Academic spin-off formation failure: the role of individual goals and attributions in learning from failure

A case study on the interplay of personal aims and perceptions within a team

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Abstract

Failure in entrepreneurial initiatives is often considered beneficial for entrepreneurial learning, as entrepreneurs learn from such experience through reflection on why it occurred. However, the actors involved are heterogeneous, implying they may interpret failure differently, and, consequently, their learning outcomes may also differ. Using attribution theory as the main theoretical framework, this paper examines the failure in academic spin-off projects, characterized by the presence of both of two distinct groups of actors – researchers and entrepreneurs. A case study on a terminated entrepreneurial project is conducted. The data for which was obtained through the use of semi-structured interviews with the individuals involved. The findings are that attribution of failure is related to the individual level to a greater extent than to the actor’s role within the team. Attributions seem to be primarily external and, contrary to theory, external attributions appear to instigate learning. The link between external attributions and preserved future motivation to enter entrepreneurship is confirmed. The overarching conclusion points to the importance of individual goals and expectations: these determine how failure is interpreted and reflected on by an individual, and are essential for entrepreneurial learning.

Keywords: entrepreneurial learning, failure, attribution theory, academic spin-off projects, individual goals.
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Introduction

“One thing is certain in business. You and everyone around you will make mistakes.”

~Richard Branson

The outcomes of entrepreneurial activities are characterized by uncertainty (McGrath, 1999), implying that many entrepreneurial projects will face a situation in which they have to terminate their operations. In Europe, “(...) only 50% of businesses survive five years after they were created” (European Commission, 2012). This phenomenon is favourable for overall economic development as it fosters innovation and flow of resources to the most valuable areas. However, research has shown that failure may take on a different meaning for the parties involved in failed initiatives.

Studies have emerged on failure and the role it plays in entrepreneurship and entrepreneurial learning. Failure is not perceived as only negative: it is viewed as essential for the learning process of the entrepreneur (Cope, 2003; McGrath, 1999; Shepherd, 2003), who gains knowledge through reflection on his or her actions (Kolb, 1984). Many entrepreneurial skills can only be obtained through direct experience (Politis, 2005).

However, there is a problem with this line of research, pertaining to the fact that not all parties involved in an initiative learn from failure. Different actors might have contrasting views on why, when and even whether their initiatives have failed. For instance, research has shown that entrepreneurs and venture capitalists have clearly different perspectives on causes of their failure (Zacharakis et al., 1999). Understanding the differences between the perceptions on failure provides valuable knowledge on how actors make decisions in a failure context and how they learn from the failure.
One particular group interesting for the study of failure perspectives are academic spin-offs; companies started around an idea originating from a university. As with all entrepreneurial initiatives, many of these spin-off projects experience problems which in the end lead to their termination, as opposed to the outcome of creating a company. Moreover, such projects have two distinct groups forming a team—researchers on the one side and entrepreneurs on the other. This makes them particularly suitable for observing different perspectives on failure.

Studying failure in academic spin-off formation means investigating it at the project level. This study adopts McGrath’s definition of failure (1999) which categorizes failure as “the termination of an initiative that has fallen short of its goals”. This definition allows for investigating failure at the project level as well as focusing on how different actors perceive failure in entrepreneurial projects.

Understanding how these different parties perceive the causes of project failure is the objective of this study. Using attribution theory (Weiner, 1985, 1986), the interpretation and learning outcomes of failure can be studied. According to this theory, individuals attribute the causes of failure to internal or external circumstances. Their attributions also guide their reactions and have influence on their learning and future entrepreneurial motivation.

The aim is thus to explore whether entrepreneurs and researchers in spin-off projects primarily attribute the causes of failure to internal or external factors, how these attributions affect their learning, and also how this is influenced by their prior expectations and goals. An in-depth case study on one terminated project at Lund University is performed, using semi-structured interviews to gather insights from the parties involved. The results point to the conclusion that in the case of academic spin-off projects, the role of personal goals set in advance is essential.
Background and theoretical framework

Defining failure

Failure is a concept closely related to entrepreneurship, as many entrepreneurial initiatives end in failure (Sarasvathy and Menon, 2002). However, it is not always clear what failure entails, making it difficult to compare the findings of different studies on failure. In entrepreneurship research, failure has been defined using subjective and objective criteria at the firm, project and individual level (Jenkins, 2012).

Objectively, failure can be defined as “discontinuance”, either as a result of change of ownership or closure of the company while another objective definition identifies failure as bankruptcy (Wattson and Everett, 1993). Other definitions are more subjective: Ucbasaran et al. (2010) argue that failure is “cessation of involvement in a venture because it has not met a minimum threshold for economic viability as stipulated by the (founder) entrepreneur”. A failed firm may be one that is not meeting the owner’s objectives, however subjectively these are defined.

The focus of this study is on the initial idea development stage in entrepreneurial projects preceding the registration of the company. Failure in this phase is not included in the previously described definitions of failure. Therefore McGrath’s definition (1999) of failure is adopted for the purpose of this study: “failure is the termination of an initiative that has fallen short of its goals”. This definition allows investigating the individual goals and perceptions of failure, even when formal company has not been registered yet.
Learning from failure

Entrepreneurship theory argues that entrepreneurs can gain valuable insights from failure. Sitkin (1992) finds that experiencing failure is essential for learning since the entrepreneur can ‘pinpoint’ why a failure has happened. According to experiential learning theory, both direct action and personal reflection are necessary for learning from failure (Cope and Watts, 2000). In other words, learning can only occur if failure is experienced and reflected on.

Nevertheless, the mechanisms through which learning occurs are not understood properly (Cope, 2011). An entrepreneur learns through reflection about failure (Politis and Gabrielsson, 2009); however, learning from failure is neither immediate nor automatic (Shepherd, 2003). This issue makes investigating learning complex since it is difficult to establish whether learning has in fact occurred.

Individuals who experience failure are heterogeneous (Ucbasaran et. al., 2010) and process and learn from failure differently. As mentioned before, expectations and aims also influence this process. In an entrepreneurial initiative, there are often different actors involved who may have their own goals and expectations. This might affect how they process failure through sense-making (Gioia and Chiottipeddi, 1991; Zacharakis et al., 1999) and how (and whether) they learn from it.

Attribution theory

People perceive and make judgments about stimuli through attributions (Fiske and Taylor, 1991). Attribution theory is a theoretical framework well-suited for investigating failure interpretations and responses (Jenkins et al., 2012) since attributions have the potential to explain what is learned from an experience.
In the field of attribution theory, Weiner (1985, 1986) claims that perceived causes of an experience can be classified according to three dimensions: locus of causality (internal or external), stability and controllability. The locus of causality relates to self-esteem. Stability affects future expectations, and controllability triggers emotions of anger, blame and shame (Graham, 1991). Together, these factors influence reactions to failure and learning from it.

Research has found that attributions may be biased. Individuals tend to attribute success to internal causes and failure to external causes (Bradley, 1978). Additionally, people tend to attribute other people’s failure to their personal characteristics (Bettman and Weitz, 1983). Moreover, an empirical study by Cox (1992) has shown that failed entrepreneurs attribute their problems to external causes over 85 per cent of the time. Conversely, Zacharakis et al. (1999) found that entrepreneurs are more likely to make internal attributions.

With regards to other parties involved in entrepreneurial initiatives, research has been conducted on the perception of failure by entrepreneurs and venture capitalists. Ruhnka et al. (1992) found that while the VCs see both poor internal factors and external issues as leading to failure, internal factors (inadequate management by the entrepreneurs) are perceived as decisive. This study indicates that in failed entrepreneurial initiatives where different parties are involved, the cause of this failure is attributed not only to external conditions, but also to the other party.

Attributions have a direct impact on what is learned and what is applied (Jenkins, 2012). Yamakawa et al. (2010) argue that internal attributions make the entrepreneur reflect on failure, and ultimately make them more successful. Jenkins (2012) refers to this as double-loop learning: if the cause was seen as internal, and the entrepreneurs were in control, reflection on their own role was far more likely. However, if the
entrepreneurs only reflected on others and the situation, single-loop learning occurred (Jenkins, 2012), which might not translate into increased entrepreneurial success.

Also, those reflecting on their own role may be less motivated to enter self-employment again while those reflecting on external causes are more likely to work as entrepreneurs in the future. Attributing negative experiences to external causes can thus help maintain motivation but may also reduce learning (Shepherd, 2003).

Reactions towards failure

Attribution theory explores not only the interpretation of failure but also claims that the way it is interpreted influences the responses to it. This part of the theory is also of importance when trying to understand failure and learning from it. Therefore, the focus of this paper is also on dealing with failure. In particular, we apply the concepts of escalation of commitment and scientific legitimacy when responding to failure.

Escalation of commitment refers to an increasing dedication to the same course of action in a sequence of decisions resulting in negative outcomes (Karlsson et al., 2005). People maintain a course of action since they need to justify their decisions to self and others or because they prefer uncertain loss to a certain loss (Shepherd et al., 2009). However, more importantly, entrepreneurs invest time, energy and resources into their ventures (Cope, 2003). This means they might feel that the effort already invested into a course of action (Arkes and Blumer, 1985) would be wasted when admitting failure. Therefore, making decisions about failure may be postponed.

The concept of scientific legitimacy is explored with regards to the researcher’s position. As Karlsson and Wigren (2007) argue, people working within academia possess a certain level of scientific legitimacy: they have a reputation in the scientific community which is measured by the number of their publications, number of times
cited and the quality of the journals their work is published in (Karlsson and Wigren 2007). This legitimacy may lead researchers to have a different perspective on failure and influence their commitment to the business as their perception of success is dependent on this type of recognition in academia.

In entrepreneurial initiatives involving both researchers and entrepreneurs, the objectives are likely to be different. While entrepreneurs want to create a business that will provide them with an income, researchers are evaluated based on their scientific work. Terminating the project does not endanger the legitimacy they have gained from this effort and researchers may thus be led to different courses of action than entrepreneurs who may suffer from escalation of commitment (T. Karlsson, virtual communication, March 18, 2013).

*

The theory discussed in this chapter forms the basis for this study. The main goal is to explore whether entrepreneurs and researchers in entrepreneurial initiatives primarily attribute the causes of failure to internal and external factors, and how this is influenced by their prior expectations and goals.

Attributing blame to external impacts may prevent learning but help retain entrepreneurial motivation for both parties. However, this experience may not translate into increased success probability in future ventures and could cause more failures (Zacharakis et al., 1999). This aspect makes investigating attributions even more important as they are directly related to learning or not learning from the failure.
Apart from investigating attributions, this study also explores whether escalation of commitment and scientific legitimacy play part in academic spin-off formation failure.

Based on the theory discussed, the following research questions have been formulated:

1) How are the perceptions of failure and learning influenced by individual goals?
2) Do entrepreneurs and researchers attribute failure to external or internal causes?
3) How do attributions influence learning?
4) How do attributions influence future motivation to enter entrepreneurship?
5a) Do the resources committed to an entrepreneurial initiative influence an entrepreneur’s reaction to failure?
5b) Does scientific legitimacy affect a researcher’s reaction to failure?
Methodology

In order to explore the questions formulated in the previous section, this study adopts a qualitative approach. The reasoning is that the focus is on perceptions, motivations, behaviours and attitudes of different actors. Qualitative methods are suitable since they aim to discover what meaning individuals ascribe to their environment (Mason, 2002). The specific approach chosen are semi-structured interviews processed through content analysis. Since we focus our study on project failures, we use project failure as the definition, as opposed to firm failure or personal failure.

In Sweden, there is a considerable stigma connected with failure (Jenkins et al., 2012). This means that such studies require a sensitive approach to respondents and often have to make use of convenience sampling, as it is difficult to find entrepreneurs who are open about failure (Sarasvathy and Menon, 2002). This was also the case with this study. We had to overcome this issue with the help of Sten K. Johnson Centre for Entrepreneurship at Lund University which provided us with a number of terminated projects to contact – this also solved the problem of identifying the projects that have failed.

The original aim was to collect empirical evidence from several academic spin-off projects; however, it proved to be difficult to approach the researchers involved in these initiatives due to communication constraints. This is why our research focuses on one in-depth case study.

For the purpose of this research we interviewed four different key actors in this particular project: two entrepreneurs engaged at different stages during the project, one leading researcher involved throughout the entire duration of the project, and one stakeholder assisting with the initial development of the initiative. Because of the
stigma associated with failure, the participants were promised anonymity – no personal details about them or their projects are thus revealed.

The interview method has two important limitations. First, it may be influenced by reflection bias. Parties that experienced failure go through a process of sensemaking (Gioia and Chiottipeddi, 1991, Zacharakis et al., 1999), which means that their reflection on the events may be biased. This is a factor the authors had to keep in mind when conducting and analysing the interviews. This research is also context-dependent and not generalizable due to the use of a single case study. This means that the findings will not constitute explanatory relationships but may shed some light on failure in entrepreneurial initiatives and the ramifications of this phenomenon.

Interviews were all conducted personally using an interview guide prepared beforehand (Appendix 1). During the interview use of field notes was made. These running commentaries were used in order to create an overlap of data collection and data analysis (Eisenhardt, 1989). In this way questions could be improvised that were adjusted to the specific respondent and the information he or she held.

All interviews were recorded, later transcribed and then sent to the respondents for any necessary corrections. The collection of corrected transcriptions can be found in Appendix 2. These transcriptions were analysed through content analysis: the meanings contained in the interviews were coded and categorized according to the theoretical concepts.

Five different categories were established according to the theoretical framework discussed in the previous chapter, and relating to the research questions stated. The two researchers individually read through all transcriptions and filtered out all aspects that relate to the theory. Simultaneously, these findings were categorized. Afterwards, the individual work of both researchers was compared and discussed, combining it
into a descriptive results section. These results were then further elaborated on in the next chapter, emphasizing and analysing links with the theory and interpreting the results, leading towards the conclusions.

Case background

At Lund University, Lund University Innovation System (LUIS) works with bringing research ideas to the market. LUIS meets with researchers, helps establish whether a market exists for the idea, and assists with forming a company. Due to a lack of entrepreneurs to run these projects, LUIS cooperates with the MSc in Entrepreneurship programme based at Lund University School of Economics and Management, allowing students to get involved in the project as their main assignment, under the Idea++ framework.

The objective of Idea++ is to explore the different business models for the idea. The students are selected at the beginning of the programme through working on a feasibility analysis. The criteria, according to LUIS, are that students like the project and are willing to spend their time (several months during the programme) on it. The researchers should accept the students and common goals should be agreed upon. This requires that the researchers devote time to the project but also give the students a mandate to run the project as entrepreneurs. LUIS aims for the cooperation to continue after the education is finished and there is a clear goal to start a company. In order to reach this goal, LUIS contributes with SEK 50,000.

The project investigated in this study originated in 2010 when a team of researchers from Lund Technical University (LTH) applied for the Idea++ cooperation with LUIS. The idea was accepted and the main researcher presented the idea for a class of MSc in Entrepreneurship students, in September 2010. Two groups of students wrote
a commercial feasibility analysis for the project, after which one student was approached to lead the commercialization process (Entrepreneur A). He recruited one other student and together they wrote an initial business plan.

Communication problems between the entrepreneurs and the researchers arose around November 2010 and the team fell apart. LUIS and the researchers therefore approached other students and in January 2011 a group of four (among which Entrepreneur B) started writing a business plan for the project which was finalized in May 2011. The team concluded there was not a clear business case and terminated the project.

The researchers kept on working on the project after the Idea++ termination, and eventually sold the patent for the invention in April 2013. Currently the main researcher and two PhD students are still working on the technology, together with the mobile company that acquired the patent.
Results

In this section, the findings from the interviews are laid out, organized according to the common themes identified in the content analysis.

Individual goals

The parties involved all state different reasons for getting involved, with the exception of the researcher. No expectations for the project are mentioned – however, he says, “Not everything went as expected” which is likely related to starting a company. At present, “there are no aspirations”[commercially].

Entrepreneur A believes there were no goals set at the beginning, only that the students would have a possibility to learn from the research commercialization experience. However, his personal goals were to “start up a company in Sweden”. He does not think that these goals were understood by the Entrepreneurship study programme neither by the research team. “The common goals were not the same.” “I believe it would be better if expectations from the researchers were set up at the table and there would be a discussion about it to find a common goal”.

The experience of Entrepreneur B is somewhat different. This student liked the idea but initially wanted to work on another one. However, the programme “pushed” the students to work on a research idea. The students were approached by the researcher and decided to work on the project. It was “in the best interest for us to do well on the programme, so they’re happy with us”. The team did not have aspirations to start a business. The entrepreneur says that when starting the programme, his objective was to learn about entrepreneurship and starting a business, not to start one afterwards. After about two months of working on the project, the group of students “had the
notion that we were not going to stay in Sweden”. Entrepreneur B believes that the researcher did not have clear expectations for the project either – “It didn’t seem that he knew what he wanted to do with it, if he even wanted to make a business out of it”.

Attribution

According to the researcher, one of the reasons the project did not succeed was the difficulty of access to essential hardware from mobile providers. “The main problem was that we were too early for the smartphones” and he emphasizes that the market push that today exists was not there at the time. The time needed was underestimated by the researchers; however, “we couldn’t do anything but wait”. A company was not started also because “we couldn’t really demonstrate the technology at that point. It was really hard to show the benefits”.

With regards to the Idea++ project, the researcher believes that personal chemistry in the student team itself did not develop. In general, he thinks that the fact that the entrepreneurs are only involved for a short time whereas the researcher for longer contributed to the project not taking off. “It takes years before it even reaches this stage, for a company to be formed. In another project it took 4–5 years before we had a company”. However, the overriding reason was the lack of a clear business case for forming a company. “At the end of the day it was a decision I didn’t personally have control over”.

Entrepreneur A finds that “there were some communication problems between the researchers and us”.1 Also, he explains that rules were missing for how the project

1 According to the stakeholder interviewed, the problem was that the entrepreneurs did not listen to the researchers.
would operate, setting the pace of the project, and defining mutual expectations. He also believes that the idea was not at the “point of commercialization” and the prototype, although promised to be finished before the programme ended, was not ready, “which was from my point of view quite important”. His opinion is that the involvement by the researchers in the Idea++ project came too late, when the students were almost done with the business plan, and this involvement eventually resulted in the students leaving the project.

Entrepreneur B also talks about communication problems. “We didn’t really have a relationship [with the researcher] (...) He simply did not seem very interested in the business side of things”. However, the student also believes that he should have put more initiative into communicating with the research team. In the project, the students realized that the business would probably not be “justifiable”. Entrepreneur B believes the problem was that mobile manufacturers would have to change their production lines and systems, perceived by him and the rest of the entrepreneurial team as nearly impossible. “It just did not seem feasible and none of us had their heart in it that much”. Also, in his opinion, the product needed a lot more development.

Learning from failure

The researcher does not see the project as a failure. The project had continued once the patent was sold, without commercial aspirations. He explains the project did not go as expected, but is still a success from a research perspective. One learning outcome mentioned was the fact that patents “are a burden” – it is the market that counts.

Entrepreneur A views the experience as a failure and states that it has been beneficial for his learning, adding that he would probably repeat it. From the business point of view, he has learned about how things and people work in Sweden and the
expectations from the environment. These insights have helped him in his current company and gave him an understanding of cultural differences. “The experience of how the environment and how the people work and interact with each other is way more interesting”[than the technological side].

Entrepreneur B also sees the project as a failure and voices many learning outcomes, especially with regards to taking ownership of the project and taking action. “If you want something, go get it. (...) Don’t be hesitant”. Also, cooperation is needed. “You and the researcher should be together every day, all day just talking about the business, ideas going back and forward”. If an entrepreneur wants to start a business, he needs to be involved every single day. These are things that he would not have learned if he did not fail, and he also believes this experience has helped him to get his current job.

Motivation to re-enter entrepreneurship

The researcher has been involved in a start-up before and wants to pursue his technological and entrepreneurial ambitions in the future – because the involvement “is fun”. Entrepreneur A has started a company after finishing the programme and continues to work on it in Sweden whereas entrepreneur B has been employed by a start-up since then, with unclear entrepreneurial motivations.

Escalation of commitment and scientific legitimacy

No significant instances of escalation of commitment have been found. The researcher argues that the only resources he would invest are time and effort but not resources that would affect his personal economy.
Entrepreneur A talks about the uncertainty involved for the students as it was unclear from the start whether they would be later employed by the project, leading to hesitation to actually commit to the project.

Entrepreneur B believes that the team put in their best effort given the resources they had. However, the lack of belief in the survival of the project also influenced this lack of commitment.

With regards to scientific legitimacy, this resource seems to have been used by the researcher to start cooperation with the students. The idea did not prove to be a commercial success but it “did have an effect on the region”. The work on the project continues and currently employs several students.
Discussion

In this section, the results of this study will be discussed in light of theory, and the research questions will be addressed.

1) How are the perceptions of failure and learning influenced by individual goals?

McGrath (1999) sees failure as “the termination of an initiative that has fallen short of its goals”. In the case of the project, the goals for the parties involved differ significantly. While one entrepreneur aimed to start a company, another expected a learning experience. The researcher, on the other hand, did not mention any explicit goals. This situation of contrasting goals likely led to the communication problems mentioned by the parties, and resulted in the initial team being dysfunctional.

The individuals who set goals at the beginning are the ones able to see the project as a failure and mention learning outcomes, even though they see the failure differently and learn different things (Ucbasaran et. al., 2010). This is most likely because the entrepreneurs see the project as only a small part of their entrepreneurial education. In the case of the researcher, it appears that a process of sense-making (Gioia and ChiottiPeddi, 1991, Zacharakis et al., 1999) might have influenced his reasoning about the project’s termination. By applying for Idea++, the goal of starting a company is stated. However, these expectations for the project are in hindsight seen as research rather than commercial aspirations.

In conclusion, it appears that the impact of individual goals is even greater than originally expected, by having almost definite influence on the individual perception on failure. Accordingly, we will take this finding into account when examining what has been learned from failure since it is in close relation to this subject.
2) Do entrepreneurs and researchers attribute failure to external or internal causes?

Previous research is inconclusive as to whether entrepreneurs tend to attribute failure to external factors or are more likely to make internal attributions. When two parties are involved, the cause of failure is often partly attributed to the other party rather than to purely external circumstances, as found in the study of Ruhanka et al. (1992).

On the researcher side in the project, the main belief is that there was a mismatch between the market and the product, a situation out of control for the actors. In other words, this lack of a business case made the project unfeasible. However, also mentioned is the internal factor of the unpreparedness of the technology which is a circumstance that the research team could have influenced.

When the researcher reflects on the entrepreneurs’ involvement, ending the cooperation with the first group of entrepreneurs was supposedly caused by poor relations within that group. In general, the commercialization of the project suffered from the entrepreneurs’ only involved for a short time.

However, the entrepreneurs voice a different view on the matter. Entrepreneur A attributes the cause of failure mainly to the researchers: there were communication problems, lack of involvement and missing rules but mostly the fact that the idea and the technology were not ready.

Entrepreneur B also perceived these problems; however, his attribution is also partly internal: the entrepreneurial team did not communicate enough and were not motivated. In addition, the communication issues with the researchers are seen as stable, reducing motivation (Weiner, 1985, 1986) for the entrepreneurs.
From these findings it can be concluded that attribution can be seen as personal rather than related to a specific role within a team. In general, attributions appear to be mainly external and not associated with specific individuals.

3) How do attributions influence learning?

Entrepreneurs can learn much from reflecting on failure; however, attributions may affect this learning, leading to differing outcomes where the entrepreneur only reflects on the role of others and external circumstances in the situation or where the entrepreneur reflects on his or her own role in the failure (Jenkins, 2012). Presumably, researchers experience learning in the same way. However, in the case of the researcher in this study, the project was not seen as a failure in the end, making any learning outcomes doubtful.

For Entrepreneur A, the attributions were mostly external – related to the other party. According to theory, this attribution should prevent learning. However, the entrepreneur clearly mentions that he has learned a valuable lesson about the business environment in Sweden from this experience. Entrepreneur B, on the other hand, attributed the cause of the failure partly to himself and not taking enough action. His learning outcomes point to the importance of taking initiative, clearly relating to his failure experience.

We find that the link between attributions and learning from failure in this case is inconclusive. According to theory, external attributions should not lead to learning. However, we found that external attribution can still instigate learning. While this appears to be in conflict with theory it can be argued that not observing internal attribution does not by definition mean that it did not occur, and the case could therefore still match the related theory.
4) How do attributions influence future motivation to enter entrepreneurship?

Attributions not only influence what is learned but also affect the motivation to enter entrepreneurship post-failure (Jenkins, 2012). In addition, theory claims that those who reflected on their failure as internal are less motivated to do so. In this case study, both the researcher and Entrepreneur A wish to pursue entrepreneurship in the future, and are also the parties who attributed failure to external causes – either external to the project or themselves as a person.

Entrepreneur B, who has reflected on his own role as well, has unclear entrepreneurial motivations and has sought employment after the project’s termination. This may be due to the fact that internal attribution may have a negative influence on individual self-esteem, reducing the motivation to re-enter self-employment or to initiate further entrepreneurial initiatives. However, this does not mean entrepreneurs who have attributed internally might not start a company in the future.

At this point in time our results are in line with theory. The party reflecting on himself did not start a company again nor has clear ambitions to do so, while the parties not reflecting on themselves have since started a company or have ambitions in this direction.

5a) Do the resources committed to an entrepreneurial initiative influence an entrepreneur’s reaction to failure?

In a failing situation, entrepreneurs sometimes escalate their commitment, mainly due to the resources already invested. None of the interviewees reported instances of escalated commitment to the project. From the researcher’s side, the reason for this is probably a lack of commitment to the project as a commercial venture, whereas the entrepreneurs report uncertainty about their future with the project and a lack of
belief in the project. Furthermore, it seems none of the parties invested significant resources, which could have prevented escalating of commitment.

No conclusions can be drawn related to escalation of commitment, presumably since not enough resources were invested to possibly lead to this instance.

5b) Does scientific legitimacy affect a researcher’s reaction to failure?

Scientific legitimacy is a resource researchers may use for different purposes, such as to overcome the liabilities of newness or to recruit competences into a project. In this study, the effect of scientific legitimacy does not appear to be significant. It seems to have led to a different perspective on failure by the researcher, seeing it as a research success which affected the economy rather than a failed project which could have turned into a company. The latter was an outcome that would have benefited the entrepreneurs.

No conclusions can be drawn related to scientific legitimacy either, due to a lack of evidence supporting this.
Conclusion and implications

Failure can be an important part of entrepreneurship education, as it is closely related to learning. The outcomes of experiencing failure can be a beneficial contribution to a one’s overall learning process, and may increase the chances of the entrepreneur’s future success. However, more attention should be paid to how individuals interpret failure. Learning entrepreneurial skills and enhanced performance are not automatic, and theory therefore emphasizes the importance of reflection and internal attribution in order to stimulate this.

This study shows that in a case of pre-start-up process failure, attribution can be seen rather personal than related to a specific role within a team. In general, attributions appear to be mainly external and not associated with specific individuals. However, it also appears that the link between external attributions and prevented learning from failure is inconclusive. This study finds that learning can in fact occur even when internal attribution has not taken place.

The link between external attribution and future motivation to enter entrepreneurship is confirmed. The individual clearly reflecting internally has not started a company again, in contrast to those who did not attribute failure to themselves, who have shown clear ambitions to re-enter entrepreneur or have already done so.

The most important finding in this study however is the surprisingly high impact of expectations and goals on individual perception on failure. It appears that the interpretation of failure and one’s learning from it are almost entirely defined by the setting of previous goals. These goals can possibly change over time in a process of sense-making, adjusting them and denying failure. While this can be important to
protect personal emotions, it could however have a negative impact on his or her learning outcomes. This might have implications for entrepreneurial education, and possibly learning from failure in general.

Entrepreneurs and researchers, but also individuals on both sides are likely to set different goals in context of their individual achievement, which may lead to communication problems and prevented learning from failure. Setting clear achievable goals would significantly increase the value of these projects, either for learning from their difficulties or making them more successful. Agreeing on binding goals in advance may help prevent division within a team, and also counteract the process of sense-making – which can lead to failure denial –, facilitating the entrepreneurial learning process.
References


Appendix 1

Before the interview took place, the nature of the research was explained to the participant.

Interview guideline questions:

1) Can you please tell us something about your background and your personal role in the project?
2) What are the roles of the other parties?
3) How would you describe relationship within the project team?
4) Can you explain us the story of the project – the timeline?
5) What were the critical situations in the timeline of the project?
6) Why did the critical moments occur (according to you)?
7) What do you think led to the termination of the project (external/internal)?
8) How did different stakeholders react to this?
9) What actions were taken to deal with critical moments? Who made the most important decisions that influenced the company’s course? What motivated them?
10) When did you realize that you would not “make a go of it”?
11) Why did the project continue for so long? Do you believe the project should have been terminated earlier? (If so.) Why was it not the case?
12) What did you learn from these events? What were the consequences of this situation for you personally (examples of learning)?
Appendix 2

RESEARCHER

Interviewer: Can you tell us something about your background, the project itself and your involvement in the project?

Respondent: The project started with some ideas that we got here [LTH, Lund]. We saw that you could combine different technologies that can create new wireless localization and finding direction, which would enable indoor localization at a level that has not been possible before. And the good thing with it was that we actually base everything on what was already available with smartphones. And with that idea, me and two colleagues wrote a patent application which got quite a good evaluation I would say, both a national one and the PCT. Then in the meantime we continued technological development.

Interviewer: Who exactly came with the initial idea?

Respondent: We [team of researchers at LTH] came with the idea. We are still working on the technical aspects of it. What it turned out to be was that it was harder to get access to the hardware in the phone. This is one of the reasons why it eventually didn’t take off.

Interviewer: There were technological problems with the integration?

Respondent: It took a much longer time than expected to get access to the low level parameters. The main problem was that we were too early for the smartphones. Even though the functionality was there, there was no interest to really push that kind of access that we needed. It had to access to deep things in the smartphone. Today, that push is there. Eventually, we sold the patent to – I should not mention any names. Together with them we are still working on it. It turned out that to get access to those deep-level things either you needed to build it yourself or to get it through one of the
companies. They had to really push it through to their providers. It actually took a year to get access to those details.

**Interviewer:** So basically it was still a success – selling the patent?

**Respondent:** We are still working together with the engineers here to really show what the capabilities are. And I would say, one thing we have been able to do is do it off the shelf, using non-integrated modules. But to really use this you need to use the integrated modules. We have underestimated this. The time it took to really get back to that level of information that we needed.

**Interviewer:** Can you tell us something more about the other parties involved in the Idea++ project?

**Respondent:** It started with me and two colleagues. And I would say what happened was that the group didn’t work out well. Personal chemistry wasn’t there [between the entrepreneurs].

**Interviewer:** There were initially two students, who left at a certain point, and then four others joined. Can you elaborate on that?

**Respondent:** Eventually it were four [students].

**Interviewer:** Was there a company started, eventually?

**Respondent:** Not from this one. Because in the meantime we couldn’t really demonstrate the technology at that point. It was really hard to show the benefits. Maybe it was too early stage.

**Interviewer:** You talk about being too early. Can you give us some sort of a timeline of the project?

**Respondent:** One major thing was that it took more than a year to get the information from the provider.

**Interviewer:** A year starting from where?
Respondent: From the actual request from the mobile company platform provider to gain access to those low level details. The request was during the Idea++ phase.

Interviewer: When did you realize it was going to take such a long time and you had to take action?

Respondent: Yes I mean, the thing is that we couldn’t do anything but wait.

Interviewer: So you did not take any action during this time that influenced the course of the company? Was there anything happening in the project? Were the students still involved?

Respondent: During the Idea++ project of course we continued working with off the shelf components in order to show the functionality. That also took a longer time than anticipated.

Interviewer: What were the levels of involvement of the different persons at that time?

Respondent: When it came to the engineering, I mean we were highly involved.

Interviewer: Are there any plans for the future?

Respondent: Yes, I mean, in a way that we continue to develop the technical side. We continue the cooperation with the mobile company. They are looking at the technology, but commercially there are no aspirations.

Interviewer: And the patent was owned by LUIS [when it was sold]?

Respondent: No, by us. The inventors. We faced the time-limit of the patent. It had to go to the national phase and when this happened, it was expensive, and it was time to make a personal decision. If you can find the money that can move it forward. I just did not find 300,000 SEK to get into the national phase. So we had to find somebody that was willing to do it and we actually found two companies that were interested in taking over the patent and going into the national phase.
**Interviewer:** Do you think that if you would have realized earlier [that it would not succeed] that you could have saved time? And do you think this timing affected your learning?

**Respondent:** Of course, I mean… from the commercial aspect, if we had known it would take a year to get those parameters, of course we should have waited a year to start. On the other hand I think the patent couldn’t wait. It’s a dilemma because, you can wait as long as you can with a patent application, but at one point you have to apply for it, and when you apply for it time is running.

**Interviewer:** Were you the person who applied?

**Respondent:** Me, yes. And 2 colleagues.

**Interviewer:** And how did the stakeholders [LUIS] react?

**Respondent:** To be honest I haven’t had very much of a feedback on this, I mean… By the way, it is not a big involvement. By the end of the day it [the technology] did had an effect on the region, but it didn’t end up being a company.

**Interviewer:** Apart from selling the patent in the end, what other successes did you experience?

**Respondent:** Yeah well, research-wise. We have a few publications and two PhD students working on the technology.

**Interviewer:** So apart from the commercial aspect it was a successful project?

**Respondent:** Not everything went as expected, but that you never know.

**Interviewer:** Is there something, businesswise, what you learned from it that you can apply in your current project? Or is it always unpredictable?

**Respondent:** I wouldn’t say unpredictable, but in the end we had some good insights, good ideas. I mean we didn’t really try to realize that, because other pieces of the puzzle that were missing… So to me it’s not a failure. It didn’t go as expected.
Regarding the patent I think, for an entrepreneur, I think they [patents] are a burden. At the end of the day it is the market that counts.

**Interviewer:** You mean that the patent commercially has a rather limited value?

**Respondent:** Yes. That is how I see it, but not how many investors see it. I think it’s just insurance for them. If there’s a patent they think there is something that has a value.

**Interviewer:** And how do you personally value a patent?

**Respondent:** I could write 5 meaningless patents. Without any value for me, I could write them for the purpose of having a patent. But they are still not worth anything without a market and a clear business idea.

**Interviewer:** You believe the implementation and marketing is more important than the actual patent?

**Respondent:** Yes. Going to customers with something that is working. Otherwise then it’s just a hassle. And I would say legal hassle. A patent is not worth more than the value you can defend it for. If you have a small success you don’t need it. If it’s a big success…

**Interviewer:** How long were you involved in the project?

**Respondent:** I have been involved for five years, and then the entrepreneurs are only for a short time here.

**Interviewer:** So your perspective on the project might be different because of the time you were involved?

**Respondent:** It’s hard for the entrepreneurs too within a year… a year is so short. It takes years before it even reaches this stage, for a company to be formed. In another project it took 4–5 before we had a company.

**Interviewer:** The entrepreneurs were involved for a relatively small amount of time. Do you think their lower time-investment is a reason they didn’t go on with it?
Respondent: No, I think it was in that stage there was not a clear business case for forming a company.

Interviewer: And they were more interested in the business than the technology?

Respondent: Yes, and also they need bread on the table. I have a salary from here, I am not dependent on a salary from the company. And that would take a long time. It’s really hard to start from scratch on investor money. You need to survive. And for getting an investment you need to be able to give a demonstration based on what we developed before forming a company. It’s hard to convince a potential investor of the commercial potential if you have nothing to show. Especially a patent is one incentive. Eventually we had a patent, we had a demonstration, we had some development work.

Interviewer: Will you continue to pursue your technological and entrepreneurial ambitions?

Respondent: Yes, because I think it’s fun. However, I would never put myself in a situation where I put in everything I own into a company that you don’t own 100% yourself.

Interview: In terms of personal resources or time and effort?

Respondent: Time and effort you can always invest, but when it’s affecting your personal economy if you don’t have control of the decisions…

Interview: So when investing your own money you prefer a high level of control?

Respondent: If you would not have the control over decisions that you would have with external investors…

Interviewer: Do you like to separate work from home?

Respondent: Yes. I can lose part of my money, but I cannot lose my home. Luck is certainly involved. At the end of the day there are decisions that you personally have no control over.
ENTREPRENEUR A

Interviewer: Can you start with telling us something more about the course of the company and your specific role in it?

Respondent: Well, it wasn’t really a company; it was never registered as a formal company. It was only within the Idea concept and the research and how it can be commercialized in a way. The only names that was giving actually the name of the possible company which was going to be registered, was [project name]. My role – we never got the point when there was an actual role for me. We just got selected from the entrepreneurship programme and we pitched to the researchers. They liked some of the teams and this team was comprised by more or less three people at the beginning, of which only two of them decided to go with it. So the project – at this time we competed in Venture Cup, and after the Venture Cup competition basically we stepped out of the team and new people came in.

Interviewer: For what reason did you step out of the team?

Respondent: There were some communication problems between the researchers and us I believe, and the rules were not set at the beginning of how this will be working out, the pace of the project, the expectations from both sides. It was maybe not clear enough at the beginning.

Interviewer: What goals were set? Or were there none?

Respondent: I think there were no goals set at the beginning, only the ones that yes, you have a possibility to learn, from this experience in trying to commercialize a research project from the university, that is what was said from the entrepreneurship venture programme point of view. From the researchers, well there were around three to four meetings where we basically presented ourselves and they presented themselves but when you start working with people you have to know how they work, how they
communicate, and I think there was a lack of understanding in communication in that sense.

**Interviewer:** Did you personally set any goals for yourself?

**Respondent:** Well, the goals for myself were quite clear from the beginning when I joined the Master programme, which was start up a company in Sweden. Goals that maybe – I don’t know if they were understood by either the programme and the research team – but yes, those goals were set up by myself.

**Interviewer:** When was the point when you realized this would not happen, in this project?

**Respondent:** Well, the research though, even though it was, it is quite interesting, the idea, it happened at that point – I don’t know right now – it wasn’t at the point of commercialization, there was a lot of testing and a lot of prototyping to do first, in order to have something that could be presented to the market, and thinking about registering the company and actually looking out there for investments or a potential customer that could finance the company and the developers.

**Interviewer:** So you would say the product was too early for the market?

**Respondent:** Yes.

**Interviewer:** Could you give a timeline for the time you were involved in the project? Some critical events that happened?

**Respondent:** I think it was around September when we were first presented the idea. We did a feasibility analysis and presented it to two older researchers and LUIS. That presentation was one when the researchers got to know the team. There were two teams at the beginning, focusing on this research project, and each one of them presented a way of how they thought it should be commercialized. We didn’t know
many details about the technology at that point. But we had a bit of an idea. After we presented that, we had a meeting with both the researchers and they decided who was more or less more fit for the team.

Then I believe it was the recruitment part when I was responsible for recruiting more people into the idea, which was quite tough from my point of view. It was a lot of rejection from the other students on the Master programme, mainly because the structure that LUIS provided said they would only give salary at the end of the master programme to one person who would be the CEO, and basically another person that might be involved in the team might have the opportunity to earn any money, which was a problem for almost every single student, and that was part of the rejection that they got because it was a lot of uncertainty of what will happen. And of course, it was not certain that the team or the individual would get picked up at the end, so basically we ended up a team of two people.

After that we prepared ourselves for Venture Cup around November, and at this point I believe it started some communication problems in which we thought this was a little bit more academic, a little bit more - our work as entrepreneurs to create our business plan and everything – which the researchers wanted to get involved but this involvement of course was a little bit too late I believe, it was one day before the deadline. And the involvement resulted in a lot of misunderstanding and communication problems.

At the end the business plan went through and it won the first round. But of course, there was already this issue of the communication of what had been expected from us, and what was expected from the researchers from our point of view. So from this point forward we had two meetings with LUIS and with the master programme where it was analysed what happened and basically we ended up with the conclusion
that there was a communication problem, the different ways of how people work, of how people understand each other, and the common goals were not the same, and it was arranged that it may be better to find out another thing.

**Interviewer:** So at that point you decided to leave the team.

**Respondent:** Yes. Which was around January.

**Interviewer:** And there was one other entrepreneur involved? And he also decided to quit?

**Respondent:** Yes.

**Interviewer:** How did the other stakeholders then react? In this case we mean LUIS?

**Respondent:** Well, LUIS was more or less a communicator between us. It was something that they hadn’t encountered before, at that point. And I believe they took it quite okay.

**Interviewer:** Have you been involved in any way after this critical situation?

**Respondent:** Since another team of entrepreneurs took over, they just asked a few questions. Of what was more or less the technology in more details, the researchers pitched the idea a little more detailed technically, I tried to put it into more understandable terms and business-wise terms for them so they could understand it easily. They pitched this idea to Dragons. So I just helped with the information of what I had.

**Interviewer:** So you were actively involved in the transformation process?

**Respondent:** Not actively. I just gave out the information that I created, the research that I found, and if they had questions they asked, but it was no more than five times during the year.
**Interviewer:** At what time exactly did you realize the project wouldn’t work – was it when the communication problems started?

**Respondent:** Not when the communication problems started; rather when all the rules were set up at the table. So before. I believe it would be better if expectations from the researchers were be set up at the table and there would be a discussion about it to find a common goal.

**Interviewer:** Did you follow the other group of the entrepreneurs later? Do you know anything about how it worked out with the researchers?

**Respondent:** I have little information about what happened. Not in detail, only from an observer’s point of view which was – they wanted to get some learning, they wanted to have some project so they can finish up the master programme, they created their business plan, they competed in Dragons at the university – they also found out at the end that there was not going to be a ready product by the end of the master programme.

I have to add something I forgot – we asked the researchers if they might be able to have a ready to go prototype, and some critical information that industry might ask for that – they said that they could possibly deliver it by more or less April – that was in October/November, so they said they were quite close to get out this fast. It might have looked like yes, if they are so close to this demonstration, proof of concept of how it actually works out there, it would have been good. However, it was told by the other entrepreneurs that they didn’t have the prototype ready, which was in my point of view quite important. To have one when presenting to investors or to anyone.

**Interviewer:** Do you believe you should have left the team earlier? Could that have made a difference? For your own learning from the programme?
**Respondent**: Well, in a way, yes it would have. But I think I would have, right now, I would do it again. If I didn’t have this information, I would probably go again because it’s a probably a good learning experience. Not regarding the researchers – the product in itself rather than the experience from the business point of view, how things work in Sweden, how people actually work, what is expected, how is actually the environment around, it gave me a very good insight that probably I would fail somewhere in my way of my company. It gave me a very good understanding of the cultural differences between Sweden and other parts of the world.

**Interviewer**: So you do not believe you pushed it further than you should have? You left at the right time?

**Respondent**: Yes. No regrets.

**Interviewer**: So the learning is more about cultural differences than commercialization of projects you think? The soft side of things?

**Respondent**: Yes. Because the soft side can be used... translated into pretty much any kind of business in Sweden rather than the technology – yes, it’s good to have, good to know about what things are coming up, what kind of things have been researched here in Lund, but the experience of how the environment and how the people work and interact with each other is way more interesting.

**Interviewer**: And this is the main learning experience?

**Respondent**: Yes. It was in a very small timeframe.

**Interviewer**: Only two, three months.

**Respondent**: Yes.
ENTREPRENEUR B

Interviewer: Can you tell us something about your personal background and role in the project?

Respondent: I’m from California, US, where I went to school. I did an undergraduate in Economics and worked at a law firm for a couple of years doing financial analysis. I didn’t like that very much and wanted to go abroad and go back to school and travel, so found the Entrepreneurship program what was perfect for what I was looking for. I applied, got in. How I got into [the project] … I was assigned to it the first time around when we did the initial research. I think I was in the group with [Entrepreneur A]. I thought it was a cool idea and I like technology, so I was kind of happy that I was assigned to it.

So we did that initial research project and when time came around to choose our real project for the rest of the year… I was actually going to work on something separate with two other classmates, based around a design firm that was going to be started in Germany. So we actually tried to do that first but the program heavily pushed us towards working on an innovation project that was run by LUIS. It was probably the best decision for the purpose of the program. You should not do what you want to do, but you should work on a project that was in coordination with the university.

So after that, we went back to the drawing board and one other of our classmates… Because no one was going to pursue [the project] after the initial research phase. And one of the other classmates got approached by [the researcher]. Basically [the researcher] told him that he wanted one of our classmates to take on the project, if he was interested in working on it. So myself and another classmate we decided to join this other classmate who was approached by [the researcher]. We basically said this probably in the best interest for us to do well on the programme, so they’re happy
with us [laughs]. And then another classmate left his group that he was working on and joined us as well.

**Interviewer:** And this happened all after the first team left the project?

**Respondent:** Well, I’m not even sure if [Entrepreneur A] even tried to… The first time we got assigned to it. That was just a…

**Interviewer:** That was you and [Entrepreneur A] only?

**Respondent:** The first time it wasn’t a project, it was just a course assignment. There were actually two teams of four that were assigned each project and they were supposed to write a ‘quick’ business plan. So that had nothing to do with the long-term project. I don’t recall… Maybe [Entrepreneur A] tried to pursue it, but I just know that [the researcher] approached one of our classmates and asked him to take it over. He said he agreed, and the rest of us decided that it was in the best interest of us, for the course.

**Interviewer:** Can you give the critical events that happened during the course of your engagement in the project?

**Respondent:** It’s a long time I…

**Interviewer:** It shouldn’t be perfect, the things you remember…

**Respondent:** So basically a part of the course was to write a business plan and Venture Cup. So initially we set out to do a lot of research and talked to different people. Basically get this business plan done, only for the course. It was a requirement for the course, more or less our thesis. But also for Venture Cup. We started working on the business plan after Christmas, we talked to a lot of different people. Mobile Heights etc. I thought it was a pretty good business plan. We spent three months on
researching and writing it. We met with [the researcher] a couple of times. To be honest I think the interaction with [the researcher] should be more forced upon us.

**Interviewer:** How were the relations with the researcher and also in between the team?

**Respondent:** The relations between the team were fine. We had arguments and disagreements, but we all got along well. With the researcher… We didn’t really have a relationship. We met a couple times, but he simply did not seem very interested in the business side of things. I mean this is his innovation, not ours. We just got put on the project. It didn’t seem that he knew what he wanted to do with it, if he even wanted to make a business out of it.

**Interviewer:** Did the team of entrepreneurs have aspirations of making it into a real business?

**Respondent:** Looking back on it, I… To be honest, no. I didn’t. I knew I was going to come back to the US. When I started the program I didn’t had the intention of starting my own business afterwards. I just went with the intention of studying entrepreneurship and learning on how to start a business. I believe the others… They might have, but slowly after we started researching it we quickly realized this probably was not going to become a justifiable business. So after around 6–8 weeks into the business plan, we all had the notion that we were not going to stay in Sweden. So the interaction with [the researcher] I think it should have been more forced upon us. Which is a bad thing since it is an entrepreneurship course and everyone should take their own actions… We definitely should’ve put in there a lot more initiative; forcing interactions with [the researcher].

**Interviewer:** When you realized that the project wasn’t going to succeed, did that influence the course of the project in any way?
**Respondent:** I don’t think it affected the course of the project in any way. We all put our best effort in it and tried to figure out if this was going to work out given the resources that we had.

**Interviewer:** The other teammates reacted in the same way?

**Respondent:** I believe so. We all more or less came to the conclusion as a whole that this is probably not going to work out and none of us have the initiative of staying here.

**Interviewer:** And how did the researchers react?

**Respondent:** To be honest I’m really not sure what their opinion was.

**Interviewer:** You didn’t talk about it with them?

**Respondent:** Not so much, they didn’t seem too interested in it. We would send them our business plan, our progress, we send them our updates, but we never got much back from the researchers.

**Interviewer:** If they weren’t so interested in the commercial side, why do you believe the researchers engaged themselves in such an entrepreneurial project?

**Respondent:** I didn’t say they were... They were not interested in the day-to-day business side of it. I think they wanted to basically found out ‘Hey, anybody can do some research and find an application for this thing that would be awesome, and maybe we can work something out with it’. But I know [the researcher] had already started a company. So to be honest looking back on it I really do not know why he would have want students to do this. Maybe he just wanted to see what ideas they would come up with. But I know he was already actively involved in a start-up. He’s a researcher I mean, he wants people to use his technology. My impression was he just wants people to do the research but had no desire to be part of the day-to-day
business. Looking back on it if you really want to start a company, you need to be involved in it every single day.

**Interviewer**: Looking back on it, what did you learn from this experience?

**Respondent**: From the project? Definitely be more aggressive. Take over and take ownership on what you want to do and force people to take action. Don’t wait for other people. If you want something, go get it. If you want to talk to somebody go and find the person and talk to him in any way possible. Don’t be hesitant. You definitely need a lot of cooperation. I you want to start a business, you and the researcher should be together every day, all day talking about the business, ideas going back and forward. Building a business together is not just ‘Hey, here is this thing I have, and…’ you have no idea how the technical side works and… expect to start a business out of it. That’s unfair for the students, because none of us have a technical background. We’re here to study entrepreneurship in like… We talk to persons and they ask us questions on how it works and we have no idea. ‘We’ll have to go back to the researcher, we’ll come back to you’. It doesn’t work like that. So I think students and researcher should meet every single day, if not.. Multiple times a week to be together, work together on this. Otherwise it’s not going to work.

**Interviewer**: Those are things you wouldn’t have learned if…

**Respondent**: … If we didn’t fail, definitely. I learned a lot, it was a good experience.

**Interviewer**: No regrets from your side?

**Respondent**: No, no regrets. Best decision of my life was to come to Lund and study for a year. Now I think that experience helped me get a job at a start-up now.

**Interviewer**: Going back again, what were the reasons you all decided you wouldn’t make a go of it?
Respondent: The thing was the algorithm had to be imbedded on the chip of the mobile manufacturers at the time of production and to get mobile phone manufacturers to change their production lines and systems, just for a small algorithm... It’s just nearly impossible. It wasn’t like an iPhone or Android application that you could download, that would have been a whole different story. But it was something that would have actually put in at the time of production on the chip, and these huge companies they have their things set for the next five years, and to get them to change their process for us, this small student start-up in Lund. It’s nearly impossible. It just did not seem feasible and none of us had their heart in it that much.

Interviewer: Did you talked to any mobile companies?

Respondent: We talked to a lot of people in the industry and who knew about how everything worked. They... We all came to the conclusion that ‘Hey, this is an interesting thing, but...’. They hadn’t even tested it in the field, only in the lab. We always talked to people and they were like ‘Where is your data? Prove it to us...’, and we had nothing to show them. It was too far in its infancy to actually go to a company and say ‘Hey, you should buy this’. They needed a lot more development on the product side. We found out it would take a lot of effort, a lot of time... And it must have been it really worth it for them, to change their whole production lines and everything.

Interviewer: So no partnerships were formed or agreements made during this project?

Respondent: No.
STAKEHOLDER

Interviewer: Could you tell us what’s your background and how you were involved in [the project]?

Respondent: Being a business development manager at LUIS I meet regularly with researchers and they tell me about their ideas and I help to develop that and see if there is a market for that idea, and we work together on doing that. Sometimes we end up seeing that this is a really good idea and then we work together to try to get it to market. My responsibility would be until forming the company, so when the company is formed, probably others will step in. Sometimes I remain in the project and have a sit in the board, but it’s mainly the time before starting the company.

Interviewer: Specifically, the project – could you tell us roughly the timeline and the critical points you were involved in?

Respondent: It was a project that was mainly based on an idea that you would on a cellular phone you want to know your position. That works well with GPS as long as you’re outside. When you come inside and try to track and be more specific within a few meters, you will have difficulty doing that. You could do it from looking at the Wi-Fi points that are close by, but you will only get a rough estimation. So the object of this project was to find a position within a meter or something.

Interviewer: It was the researchers from Lund University who came with this idea to you?

Respondent: Exactly.

Interviewer: And how did the process evolve?

Respondent: Well, first thing that we want to investigate – is this useful, is there a need for this, that can solve a problem. So and then after we realized that this might
be something of interest there would be some potential customers for this – however, the business model was not investigated then but we could see the need for this product. Then we looked at the possibilities to protect the technology and that would – the most common way to do that is through patent. So we went into a process to investigate the novelty and to see what is done within the field before and we strongly and wide the patent would be. So that is always the first step to take when I meet the researcher.

**Interviewer:** If this part succeed, which in [the project] it did?

**Respondent:** Yes it did.

**Interviewer:** Then you go onto the next step?

**Respondent:** Then we would try to look at a team who would try to see how we can finance and to verify the product and the project and see what potential product we could make out of this. And we went into a process to see how this can be used and then the project was exposed to the Idea++ students and we had many good suggestions on how to do this. Our first idea was that this should be incorporated within the regular cellular phone but there were several other suggestions, very exciting courses that were suggested. And some of them were brought along within the project and evaluated.

**Interviewer:** And the students who were involved in Idea++, do you remember, could you tell us more about them?

**Respondent:** Well, I think that there was from the beginning there were two or three students originally within the project but after some time the cooperation between the researchers and the students didn’t work very well.

**Interviewer:** And how did you as LUIS approach the students?
**Respondent:** We have a process for doing this. First, the students have a compulsory task to write about one of these projects that we expose so they write about this and make a suggestion for the business plan or feasibility study. In the beginning it was a business plan. At this point we made a business plan, a business concept which turned out to be more economic but it is not really mature to do that. So that was done and the first cooperation between – before they were selected for this, there was a discussion with the researchers and the project groups and for this to happen there might be several things that should coincide.

Number one: that the students like the project and would like to spend their time during the course with this project, provided that they want to do that, then the researchers should also accept these students and think that they can work together. And then we should find the third thing – if we should find a common definition of what to do within the project and if we should agree on that. To say that okay – we will work with this, we will do these things and we will add these resources the way they work together. That involves that researchers devote time to the project, which is important, because there are a lot of things that the researcher must contribute with and it should be scientific competence and all these things. But also they should let the students have a mandate for running the project and some other things that we agree on.

And also the plan for what we should do should be realistic and exciting and lead to the possibility of working together after the education programme has ended and the idea++ project has ended. And there are always desire from LUIS, from all the others involved that there should be a continuation – however, no one can guarantee this and everyone is aware of that, that this is a try-out period that we should get to know and see if it works. And also to see if the project is holy water, if it works.
**Interviewer:** So when LUIS gets involved, there is a clear goal of actually trying to start a company?

**Respondent:** Absolutely.

**Interviewer:** And this goal is set out for goals for the researchers and the entrepreneurs?

**Respondent:** Yes. But we also don’t know if it works. Everyone should be aware of the risks. And also that the project can turn out to be non-interesting, that patents could be blocked with no freedom to operate and the prototype could prove to not work and all these things that are common.

**Interviewer:** All the uncertainties.

**Respondent:** Yes, that’s part of the game.

**Interviewer:** So the first cooperation didn’t really work out?

**Respondent:** No, that was more on a personal level. My impression was that the students did not listen to the researchers and they went along with the venture cup plan without taking in the comments from the researchers into the text. So after some time when the different versions were displayed and nothing had been changed, the researchers called for a meeting and said: this does not work. And then I was there as well and we had a discussion with the students, especially one of them who was taking great responsibility doing a good job but not listening, he said: okay, we had too little time, we had a deadline, we couldn’t take in everything and we had several people we were listening to and the researchers was only part of that. Yes, that might be true, said the researchers, but we own the project – you cannot do whatever you like with it, you must have our approval. And of course, there were times when you don’t have the time and all this, but this cannot go on. So we had to change strategy.
And they won a prize [in Venture Cup]. They had a first prize in the student category. They continued to work together but soon the same thing happened again. I think that it was not possible to go on with that. So when we had the next meeting we talked about this and we agreed, we are in the same situation again and we haven’t learned anything, and we had a common decision that we should stop this.

**Interviewer:** And what happened afterwards? The project didn’t stop at that time?

**Respondent:** No, it didn’t stop at that time. I think that the – well, I don’t remember now – it was some new students coming in.

**Interviewer:** It was. A new team came in.

**Respondent:** That was the next year wasn’t it?

**Interviewer:** It was in the middle of the year that they changed, before the new students – that’s how we understood it.

**Respondent:** Yes. I didn’t prepare to go into – so yes. Well I think they had contacts with large companies and I think that it turned out that there was a license agreement in the end. But [they] tried it meanwhile to do something of the more exciting ideas. But I think they were very short of time, in doing that. I don’t have a complete picture after that.

**Interviewer:** Eventually there wasn’t a company started. What do you think might have been the reasons?

**Respondent:** I think that there wasn’t a good business model found for the idea. There were some ideas of doing something with a museum, that you should be able to walk around with specialized equipment and you could be localized and it would say okay you’re in this place and then you can listen to some recordings of objects. This equipment should be returned after your visit. This was one of the ideas that
were explored. But I don’t think there was a profitable business model. I don’t know how many different customer set-ups and business models that they had the possibility to go through but my general memory from this is that no-one really was worth investing all this time and money. And then eventually, the rights to this patent were licensed to some telecom company, and that was not much, only low sums. Economically not a big business.

**Interviewer:** And when did you as LUIS figure out that the project wasn’t going to be a big commercial success?

**Respondent:** I think that during the process of the second team it was found out that their conclusion was that they didn’t really find the real project that would really take this to the market. But there is a point in time when we had a decision and that we said okay now we decide to end this. It’s more or less that we felt after some time that this was uphill all the time and we didn’t have the ideas.

**Interviewer:** Looking back on it do you believe if other business model would have been explored, the future might have looked different?

**Respondent:** Yes, maybe. However, there was one thing within the technical prototype that wasn’t quite demonstrated while the project was going on. And that made everything the entrepreneurs said being uncertain. So everything said when they tried to communicate around it was provided that everything would work out fine with the technology. And that made everything unsure. So if that had been done in advance maybe some of the contact that they had could have been more willing to be involved in the project. If there would have been some device to try out, maybe it would have helped. I think that was very difficult because they were selling just air.

**Interviewer:** So timing might have been not ideal?
Respondent: Yes, maybe. However, it’s always with these things that when you have a new idea, you if you take a patent, you must be able to make a business soon, because the cost for a patent are significant, after around 2–3 years. And you must be able to pay for that. So the first year would be like [SEK] 100,000 or something, and within 2.5 years you must have up to 2.5 mil. That’s the cost for a patent.

Interviewer: And you were financing this?

Respondent: No, never – you reached the nation phase after 30 or 31 months. And then you have to pay in every country. In the beginning you have an application that should be turned into every country. And then it’s small amounts, like [SEK] 50,000 in the beginning, [SEK] 75,000. And that we can help with. But when we’re going to 0.5 mil, we cannot do that. Then it must be more commercial. There should be a clear case where you can see some upside in the future.

Interviewer: So that’s where most patents end.

Respondent: Yes. Unfortunately.

Interviewer: Looking back on it, what did you learn? Out of this particular project?

Respondent: One experience is that it’s very risky and takes a longer time than you expect and this is not new knowledge, but it’s again confirmed. I’m not surprised but I know that this type of project is very strong and if you compare academic entrepreneurship with regular, if there is anything regular in this business, is that the survival of academic projects is better. It’s a lot better. And that has been investigated in several research reports. The survival of academic entrepreneurship projects is like 80% compared 30–40% in some other things.

Interviewer: And by survival you mean in the long-term, or?
**Respondent:** Provided the business has been started and during this you have a survival. However, it could be disputed that we a very long evaluation process and there we filter out only some good survivors. So this project we’re specifically talking about was actually killed during this process. The company was not formed.

**Interviewer:** For you, was this a success or not?

**Respondent:** No, it wasn’t a success. But still it’s a normal day at work. This is what we do. We work with good ideas and we don’t whether this is going to succeed or not. But success is when we see several people employed and we see the business is growing and they are making money and we see that there is a company that is growing and all these things. That is a success, and obviously, this wasn’t. But we have many ideas that we have to stop even if we believe the ideas because of the fact that there is nobody willing to run the idea. So the basic idea is that if there were a competent person with drive and force to run an entrepreneurial company at hand, several of these would succeed. However, it’s still risky business.

**Interviewer:** So there’s actually a high demand for entrepreneurs.

**Respondent:** Yes, there is. That’s why we cooperate with the entrepreneurship programme. We have a lot of criteria that we go through before we expose the project to the entrepreneurship programme because for us we must believe that this has a potential and then we must have researchers that we think would cooperate well and then we also want this to have a chance to have a company start up within a year. Because even if it has a large potential in ten years, well it wouldn’t be that interesting for students to start with that because they’re leaving after one year but still some of the project – it doesn’t mean that they would be ready with the product within a year but the development project has a volume big enough to hold employment so the student can still be in the project and be CEO or whatever. And we have a support
for that. Because if we see that this would probably take off and be profitable with one year extra – so first the entrepreneurship education and then one extra year – then we have some possibilities to finance that, to give funding for salary for that. Which could be the student but could be someone else. We have this possibility. That doesn’t mean that you’ll automatically get it. But of course, if you’re known and people like myself could say that we know this person and he or she has done a good job so far and we know that she’s devoted to her task, then the chances would increase of course.

**Interviewer:** Thank you very much for this interesting conversation.