republic rated the quality positively. All successful companies rated the quality of their product/service very highly.

Figures 8 and 9 indicate that the strength of competitors varied for both outcomes. Click&Grow and Timbeter rated both the amount and the strength of competitors low. Like A Local rated both high.

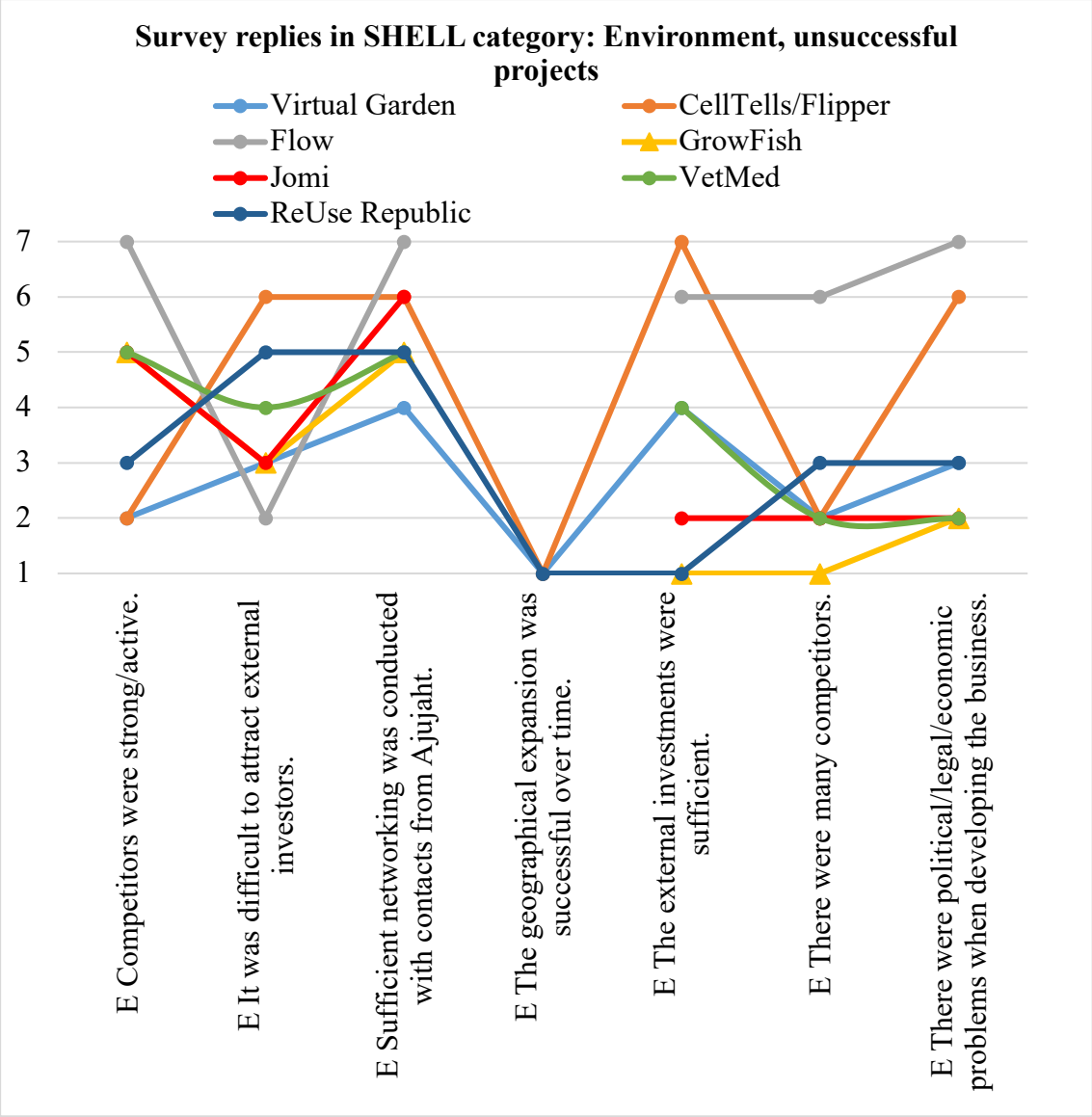

Figure 8. Survey replies in SHELL category: Environment, unsuccessful projects.
Source: compiled by the author

Pulling investors and external funding and the sufficiency of investments had a varying degree of success for unsuccessful companies. Flow has ranked the sufficiency of their hypothetical investment that they did not receive. Succesful companies ranked attracting investments neutral-slightly difficult and the sufficiency of investments as neutral-slightly low.

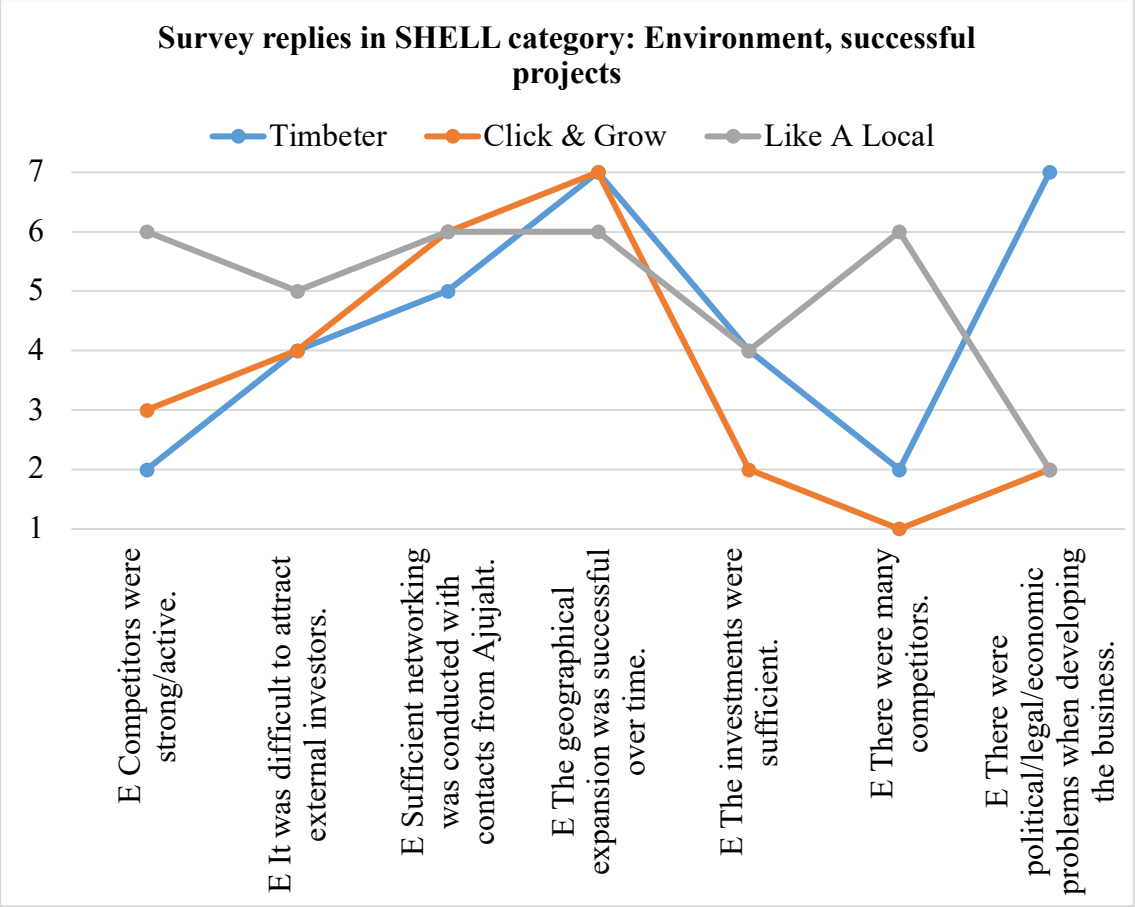

Figure 9. Survey replies in SHELL category: Environment, successful projects.
Source: compiled by the author

Successful and unsuccessful teams claim that they used Ajujaht for contacts and networking fairly well. Political/legal/economic problems were of mixed importance for unsuccessful businesses. They were of low importance for successful businesses, except for Timbeter, whose method had to be certified in Germany and had to apply for changing legislation in Lithuania, as the existing legislation at the time did not approve their method of measuring timber. The geographical expansion was very successful for all successful companies and very unsuccessful for unsuccessful companies. Presumably, this is because unsuccessful companies never got to the point of expanding abroad, which makes it more of a result and less a factor.

Figures 10 shows that this part was unanswered by teams that did not launch a product on the market. It illustrates that customer aquisition costs mostly paid off for CellTells and VirtualGarden, but not for ReUse. Customer loyalty was rated higher by all

unsuccessful teams. Virtual Garden had sufficient clientele, CellTells and ReUse were not as optimistic in their evaluation.

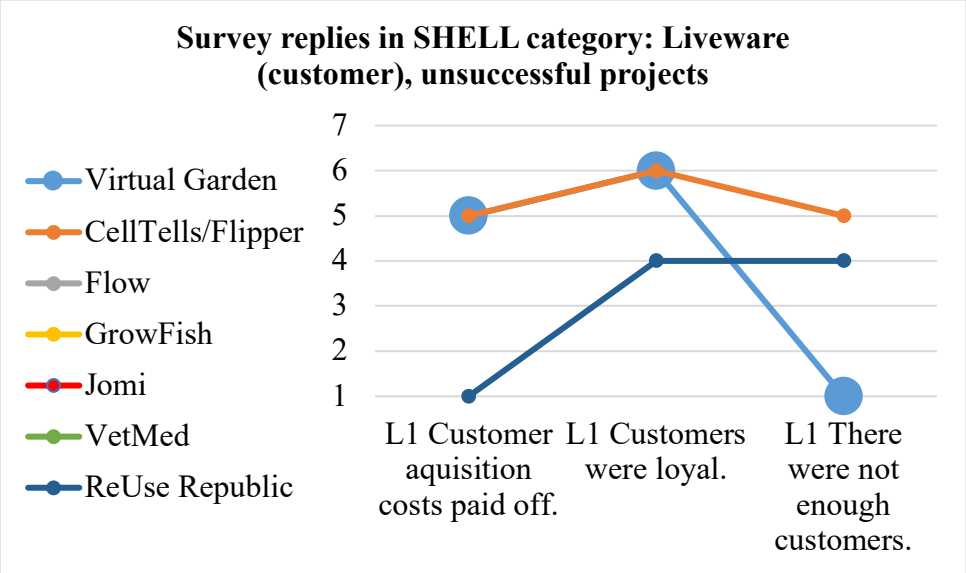

Figure 10. Survey replies in SHELL category: Liveware (Customer), unsuccessful projects.
Source: compiled by the author

Figure 11 shows that customer aquisition costs paid off for all successful companies. Customer loyalty was an issue of mixed importance. They were slightly positive about clientele sufficiency.

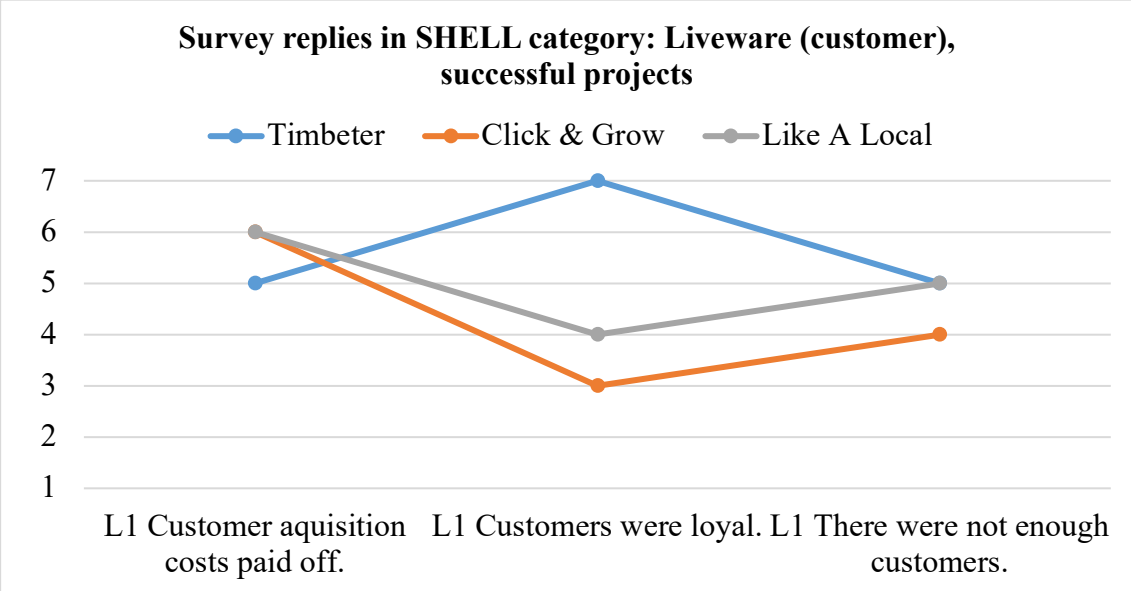

Figure 11. Survey replies in SHELL category: Liveware (Customer), successful projects.
Source: compiled by the author

As Liveware L2 is the category with most factors; figures are split into two parts. Figure 12 shows over half of the unsuccessful teams agreeing that they had insufficient focus on business development. There were mixed results on businesses running out of money. The project's scalability returned a split result, half of them were positive about it and half were not.

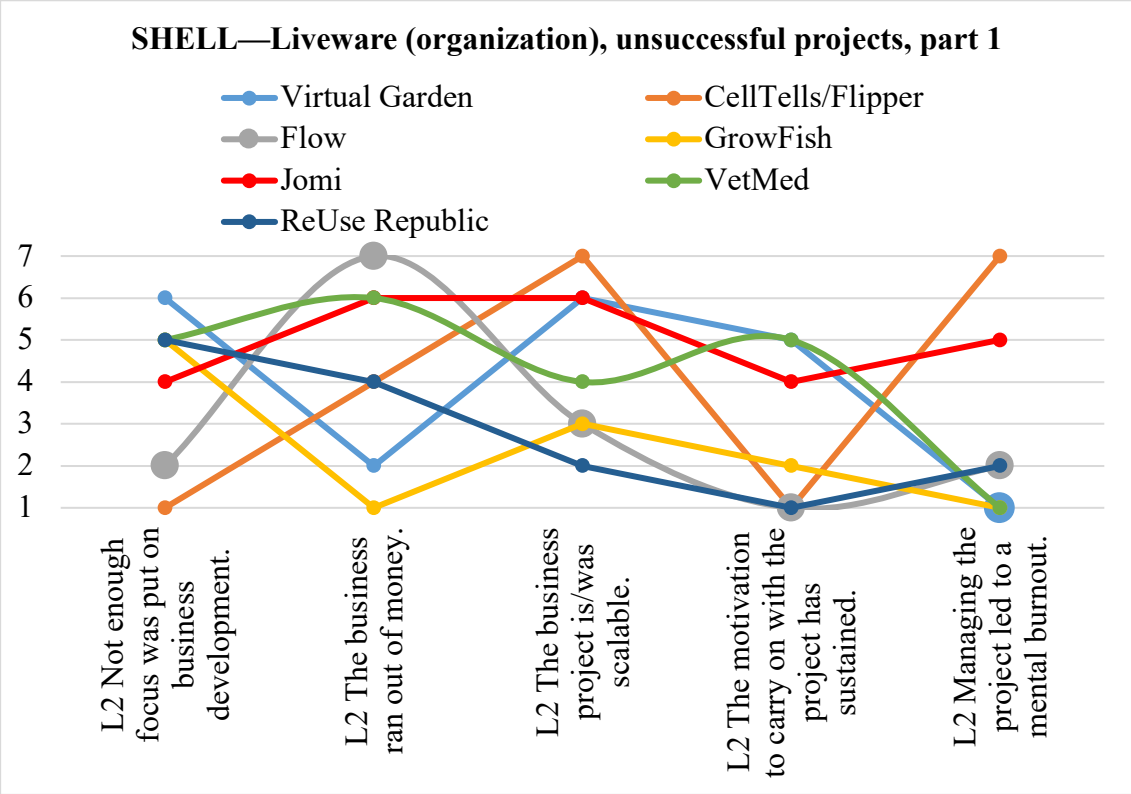

Figure 12. Survey replies in SHELL category: Liveware (Organization), unsuccessful projects, part 1.
Source: compiled by the author

The statement to address the issue of motivation was, in hindsight, poorly worded, as it describes the level of current motivation. It is ranked very low by most unsuccessful teams. Jomi and CellTells agreed that the process resulted in a mental burnout, the rest did better. Figure 13 shows L2 results for successful teams. None of them agreed they lacked business development, but Like A Local claimed to have run out of money. All successful businesses rated their scalability highly. Like A Local was led to a mental burnout, and as the founders sold their business recently, it is clear why their motivation to continue is low. Other teams were more motivated and did not identify a burnout.

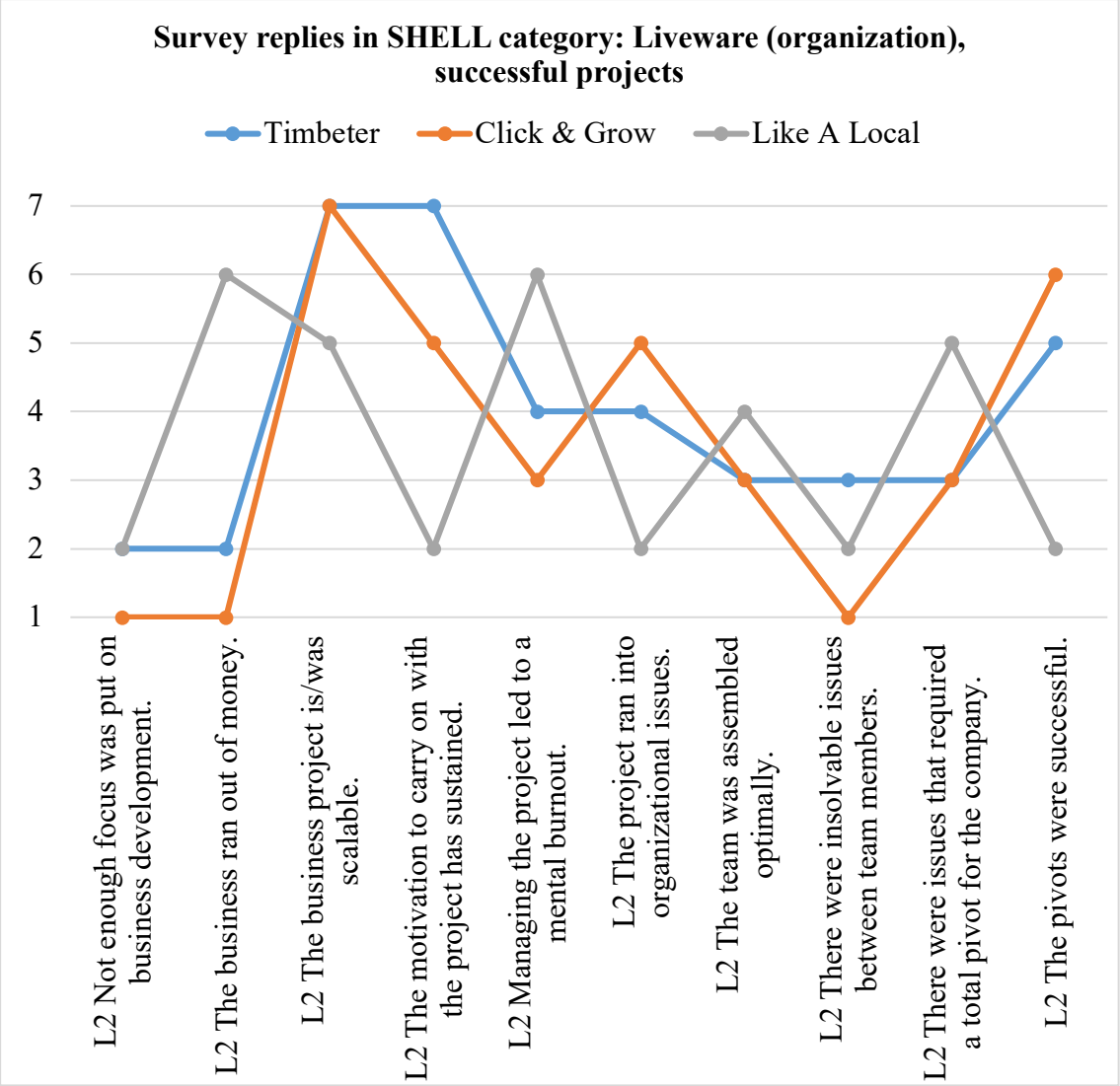

Figure 13. Survey replies in SHELL category: Liveware (Organization), successful projects.
Source: compiled by the author

Figures 13 and 14 illustrate the second half of L2 Liveware category. More than half of the unsuccessful companies ran into organizational issues. Organizational issues gave a mixed result for successful companies, as did the team assembly for unsuccesful teams. Successful teams were assembled sub-optimally. Both succssful and unsuccessful teams had rated the level of team disharmony as low. More than half of unsuccessful projects had some issues that, to a degree, required a pivot. Of the successful teams, Like A Local identified a need for pivot, but the pivots were not successful for them. The pivots were also not successful for over half of the unsuccessful companies. For the rest of the

successful companies, the need for pivot was low and the rearrangements they made were successful.

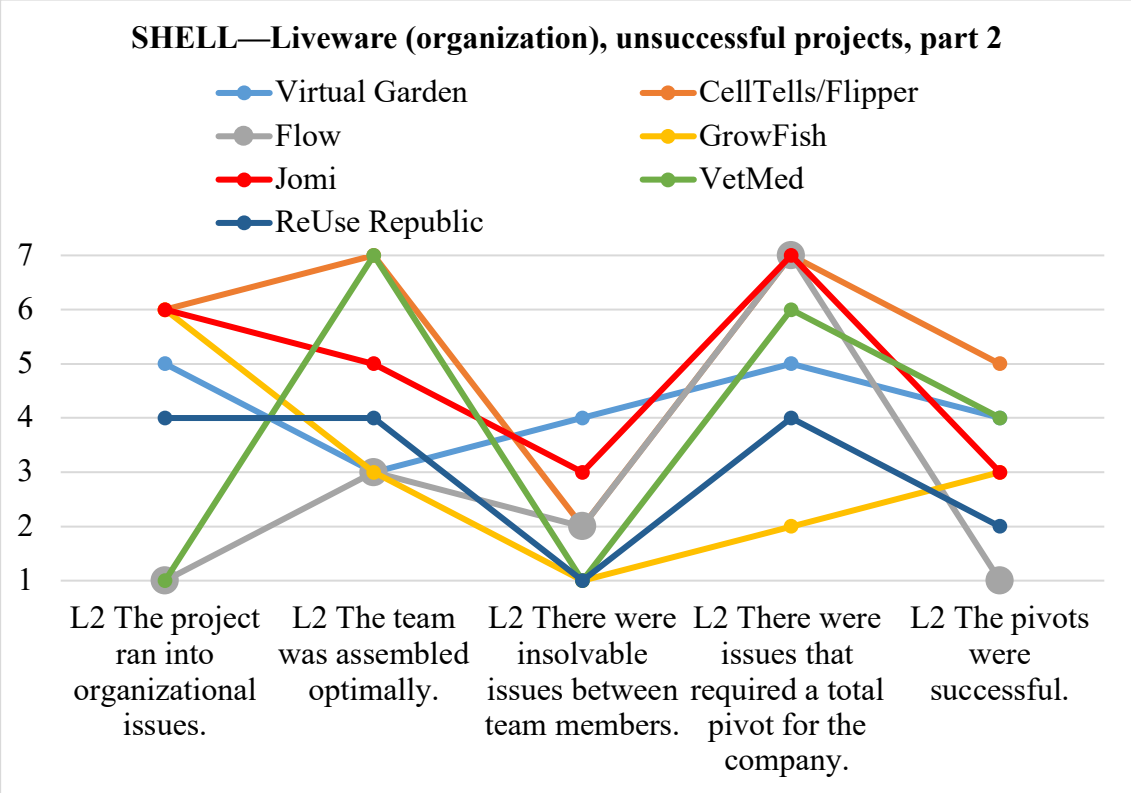

Figure 14. Survey replies in SHELL category: Liveware (Organization), unsuccessful projects, part 2.
Source: compiled by the author

According to Figure 15, unsuccessful companies answered most negatively in category Liveware (organization), 46% of the given answers given had a negative connotation, followed by Environment (33%) and Software (28%). Successful companies were most negative in the customer part of Liveware, L1 (33%), followed by Environment (24%) and Liveware L2.

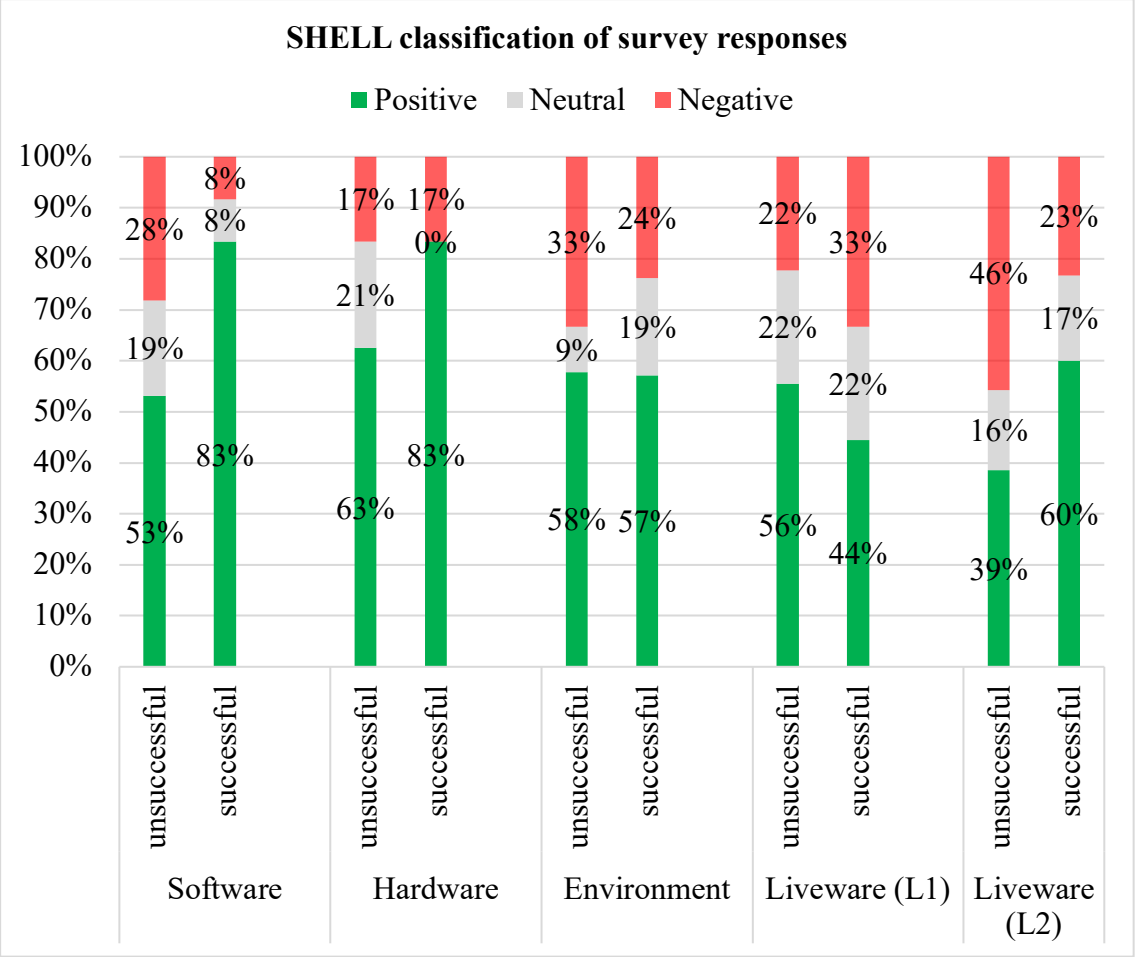

Figure 15. SHELL classification of survey responses.
Source: compiled by the author

Unsuccessful companies answered most positively in category Hardware (63%), as did successful companies (83%). Software (also 83%) and Liveware L2 (60%) were the second and third most positively answered categories for successful companies. Hardware was followed by Environment (58%) and Liveware L1 (56%) for unsuccessful companies.

3.2. Results of the interviews

Of the seven interviewed teams, three fall in the category of successful companies, four do not. These four are also the companies that never managed to bring their product to the market. Also, all unsuccessful teams developed products, two out of three successful projects developed services. The interviews helped to generate multiple categories of data, some of which include factors of failure and/or success. Themes and categories are

listed in Appendix 5. Firstly, the results of the interviews show previous experience in business/entrepreneurship as a factor of success. Teams that were straight out of universities did not do that well. As put by Martin Liiv from GrowFish (Liiv 2020):

"*35-year-olds should participate in Ajujaht. Confidence only is not enough, to make something great happen, you need to have experience"*.

Diverse previous experience was a connecting link for all three successful teams. Martin Laidla from Click&Grow emphasized the background of the founder, Mattias Lepp (Laidla 2020):

"The conductor's education has been useful in conducting people and managing different activities."

The failed teams admitted that they lacked experience and highlighted this in regards to decision-making, planning, partner selection. Also, Ajujaht was the first business plan competition for nearly all interviewed projects, therefore previous competitive experience was not a factor of disparity. Successful companies had looked for external support before the competition, either for financing or advice. Before entering a contest that was organized by Enterprise Estonia, Like A Local applied directly for start-up capital, but without any luck (Vilumets 2020):

"Enterprise Estonia's money-sharing mechanism was unable to fit our project to a certain box."

No motivational disparity was noted. There is an age-related variance; the average age of successful founders was 31 whereas unsuccessful projects were in average founded at the age of 25. Also, all interviewed teams that were considered successful had at least one female member, but a female member in itself is not a guarantee for success.

A discrepancy is related to funding: three out of four unsuccessful companies did not want to bring in external investors, at least in earlier stages, despite raising interest. It was more about keeping shares and keeping the company small-scale. Also, all successful companies needed a considerable amount of funds (≥100000€) to get their business

running, all of them were initially backed by Estonian investors; foreign backing came in later rounds.

Nearly all interviewees had issues during product development that arised either due to external software/hardware developers, partners or tech employees. It must be chosen carefully who is chosen to work with:

"It came out afterwards that the same developer was working on its own on a similar platform for other things and we essentially paid for their development." (Liiv 2020)

And also, free was a relative term:

"They warned us about involving Arts Academy students, but we were blinded…we're getting them for free. Well, we got their help for free, but as a result, we spent a lot more money than we should have had." (Eistre 2020)

Teams mostly remained true to their original business plan as Ajujaht system had helped to make it well-sorted. Like a Local Guide went a long way with their business plan, as they developed their first just for the sake of Ajujaht jury, only to come back to the original couple years later. Hannes Küün from VetMed about their business plan (Küün 2020):

"We got quite a bit of support from Ajujaht in putting it together, they gave us an actual input."

Another note is related to customer base; successful projects have had more fundamental customer-related issues, such as this:

"We have to create the market, we have to educate people. The fact that you buy a salad that has been grown 1500km from here…the supply chain is so big, half of it goes to waste, half of the resource expenditure for growing that salad is pointless, a big waste. You need to educate and prep people on all of this." (Laidla 2020)

Conversely, successful companies have had the opportunity of managing their clientele, giving more time for issues to arise. There was a mixed level of confidence in conducting business for both successful and failed teams.

Interestingly, only Like A Local Guide highlighted the role of competition in their operations. Since they operated in the tourism and travel sector, they had to compete with the likes of Booking.com and Conde Nast Traveller, behemoths of travel industry. Flow and Jomi Interactive mentioned that during their development process, competitors from abroad were starting to develop similar products. Click & Grow highlighted the simplicity of their product, which differentiates them from their competition and results in less reliability issues.

External factors seemed to be somewhat of a factor for failure; half of the unsuccessful teams were affected by it. Growfish founders were influenced by the heatwave of 2010 when in their family fish farm, a million euros worth of fish died, which changed their priorities completely. Flow was undone by the global recession; a potential investor pulled the offer at the last minute and no one was willing to invest at that time.

Unsuccessful teams seem to have used up valuable time during product development process, mainly due to problems with product design and engineering. Successful teams noted that getting somewhere, either due to product or customer development, took a lot more time than expected.

The outcome of the company is largely affected by how much time is spent on developing the business and whether are any sideline projects to refrain on completely dedicating to the project. People behind successful projects dedicated themselves to their businesses, whereas other teams juggled between work, other projects and school. Andre Eistre from Jomi Interactive had a lot on his plate (Eistre 2020*)*:

"It was an intense and a really cool period in my life… I worked full-time, went to unversity, did this Jomi thing, and I think I sometimes engaged in a hobby as well… and then I started creating IT software, so I had another start-up as well. It was probably not the most reasonable decision, perhaps I should have put more attention to Jomi to get that running."

Expectations did not play a role in the eventual outcome. Interviewees could all identify a milestone where they had an idea of the eventual outcome; albeit different in nature, a common ground was that it took a lot of time to get there. The perceived role of Ajujaht

was quite similar for all interviewed teams; it offered some exposure but mainly contacts and advice. Unanimously, Ajujaht was seen as a positive platform for making a start-up and making themselves visible. Nearly all teams had received advice after the competition. The way how contacts and advice was exploited was different in each case.

Unsuccessful companies reflected on their progress and what was missing over the course of building a company. In hindsight, all unsuccessful interviewees felt that they were missing out on specific advice, whether it was from an engineering perspective or for understanding the customer. As highlighted by Ülari Kalamees from Flow (Kalamees 2020):

"*It would have helped us a lot if someone had shaken us early on and told us that guys, you won't make it on your own, you need an engineer and secondly someone who can navigate in this world of warehousing."*

Also, insufficient experience and need for outside expertise stood out here again, as all unsuccessful companies highlighted their "greenness". The fact that they had little knowledge about what to make of the advice they were given reflects on this. The interviews revealed varied opinions about the key factors of their eventual outcomes.

3.3. Discussion and conclusion

The progression that each subject had since the completion of Ajujaht varied significantly. This means that the starting points for answering the survey and research questions were contrasting. Nevertheless, even with a small number of subjects some factors of success and insuccess stood out.

Evaluations showed that unsuccessful teams had issues with their business models, whereas successful teams rated their business models high. During interviews, As more than half of the unsuccessful teams changed their vision of the project, it may be tied to the need of adjusting business models. The same applies to pricing issues, the reasons probably lie within the business plan. Over half of the unsuccessful teams had insufficient focus on business development and almost all unsuccessful companies agreed that the early focus was more on product development. It is evident that there is a possible connection. The reason for this came up in some of the interviews; the pressure to have a

minimum viable product/service is considerable, as the potential outcome of going to investors with a product was seen better than when going without. Some also noticed that it worked like this 10 years ago when they were in Ajujaht, but it has since changed and ideas are valued more. It seems that the need to present a viable product to the investors is not that obtrusive anymore. Over half of the unsuccessful companies had organizational issues. With small teams, there was often the issue of dividing tasks and making time to complete these tasks. Also, more than half of unsuccessful projects had some issues that, to a degree, required a pivot. This makes sense; successful companies did not have such need to reorganize, their activity was moving them forward. Unsuccessful companies needed a change to get them going again. Their need for a pivot often derived from previous poor decisions. Unfortunately, the pivots were mostly unsuccessful. The results of the survey partially reflect the results from Cantamessa *et al* (2018). Their results also highlighted problems with business model and poor business development.

The findings on start-up capital size and source provided contradictory results with Van Gelderen *et al* (2005). Those intending to use more start-up capital had, in general, better success. This could be connected to findings of Duchesneau and Gartner (1990); in this case big ambitions that required more resources brought success.

The interviews showed age and experience as definite factors that affect the outcome of the project. The age difference of 25 vs 31 for failed vs successful founders is in line with McKenzie and Sansone's (2019) findings on non-winners of BPCs. As non-winners were out of the scope of this research, this finding is not directly comparable with theirs, nor with Azoulay *et al*'s (2018). Here, there were no participants who were >40 at the time of founding. However, this result reflects largely the one of Prasad *et al* (2015). The author initially failed to acknowledge small differences in age as a possible factor in pre-interview phase. In authors opinion, the result on age, combined with the findings on experience, prove that the initial real-world experience gained from mid-twenties to thirties is vital, as it helps to better understand the mechanism of making and running a start-up. Oddly, VC is biased towards youth. According to Paul Graham of Y Combinator, the average age of team members from which investors are sceptical about investing in a team is 32 (Rich 2013). The result here indicates that the VC cut-off point is actually a sweet-spot for founders' age. There is another point to make here; teams that were directly

from universities did not succeed afterwards. Though all interviewed teams and their members were graduates, not all were successful. That said, the literature (e.g. Wijewardena and Cooray 1996; Indarti and Langenberg 2004) does not address the interaction of success, education and founders age together. This is a topic that future studies could investigate.

The unison position on the role of Ajujaht confirms Van Gelderen *et al*'s (2005); that those with limited entrepreneurial experience benefit from information and guidance. As more than 300 teams take part in Ajujaht every year, it suggests that by participating in Ajujaht, nascent entrepreneurs inadvertently match the suggestions on reducing knowledge gaps on both education and outside expertise.

Albeit studies on previous entrepreneurship and industrial experience have had varying results, this paper showed clearly that success depended on previous experience. Whether the difference in outcome comes from industrial or entrepreneurial experience, is unclear, though the author suggests it is more likely entrepreneurial experience. The significant importance of previous experience upholds the findings of Raman (2004), Corbett (2007) and Wijewardena and Cooray (1996). Also, results correspond to Agnieszka and Mackiewicz's (2020) claim that diverse educational/professional backgrounds raise chances of entrepreneurial success. The results completely contradict Gottschalk et al (2014); experience did matter and once a failed entrepreneur was later successful (based on single case). As their results are not confirmed by this or other studies, the author surmises that there are factors inherent to German entrepreneurial environment which led to their result. Also, teams that lacked experience also identified it as a missing component of their effort and felt that they were missing out on specific advice, whether it was from an engineering perspective or for understanding the customer. Perhaps providing this advice is a topic to focus on for the organizers of Ajujaht.

Nearly all interviewees had issues during product development that arose either due to external software/hardware developers, partners or tech employees. Although failed teams did as suggested by Tipu and Arain (2011), Chrisman and McMullan (2004) and Duchesneau and Gartner (1990), sought assistance for problems that were out of their competence, the end results reflect the observation of Davidsson (2002b), where competence and help of outside experts were not up to par. These issues also used up

valuable time during product development process. It is important to understand the competence of external partners before making the choice to collaborate.

This paper and Van Gelderen *et al* (2005) show that decision to switch from part-time to full-time is an indication that the entrepreneur can start the business. Teams admitted that other responsibilities and inherent lack of focus affected their progress negatively. All successful companies had almost completely dedicated founders that decided to put other projects aside and work full-time (or more) to benefit to the success of their project. This makes the results in line with Duchesneau and Gartner (1990). Members of unsuccessful teams often had a day job to attend to, and other projects in addition. As Ajujaht was originally a competition that was aimed at university students, school was also a factor. Some members of these teams had to manage even all three at once. A common trait for interviewees was that all were obtaining or had obtained a higher degree by the time they had finished Ajujaht, implying that having a degree is not a predictor of success. The following list is a summary of the most important factors that successful teams had in common:

- well-developed business plan, focus on business development,
- sufficient dedication,
- age (members were older than in unsuccessful teams),
- experience,
- proactively looking for investors.

The following list is a summary of the most important factors that unsuccessful teams had in common:

- issues with business plan and business development,
- lack of dedication,
- youth,
- lack of experience,
- problems with outside expertise,
- time management,
- technical issues in development.

Many of these factors can affect any starting company, whether it has competed in a BPC or not, but Ajujaht has its role. Ajujaht helps to shape the key aspects of business plans; these plans were validated and adjusted by multiple specialists. During the post-Ajujaht development of their business ideas, teams did not substantially change their business plans, meaning they relied on the plan that, in hindsight, was not the best. Still, teams themselves are responsible for creating, fulfilling and adjusting the business plan. The results coincide with Wadhwa (2009), but partially. As he suggests that business competition winners may be influenced by praise that comes too early and too easily; it is less about early praise here and more about failed businesses having abstained from putting in the effort to make the business work in the long term. Contrary to Wadhwa's (2009) assumption, teams had gathered an understanding of market needs and validated their ideas.

Previous conclusions have to be taken with certain reservations. Firstly, 10 of 21 qualified projects were closely examined, leaving gaps data entirety. The selection of included variables in this paper is ad hoc and since it may reflect author's opinion, it may also exclude crucial factors of future success. As this paper does not have grounds for statistical analysis, the interpretation process leaves a considerable chance for author's bias. There is no definitive qualitative methodology to correctly and confidently process and combine the data in such small number of cases. Although the author avoided ambiguous questions, it cannot be ruled out that some questions had varying interpretations by different respondents. As the events that this paper is based on happened up to 12 years before, it is highly likely that some of the important information has already been forgotten. On the other hand, it is essential to gather information now to avoid the further loss of infomation and memories over time.

Finding a more efficient way to engage Ajujaht teams in research is an aspect to focus on more thoroughly. It is important to note that these previously highlighted factors may influence start-ups, nascent entrepreneurs and established companies separately from the fact whether these start-ups or (once) nascent entrepreneurs took part of a business plan competition or not.

Nevertheless, it is the authors belief that in the small business field of Estonia, these results offer some food for thought. Follow-up studies on BPCs are not as frequent as the

competitions themselves. This paper is the first to focus on the participants of Ajujaht, and their progress after the competition. Still, what can be done with the results? As this competition is called to life and co-organized by Enterprise Estonia, this paper offers some suggestions on competition design, and in broader sense, how to better operate with public resources. Namely, in addition to a mentor programme, Ajujaht should involve specialists of corresponding fields of competing teams to meet and discuss the specific needs and questions teams might have. Although Ajujaht does occasionally bring specialists on board, it is more for the purpose of evaluation and general advice on specialist's respected field. Considering that the jury has given suggestions, that in hindsight, were deemed questionable by the participants, it would add to the advice of the jury. Understandably, this would be nearly impossible to provide in earlier stages of the competition due to high costs and the number of competitors, but in later stages teams would benefit from it.

Secondly, it also provides business angels and venture capitalists something to think about, Even though the regular conduct for VC is to prefer younger founders because of their more up-to-date and disruptive ideas, it also conflicts with their common practice of valuing the team and its skills. Skills, experience and knowledge come with age; finding a problem worth solving and investing also takes time. It is exactly what Azoulay *et al* (2018) highlighted in their study.

Last, but not least, this paper offers new start-up founders some perspective on the hazards of entrepreneurial journey. It is always easier to learn from the experiences and mistakes of others. Despite that these results cannot be excessively extended to other countries, competitions and companies, this paper casts some light to a little-studied field of what comes after business plan competitions. There is still a lot to explore on this topic and on business plan competitions in general. This field provides multiple options for further research, for example, following studies have the opportunity to compose a success/failure model for Estonian companies or increase the subject pool in the context of Ajujaht and see if there are statistically valid conclusions to be made. Since there is little literature that compares the views of different parties on how their skills and experience affects the evaluation of business opportunities, one could take a closer look at Estonian start-ups through an investors' perspective, compare the success rates for

different start-up incubators, develop a strategy for mitigating the effects of improper business plan validation and so on. As the field of start-ups is continously active, there is no shortage on research topics.

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APPENDICES

Appendix 1. Key financial data of Ajujaht 2008-2014 TOP3 contestants

Ajujaht 2008												
	CellTells/Flipper OÜ				Flow OÜ				Textmarker			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2008					-	-	-	-	-	-	-	-
2009	18203	7362	40,4%		-	-	-	-	-	-	-	-
2010	3452	1447	41,9%	-81%	-	-	-	-	-	-	-	-
2011	0	-24051	-	-100%	-	-	-	-	-	-	-	-
2012	2403	-33597	-1398,1%	-	-	-	-	-	-	-	-	-
2013	7031	-92504	-1315,7%	193%	-	-	-	-	-	-	-	-
2014	605	-13148	-2173,2%	-91%	-	-	-	-	-	-	-	-
2015	520	-1609	-309,4%	-14%	-	-	-	-	-	-	-	-
2016	0	-7771	-	-100%	-	-	-	-	-	-	-	-
2017	0	0	-	-	-	-	-	-	-	-	-	-
2018	0	117187	-	-	-	-	-	-	-	-	-	-

Ajujaht 2009												
Growfish/Primefish Solutions OÜ					ReUse Republic OÜ				Optimistid/Eurus Powerboats OÜ			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2009									602	549	91,2%	
2010	0	-1543	-						0	140	-	-100%
2011	0	-2302	-	-	10044	152	1,51%		9500	9366	98,6%	-
2012	0	-241	-	-	15933	372	2,33%	59%	15950	4721	29,6%	68%
2013	0	-323	-	-	16491	-3762	-22,81%	4%	6925	-8496	-122,7%	-57%
2014	350	-66	-19%	-	15816	-3261	-20,62%	-4%	5500	-5809	-105,6%	-21%
2015	350	25	7%	0%	17883	5798	32,42%	13%	1400	-258	-18,4%	-75%
2016	0	4674	-	-100%	2279	1383	60,68%	-87%	2600	920	35,4%	86%
2017	700	402	57%	-	0	-55	-	-100%	1000	-934	-93,4%	-62%
2018	0	705	-	-	0	42	-	-	200	84	42,0%	-80%
Ajujaht 2010												
Click & Grow OÜ					Vetmed/SynoBio OÜ				Õpime mängides/Ciconia Õppemängud OÜ			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2010	0	-55499	-		0	15963	-		1828	-295	-16%	
2011	120009	-103051	-86%	-	0	-9	-	-	2872	588	20%	57%
2012	692968	-154624	-22%	477%	0	1596	-	-	1407	-30	-2%	-51%
2013	1360956	-121237	-9%	96%	0	-2739	-	-	493	264	54%	-65%
2014	1026158	-594937	-58%	-25%	0	-839	-	-	327	-285	-87%	-34%
2015	1325593	-453826	-34%	29%	0	6706	-	-	175	-274	-157%	-46%
2016	2381959	-64354	-3%	80%	0	-406	-	-	772	238	31%	341%
2017	4279695	180731	4%	80%	0	-1960	-	-	11477	124	1%	1387%
2018	6493412	-609737	-9%	52%					18977	4936	26%	65%

Ajujaht 2011												
Virtual Garden OÜ					Plaisir du Chat OÜ				KPA Scientific OÜ			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2010									37918	15030	39,6%	
2011	0	-240	-		0	-9	-		53809	39816	74,0%	42%
2012	1066	-1321	-124%	-	594	129	21,72%	-	20733	1319	6,4%	-61%
2013	0	-1440	-	-100%	1023	-211	-20,63%	72%	30500	-10975	-36,0%	47%
2014	0	-1440	-	-	660	372	56,36%	-35%	13518	2886	21,3%	-56%
2015	3660	2219	61%	-	550	550	100,00%	-17%	8782	-4475	-51,0%	-35%
2016	1280	77	6%	-65%	-	-	-	-	13482	-250	-1,9%	54%
2017	12359	9565	77%	866%	-	-	-	-	10966	-3588	-32,7%	-19%
2018	7895	-252	-3%	-36%	-	-	-	-	27825	-57404	-206,3%	154%
Ajujaht 2012												
Raybike OÜ					GrillCube/Grillseason OÜ				Like A Local Guide/Local Guide OÜ			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2012	10538	2473	23%		33961	16069	47,32%		222	-6099	-2747,3%	
2013	2619	-924	-35%	-75%	87739	-3378	-3,85%	158%	5886	-25002	-424,8%	2551%
2014	3169	-314	-10%	21%	31020	6430	20,73%	-65%	20641	-53744	-260,4%	251%
2015	3815	-2087	-55%	20%	336716	10632	3,16%	985%	33797	-104870	-310,3%	64%
2016	878	257	29%	-77%	904375	93934	10,39%	169%	49728	-166375	-334,6%	47%
2017	500	-105	-21%	-43%	708139	19009	2,68%	-22%	94421	-81915	-86,8%	90%
2018	334	168	50%	-33%	1035038	45504	4,40%	46%	155063	-23945	-15,4%	64%

Ajujaht 2013												
KidsOS/ABC123 OÜ					Jomi Interactive OÜ				PESA Design OÜ			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2013	0	17454	-		5273	-2210	-41,91%		500	11459	2291,8%	
2014	0	583	-	-	8852	1316	14,87%	68%	0	-215	-	-100%
2015	0	98	-	-	125	-5312	-4249,60%	-99%	0	-972	-	-
2016	0	1524	-	-	-	-	-	-	0	-263	-	-
2017	0	3697	-	-	-	-	-	-	0	-205	-	-
2018	0	-132	-	-	-	-	-	-	0	-216	-	-
Ajujaht 2014												
Timber Diameter/Timbeter OÜ					Taxify/Bolt Technology OÜ				GoWorkaBit Estonia OÜ			
Year	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth	Revenue, EUR	Net profit, EUR	Net profit margin	Revenue growth
2013					599	-970	-161,94%					
2014	825	17546	2127%		137433	-253828	-184,69%	22844%	84561	-2900	-3,4%	
2015	18001	-70181	-390%	2082%	610098	-548420	-89,89%	344%	432132	8612	2,0%	411%
2016	36122	-105720	-293%	101%	2785322	-49367	-1,77%	357%	1114037	-9467	-0,8%	158%
2017	151002	-174278	-115%	318%	21098843	-11337356	-53,73%	658%	1784969	35350	2,0%	60%
2018	227484	-98232	-43%	51%	79677062	-60371912	-75,77%	278%	2201579	-1234	-0,1%	23%

Source: Estonian Business Register, compiled by the author

Appendix 2. Success evaluation of Ajujaht 2008-2014 TOP3 contestants

Year	Team/idea	What was the idea?	Developed into a business?	Continues to exist?	Is the core idea the same?	Average revenue growth, last 3 y.	Reached success?
2008	CellTells/Flipper	Voice-activated interface for calendar apps	Yes	No	-	-	No
	Flow	Storage space optimisation	No	No	-	-	No
	Textmarker*	Highlight tool	No	Yes	Yes	-	No
2009	Growfish/Primefish	Fish farm management system	Yes	Yes	Yes	-	No
	ReUse Republic	Using fabric leftovers for clothes	Yes	Yes	Yes	-100%	No
	Optimistid	Wooden speedboats	Yes	Yes	Yes	-48%	No
2010	Click&Grow	Smart indoor gardening	Yes	Yes	Yes	70%	Yes
	Vetmed	Testing equipment for animals	Yes	No	-	-	No
	Õpime mängides	Educational games	Yes	No	-	-	No
2011	Virtual Garden	Farming service	Yes	Yes	No	29%	No
	Plaisir du Chat	Kitty litter from oil shale dust	Yes	No	-	-	No
	KPA Scientific	Models for testing hepatitis C	Yes	Yes	No	47%	No
2012	Raybike	One-handed scooter	Yes	Yes	Yes	-56%	No
	GrillCube	Conveniently packed grill coal	Yes	No	-	-	No
	Like a Local Guide	Recommendations platform for tourists	Yes	Yes	Yes	66%	Yes
2013	Kids OS	Children-tracking software	No	No	-	-	No
	Jomi Interactive	Monitoring water consumption	Yes	No	-	-	No
	Pesa Design	Shower seats for public showers	Yes	No	-	-	No
2014	Timbeter	Measuring timber volume	Yes	Yes	Yes	133%	Yes
	Taxify/Bolt	Rideshare platform	Yes	Yes	Yes	407%	Yes
	Go Work a Bit	Job matching platform	Yes	Yes	Yes	72%	Yes

Source: compiled by the author

Contestants participating in this paper are highlighted in yellow.
* Although Textmarker was not pursued as a business project, the product of their Ajujaht idea is still freely available in the web.

Appendix 3. Likert survey for research participants

Statements	SHELL category	Related factor of failure
External factors		
There were many competitors.	E — Environment	Too many competitors
Competitors were strong/active.	E	Outcompeted
It was difficult to attract external investors.	E	Investors not found
The external investments were sufficient.	E	Lack of funding
There were political/legal/economic problems when developing the business.	E	Political/legal/ economic problems
Sufficient networking was conducted with contacts from Ajujaht.	E	Did not use networking
Internal factors		
The original vision of the project has remained the same.	S — Software	Loss of the original vision
The business model was good.	S	No/wrong business model
The business project was scalable.	L2 — Liveware (Organisation)	No/wrong scaling
The business ran out of money.	L2	Out of money
The project ran into organisational issues.	L2	Bad management
The team was assembled optimally.	L2	Problems with team
There were insolvable issues between team members.	L2	Co-founder disharmony
Not enough focus was put on business development.	L2	Lack of business development
There were issues that required a total pivot for the company.	L2	Failure to pivot
The pivot(s) were successful.	L2	Pivot gone wrong
Managing the project led to a mental burnout.	L2	Burned out
The motivation to carry on with the project has sustained.	L2	Lack of passion/motivation
Development		
The product/service was technically feasible/sustainable.	H — Hardware	Technical feasibility/ sustainability
Serious emphasis was put on product development during the early phase of the project.	H	Lost focus on the product

Sufficient and relevant feedback was gathered from (potential) customers.	H	Product did not evolve with the market
Did you bring your service/product to the market?		
Product		
There was sufficient demand for the product on the market.	S	No product-market fit
The quality of the product/service was good.	H	Bad quality
The marketing was effective.	S	Poor marketing
The product quickly gained traction.	S	Poor traction
There weren't any pricing issues.	S	Pricing issues
The product was released at the right moment.	S	Mistimed product
Correct conclusions were made based on customer feedback.	S	Ignored customers
Customers		
There were not enough customers.	L1 — Liveware (Customer)	Few customers
Customer aquisition costs paid off.	L1	Problems in customer aquisition
Customers were loyal.	L1	Unfaithful customers
The geographical expansion was successful.	E	Failed geographical expansion

Source: compiled by the author

Appendix 4. Planned semi-structured interview questions

Research question	**Theoretical base/reasoning**
1. Was this project your first time as an entrepreneur? If not, did it work out the first time?	Gottschalk *et al* (2014)
2. Did you participate in a competition such as Ajujaht beforehand?	Howell (2016); McKenzie (2016)
3. When entering Ajujaht, did you just plan to test the idea or did you have intentions of following through and making it a business anyway?	Duchesneau and Gartner (1990); as Ajujaht was more of a test platform for ideas in the early years, less emphasis may have been put into bringing them to fruition.
4. Please describe your idea's course of progress after the competition had finished.	As not all projects have been covered by media after the competition, there is a gap in background information.
5. Which gender-age structure characterized your team?	Smith and Viceisza (2017); Poczter and Shapsis (2016); Van Gelderen *et al* (2006); Howell (2016); Azoulay et al (2018); Carroll and Hannan (2000)
6. Did you remain true to the business plan you presented in Ajujaht?	Linder and Cantrell (2000), Shirky (2008), Teece (2000), to find out whether they made any adjustments for the sole purpose of winning Ajujaht.
7. How did you use the award money from Ajujaht? Did you invest it in your company?	Cooper *et al* (1994)
8. How much capital did you need to raise to get the business going?	Van Gelderen *et al* (2006)
9. Were there any foreign investors that were interested in your project or was it limited to just Estonian investors?	As Estonia is a country with a small media field, start-ups may have limited exposure to international investors.
10. How did you raise the needed capital? Did you invest your own finances? How much was needed?	Van Gelderen *et al* (2006)
11. Did you work on the project full-time or did you pursue this besides your regular job?	Van Gelderen *et al* (2006)
12. Did luck play a part of your success/insuccess or was it just hard work/poor decisions that led to the current result of your company? Were there any key factors that led to the end result?	Brockhaus (1980); Duchesneau and Gartner (1990)
13. Did you have any doubts whether your doing the right thing? What was the level of confidence in your business?	To identify a case of overconfidence, perhaps being influenced by praise that comes too early and too easily; Rauch and Frese (2007)
14. Did the current result meet your expectations?	Duchesneau and Gartner (1990)
15. What was the milestone where you had an idea where you might end up?	To find out key events/factors that determined the outcome of the project.
16. Did you plan on making a quick cash or were you in for the long haul? Did you rush any decisions?	Boermans and Willebrands (2017)
17. How much help did you receive as mentorship after the Ajujaht competition?	Van Gelderen *et al* (2006); Tipu and Arain (2011); Chrisman and McMullan (2004)

Source: compiled by the author

Appendix 5. Codes and themes from interview replies

Categories	**Flow**	**GrowFish**	**Jomi**	**VetMed**	**Timbeter**	**Click & Grow**	**Like A Local Guide**
Experience in entrepreneur-ship	No entrepreneur-ship experience, university students	No entrepreneurship experience, university, considerable fish farming and IT experience	No entrepreneurship experience, university students	No entrepreneurship experience, some field experience	Entrepreneurship experience, IT field and timber industry experience	Entrepreneurship experience, IT field experience, experience of failure	Entrepreneurship experience (of sorts), sales experience, designing experience
Experience in competitions	First competition	First competition	Participation in unversity competitions, Garage48 experience	First competition	First competition, Garage48 experience	First competition, applied for Estonian Development Fund support	First competition, Enterprise Estonia refusal, from Ajujaht directly to other programs
Motivation	Had an idea, wanted to pursue it	Came from necessity	Had an idea, saw potential	Had an idea, saw potential	Came from necessity in Garage48	Had a thought for a while, put to work during recession	Had associated businesses, saw a rising trend
Education	University students	University students and graduates	University students	Graduates and student	Graduates	Graduate	Graduates
Age/gender structure during founding/ early stages	2M, ages 24-25	1F/4M, ages 23-26	1F/3M, ages 25-27	1F/2M ages 23-24M, 32F	50%/50% F/M, average age 33	1M, age 34, afterwards 50%/50% F/M, average age 30	1F/1M, ages 29-31

Source: compiled by the author

Categories	**Flow**	**GrowFish**	**Jomi**	**VetMed**	**Timbeter**	**Click & Grow**	**Like A Local Guide**
Effect of age/experience	Full of unjustified confidence, did not know what we were doing	Bad decisions due to bad judgement and inexperience	No experience, hasty decisions	Automatically assumed that we need older experts by our side, frightened by the scale of investments needed		Plenty of experience to realizing an old idea	Had time to figure out what we'd like to achieve
Funding	Had one potential Estonian investor, wanted 95%, gave up the last minute, recession, no interest from abroad	Did not want investors before having a tested product, had some interest from Estonia, funded from award money and personal funds	Did not want investors, were looking for a partner, no interest from Estonia, funded from award money and personal funds, big interest from potential customers/ partners abroad	Did not want investors, wanted to keep shares during early stages, funding from projects, some interest from European investors	Initially Estonian business angels, international investors afterwards	Initially Estonian business angels, mainly international investors afterwards, Kickstarter	Initially Estonian investors, an international investor afterwards
Need for funds	Does not remember, not huge numbers	Not that much	Not that much	Big	Big	Big	Big
Issues with outside experts	Never got that far	Issues with hardware developer	Issues with Academy of Arts students	Issues with TalTech partners	Issues with external software developers	Issues with hardware components	Issues with retaining the tech employee

Categories	**Flow**	**GrowFish**	**Jomi**	**VetMed**	**Timbeter**	**Click & Grow**	**Like A Local Guide**
Product development	Made blueprints	Hardware and reliability issues, first make it happen, then break it out	Hardware and reliability issues	Some components needed that were not available at the time, first make it happen, then break it out	Validated step-by-step with customers early on in the development process	Hardware issues, had to make it simpler	Software issues, first make it happen, then break it out
Business plan	Never got to pursuing it, was unrealistic	Did not change	Changed the target group	Did not change	Did not change	Changed the core source of income	A feature just for Ajujaht, changed a lot, came back to the initial plan, changed the income source often
(Potential) Customers	Some interest in Estonia	There was interest, could not fail not even one customer, otherwise no additional customers, had to have sales in home market to succeed abroad	Strong interest from big companies abroad	Not enough interest, too expensive	Feedback from Estonia not good, now 99% of revenue abroad	Had to educate people to generate customers	Monetizing too quickly - pushing people away, monitored different customer-related metrics
Competitors	A German company offered a similar product soon after our failure.	Little competition, specific field	Initially not many, but others started developing around the same period	Human tests were a growing business, but no competitors for livestock tests	No competitors	Others focus on gimmicks and unnecessary bits	Strong sector, big international players

Categories	**Flow**	**GrowFish**	**Jomi**	**VetMed**	**Timbeter**	**Click & Grow**	**Like A Local Guide**
Confidence level	High	Got higher as time went by, motivation boosted by mentors	Had some doubts, emotional roller-coaster	Not very high, hence the involvement of TalTech people	Low, lots of doubts	Quite high in decisions being made	High in general, lower regarding particular decisions
External influences	Recession	Setbacks in family business in 2010			Legislation issues in different markets	Coronavirus	Coronavirus
Time management	Short-lived	Used up valuable time failing with prototypes	Used up valuable time for failing with prototypes, things were not done in time	Delayed decisions	Took way more time than expected, had prepared for a long process	Took a lot of time to get on the market, hardware product with a bio component, testing took a lot of time	Took time to think initially, then hurried to monetize, took a lot of time to work out the income source
Dedication	Work, university	Helping a family company, university	Other projects as well, work, university	Other projects as well, work	100% with this project after a couple of months	100% with this project	80% with this project, no hardcore multitasking

Categories	**Flow**	**GrowFish**	**Jomi**	**VetMed**	**Timbeter**	**Click & Grow**	**Like A Local Guide**
Personal matters		Family company had a severe business loss in 2010, solving it was prioritized over Growfish	Worn out	Involved with other projects in later stages		Worn out	Worn out
Expectations	Wanted to see how it will go	Big expectations as potential was big, was not met but not surprising, did not have business experience	Big expectations, big-named contacts were interested	End result met the prerequisites		Extremely big expectations, haven't met yet	No expectations
Milestones	Investment got pulled	Setbacks in family business in 2010	Losing tech employee	Realizing the price issue	Customer feedback, being a solution of critical importance	Customer feedback, successful Kickstarter campaign	Realizing we do not know how to continue, burnout, selling it
Role of Ajujaht	Contacts, went and asked themselves, adjusted business plan	Contacts, found a hardware developer, mentors recommended to sell an untested product	Exposure, used contacts, adjusted business plan	Exposure, did not use contacts	Contacts, funding	Contacts, prototype funding, exposure, tech advice	Contacts, advice, exposure, creating confusion

Categories	**Flow**	**GrowFish**	**Jomi**	**VetMed**	**Timbeter**	**Click & Grow**	**Like A Local Guide**
What was missing?	A more realistic business plan, money, tech/engineer advice, how to take maximum of the advice	Motivation and time, tech/engineer advice (although it was outsourced), support system for our product how to take maximum of the advice	Tech/engineer advice, experience, time and commitment	Better business plan, customer-specific advice, experience			No independence when working with investors' funding, knowing what to make of others' advice, courage
Key factors	Ran out of money, recession	Personal matters, changed priorities	Changed market situation, difficulties in development process, penny-pinching (partner selection)	Partner selection gone wrong; product too expensive for customers	Not giving up	World-class people, conductor’s background	Personal matters, lack of knowledge and ideas, letting others tell what to do

Appendix 6. Possible factors of business failure based on ex-post studies.

Possible factor of failure	**Importance**
SHELL — Software	
No/Wrong business model (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	Business model describes how organisation offers value for customers and captures part of it to generate profits (Osterwalder and Pigneur 2010). Although a basis for value creation, firms need to change it as the core logic for operating a firm changes over time in order to stay profitable (Linder and Cantrell 2000). The right model is rarely clear early on in new/innovative sectors: entrepreneurs who have a good—although an imperfect business model—but who are pro-learning and can make it evolve, are more likely to succeed (Shirky 2008; Teece 2000).
No product/market fit (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	No market need. Missing product/market fit damages the product/service and the success of the business model. Marc Andreessen (2007) has defined product/market fit as being in a good market with a product that can satisfy that market. On the opposite, wrong positioning implies wrong knowledge of the product/service with consequent bad performance or the risk to begin in the "stuck in the middle" position of Porter's generic strategies (Porter 1980).
Loss of the original vision (Cantamessa *et al* 2018)	If founders are too focused on the product and its technical improvement, they may end up losing their initial vision and customer orientation and fail to address other side-lined issues.
Wrong customer development (Cantamessa *et al* 2018)	Customer segments have specific needs, behaviour, and willingness to pay for the product or service. Thus, it is important to decide about the ones to serve to aim the marketing correctly. A good product or service sold to the wrong segment will not lead to success.
Poor marketing (Cantamessa *et al* 2018, The TOP 20… 2019)	Marketing is about knowing your target audience and knowing how to get their attention and to convert them to leads and ultimately customers (The TOP 20… 2019). Lacking knowledge means lacking in customers.
No traction (Cantamessa *et al* 2018)	Having traction means the start-up already has created signs of market interest. Insufficient traction implies the start-up is unable to grow at sufficient speed, therefore giving up the competitive advantage and/or interest by investors and stakeholders.
Pricing/cost issues (The TOP 20… 2019, Bednár and Tarišková 2017)	The difficulty lies in pricing a product high enough to eventually cover costs but low enough to bring in customers (The TOP 20… 2019).
Mistimed product (The TOP 20… 2019, Bednár and Tarišková 2017)	An early or late product release might lead to poor response from potential customers.
Ignored customers (The TOP 20… 2019, Bednár and Tarišková (2017)	This can either mean a failure of listening to customers, responding to their feedback or making improvements based on their feedback. As retaining a customer is cheaper than acquiring a new customer, customer engagement is vital.
SHELL — Hardware	
Lost focus on the product (Cantamessa *et al* 2018)	Insufficient attention was paid to product development.

Technical feasibility/ sustainability (Cantamessa *et al* 2018)	Issues related to the product's technical feasibility that were already initially ignored or have emerged during the development process, making it impossible to design and develop the product/service.
Bad quality (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	General problems with the product, its quality and usability.
Product did not evolve with the market (Cantamessa *et al* 2018)	The product or service still fulfils its original need and does not fit with the changed customers' needs.
SHELL — Environment	
Outcompeted (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	Start-ups' competitors may have a consolidated positioning with a relevant market share, distribution channels or technologies, resources or other assets.
Too many competitors (Cantamessa *et al* 2018)	High number of existing competitors may keep newcomers from gaining a relevant position in a fragmented market.
Investors not found (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	There can be a lack of investors' interest either at the seed stage or none at all. This could be due to a poor presentation of the product or service offered or connected, or linked to one of the previous categories.
Lack of funding (Cantamessa *et al* 2018)	Start-ups deal with the problem of raising insufficient amounts of investments, which are not enough for developing a business.
Political/ economic/ legal problems (Cantamessa *et al* 2018, The TOP 20… 2019)	The political and economic situation affects start-ups' success through regulations or economic conditions, either directly or through customer base. If the chosen field is filled with legal challenges, it can cause start-up failure due to the high legal expenditures.
Did not use networking (The TOP 20… 2019)	Importance of networks lies in the possibility to consult, find employees, and most importantly, to contact new potential investors.
Failed geographical expansion (The TOP 20… 2019)	This includes expanding for the wrong reasons (just for compensating the scant revenue in home market), underestimating the costs and the extra complexity of expanding abroad, and inadequate localisation efforts.
SHELL — Liveware (customer, L1)	
Few customers (Cantamessa *et al* 2018)	This factor especially relates to wrong positioning, the maturity of the market and the competition. All these reasons could mean reaching to only a small part of customers; insufficient for the sustainability of the business.
Problems in customer acquisition (Cantamessa *et al* 2018)	Wrong marketing efforts could mean high costs to acquire customers, that do not reflect on the number of acquired customers.
Unfaithful customers (Cantamessa *et al* 2018)	The customers have become more conscious of and attracted to the promotions offered by the competitors, increasing the level of competition and the risk of a war of prices that make customers' loyalty fragile.

SHELL — Liveware (organization, L2)	
Out of money (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	This reason may correlate to one or more of the previous categories, either due to bad management of the resources and investments, or due to bad business development, wrong customers, market study and so forth.
No/Wrong scaling (Cantamessa *et al* 2018)	The decision to scale could lead to failure, either due to a difficult pivot or a premature scaling, or to a higher working capital requirement than the scaling operation needs.
Bad organization management (Cantamessa *et al* 2018)	The start-up founders often have specific knowledge of their field, which makes for a good product, but they lack the business and management skills. Rules, roles, and tasks need to be well organized and assigned to make the business side work smoothly.
Problems with team (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	Good team can make a business. If the team does not work together, has wrong skills or is poorly motivated, it will cause issues in the long run.
Co-founder disharmony (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	Co-founders disagree due to different backgrounds, qualifications, and specializations, which can cause bad decisions and management.
Lack of business development (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková (2017)	The highly technical teams risk having poor business development and thus, a poor commercial perspective of increasing customers, sales and profits, and making the business more profitable and self-perpetuating.
Failure to pivot (Cantamessa *et al* 2018, The TOP 20… 2019, Bednár and Tarišková 2017)	This means not moving away (quickly enough) from a bad product, hire or decision. Being attached to a bad idea drains resources and leaves employees frustrated by a lack of progress. (The TOP 20… 2019)
Pivot went wrong (The TOP 20… 2019, Bednár and Tarišková 2017)	Sorting out many fundamental issues still does not guarantee success.
Burned out (The TOP 20… 2019, Bednár and Tarišková 2017)	Start-up founders are often multi-tasking everything, at least in the beginning. Distributing tasks is hard when it is too expensive to hire additional people. This can eventually lead to fatigue and loss of motivation.
Lack of passion/ motivation (The TOP 20… 2019, Bednár and Tarišková 2017)	Staying motivated is the primary in entrepreneur's ability to get things done. Passion is important because it can fuel motivation, mental activity and provide meaning to everyday work (Cardon 2008).

Source: Based on Cantamessa *et al* (2018), The TOP 20… 2019; Bednár and Tarišková (2017); additional insights by Andreessen (2007), Shirky (2008); Teece (2000), Linder and Cantrell (2000), (Porter 1980), Cardon (2008), Osterwalder and Pigneur (2010); additional insights added by the author.

Appendix 7. Description of non-participating Ajujaht winners.

Year	Team	Description
2008	Text-marker	Third place winner was team Textmarker, with the idea of a browser tool that allows to highlight and share important information on any website being browsed. They finished a browser add-on tool Marker.to, that is still downloadable. As a freeware, it never took off as a business project.
2009	Optimistid / Eurus Powerboats OÜ	Third place winner of the 2009 season was a solo venture called Optimistid with the idea of hand building wooden speedboats that would have the characteristics comparable to race boats. The person behind the project still appears to be making/restoring boats according to social media; but it does not reflect on annual business reports.
2010	Õpime mängides	Third place winner Õpime Mängides designed different activities and game sets for studying while playing in elementary schools. Although their game sets were sold in large retail stores, it never took off as a business project and the company was sold in 2016/2017. Some of the team members are now using their expertise to train new teachers
2011	Plaisir du Chat	The second place went to team for their idea to produce kitty litter from oil shale dust. They tested machinery for their production line, but stopped pursuing their idea soon after. According to a founding member, it was due to a chemical process that rendered the product useless (Hälvin 2020). The company was shut down in 2019 after a period of hibernation.
2011	KPA Scientific	The third-place winner was KPA Scientific, for developing *in vivo* models for testing hepatitis C in pre-clinical phase. According to Plaas (2020), the idea was killed soon afterwards when HCV treatment entered to the market, which in turn cut the research support and investments.
2012	Raybike	The winner for 2012 season was team Raybike, which developed a scooter with a joystick-like lever for steering. This team was actively promoting their product right after the finale of Ajujaht, which lead to a small profit, some export sales to Finland and the Netherlands and Expo 2015 participation in the Estonian pavilion. Nevertheless, by 2016 sales were essentially non-existent and by the end of 2017 all public activities had also stopped.
2012	GrillCube	The second-place winner in 2012 was team GrillCube, which offered a convenient way of using charcoal for grilling. Their product was a single-use cardboard box filled with charcoal ready to be lit without any charcoal lighter fluid. The original founders sold their company after three years of volatile business; they managed to reach the markets of Central Europe, Western Europe and Australia while generating sales and profit. The new owners have boosted the sales figures by 1000% by selling firewood to export markets, a market sector where the new owners have considerable experience.
2013	KidsOS	2013 seasons' winner was KidsOS, an Android-based child tracking system. The team decided to invest their prize money to Apple shares and cryptocurrency. The team members have not pursued any further KidsOS-related activities.

2013	PESA	Third place in 2013 went to PESA, a multifunctional children's shower seat for public showers. After market research in 2013 and the following patent issues, no other activities have been reported of.
2014	Bolt (Taxify)	The second-place winner was Taxify, now known as Bolt. Their idea was to create an international rideshare platform. Although the jury decided to vote them out of the competition in an early phase, they were reinstated in the competition by the finals. Probably the best-known investor in Bolt is Daimler, whose 175 million USD investment moved Bolt to the so-called "unicorn club", a term for start-ups valued over one billion dollars. It now operates in more than 30 countries as a transport and delivery service and has more than 25 million clients and over a million drivers (Press – Bolt Technology 2020).
2014	Go Work A Bit	The third place in 2014 went to GoWorkaBit, a platform for intermediating short-period work opportunities. It is now a partner for many companies in Estonia that need seasonal workforce. It generated a revenue of 2.2 million euros in 2018. They are currently preparing to enter foreign markets.

Source: Estonian Business Registry, compiled by the author

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