

**Power in the Commercialization Process: Adopting a Critical Sensemaking Approach to
Academic Entrepreneurship**

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Abstract

The purpose of this paper is to analyze how academic entrepreneurs make sense of the relationships between the various actors (business partners, stakeholders, academic entrepreneurs and themselves as team members) involved in the commercialization process. It uses the critical sensemaking (CSM) lens to focus on power and discourse in the sensemaking processes of three scientists who worked on the same commercialization team and ultimately decided not to go forward with the commercialization project. The analysis shows how individual sensemaking trajectories with various understandings of power unfold over time. The findings contribute to the discussion of academic entrepreneurship as a team-based process.

Keywords. academic entrepreneurship, critical sensemaking, power, discourse, team

Introduction

The social role of universities is changing. Although research and teaching remain the primary tasks of academic institutions, more active participation in the surrounding society is now expected from universities and scientists.

In Finland, the 21st century has witnessed a public push for university-industry collaborations. Recent government programs have identified a stronger commercialization of research results as one of the nation's key projects (Finnish Government, 2011, 2015). New funding mechanisms for research have been developed to support the transfer of research and knowledge from universities to industries as well as co-creation of value. These changes have increased the prominence of academic entrepreneurship (AE) and the scientists participating in the commercialization of research, that is, the academic entrepreneurs (Haila et al., 2014; Ilmavirta et al., 2013).

Because AE is a relatively recent field of study, there are a few gaps in the research. The

focus of AE literature has been on the transfer of technology from universities to industry, but it has been suggested that this focus results in a distorted view of the breadth of commercialization activities (Haeussler & Colyvas, 2011). Micro-level studies, in which the focus is on the entrepreneurs' stories and the human processes of AE, are still quite rare (Abreu & Grinevich, 2013; Montonen, 2014).

This paper contributes to AE research by examining an academic commercialization project from the scientists' perspective, that is, through the lens of critical sensemaking (CSM). Focusing on three would-be academic entrepreneurs, this paper analyze their sensemaking process in the academic context and the reasons why they failed to take the final plunge into AE. Finally, the analysis is discussed against the background of prior research and suggestions are given for better support of AE.

Theoretical Background

Prior AE research has offered various definitions of AE. They vary from academic spin-offs and consulting offered to industry to the transfer of technology from universities to society through patents or licensing of intellectual property (Haeussler & Colyvas, 2011; Powers & McDougall, 2005).

Three levels of AE research have been recognized in prior studies of AE. The macro level focuses on the macroeconomic environment of national policies and support systems, the meso level includes support offered by universities and advisory services, and the micro level addresses businesses and entrepreneurs themselves (Montonen, 2014).

The aim of this research is to bring the academic entrepreneur into the spotlight by approaching AE through the lens of sensemaking, more specifically CSM. The concept of sensemaking, which originated in the 1970s, looks at the way individuals and groups make sense of situations. Sensemaking research has focused mostly on crises, in which people are faced with an unfamiliar situation and are thus required to create an understanding of it. Sensemaking is a social

process in which people build a plausible, though not necessarily accurate, understanding of events through discussion, retrospection, and enactment (Weick, 1995, 2001; Weick et al., 2005).

Though widely used in organizational research, the sensemaking framework has been criticized for its failure to conceptualize the roles of context and power in sensemaking. CSM was developed to address these issues. A heuristic framework, CSM builds on Weick's seven sensemaking properties and emphasizes power, structure, and discourse when analyzing the development of meaning (Helms Mills et al., 2010; Thurlow, 2007).

The present study proposes that these factors make CSM an appropriate framework for the analysis of AE from the scientists' perspective.

Methodology

The case analysis is based on interviews from and recordings of meetings between the scientists and the business advisors. These data were collected during the 2-year period in which the commercialization project was conducted.

In an effort to bring forth the scientists' perspective and their sensemaking with respect to the project, the recordings were analyzed using qualitative content analysis as well as narrative research. The interviews and narratives were analyzed against the background of Weick's (1995) seven sensemaking properties (identity construction, retrospection, extracted cues, plausibility, enactment, social orientation, and ongoing process) as well as the CSM additions to this list (power and discourse) (Helms Mills et al., 2010).

Case: We Did Not Want to Become Academic Entrepreneurs After All

The case study follows three scientists who worked together on a research project. In addition to scientific research, the aim of their project was to pursue a commercialization process based on their research. The scientists had worked together before as a research group and were familiar with

each other through their work.

Pyry, who was the most junior researcher, had finished a doctoral dissertation at the university prior to the project. Tuisku, the lead researcher for the project, was also the scientist mainly responsible for the development of the technology, which was the focus of commercialization. Lumi, the most senior researcher, was the head of the research group and a professor at the university. Lumi had worked on a commercial enterprise prior to the project discussed here, though Lumi stated that the scale of the previous commercialization project was significantly smaller.

The three scientists received help from business advisors assigned to the project. The business advisor was an entrepreneur with experience in successful technology businesses and startups, and the scientists, who acknowledged that they lacked the necessary knowledge of and concrete experience in business practices, welcomed the advisor's assistance.

The scientists offered different reasons for their participation in the commercialization project. Tuisku was interested chiefly in advancing their academic career and stated that the main reason for taking up a commercialization project was the changes in research-funding mechanisms.

Pyry was motivated by a sense of duty to the country, which had offered them the ability to pursue their studies. Pyry felt that AE offered scientists a chance to give back and do their part in supporting the development of industry and the economy, although the potential to gain personal wealth through entrepreneurship was not lost.

With help from the business advisors, the scientists were able to begin setting-up a business for the commercialization of their research. They found the core team for the business, got in contact with potential partners and clients and discussed the possibility of establishing a joint venture with a larger international firm.

After a short time, however, their progress slowed to a near halt. The scientists found themselves unable to take concrete steps towards setting-up the company. As the advisors urged the

scientists to act, Tuisku and Lumi felt it was too early to take the research to the market. Pyry, who remained keen on continuing with the project, could not convince the collaborators to move forward.

As the team's interest in moving forward waned, their collaboration with the business advisors stopped as well. The project was ultimately scaled down to a traditional research project, with the commercialization aspect seemingly abandoned.

Analysis

The entrepreneurs displayed differing perspectives on their commercialization efforts. Tuisku and Lumi focused chiefly on the research aspect of the project, whereas Pyry and the business advisors pursued an active commercialization strategy by building contacts with prospective clients and partners. Strongly opposed to this strategy, Tuisku and Lumi argued that the product needed much more research before going on the market.

These differences in perspective ultimately led to the abandonment of the collaboration with the business advisors and of the push for commercialization, at least according to Pyry. Pyry believed that the project and commercialization could have gone further if the other entrepreneurs had been more open to compromise.

Pyry claimed to have been a force that pushed the project towards commercialization. Even after the collapse of the collaboration between the entrepreneurs and the business advisors, Pyry urged Tuisku to participate in marketing efforts abroad through conferences and other meetings with prospective partners and clients. Tuisku was reluctant to do so, arguing that the research wasn't far enough along for such marketing efforts. For Pyry, Tuisku's hesitation seemed like a lack of interest in commercialization.

The roles of the three scientists in the commercialization project were divided by their approach to commercialization. Tuisku identified strongly as a scientist, which is demonstrated in Tuisku's sensemaking with respect to the commercialization project. Tuisku maintained that

marketing and selling the product would entail not telling the truth about it—and therefore lacked an interest in sales.

Although Lumi showed an interest in commercialization, Lumi's sensemaking was also affected by their identity as a scientist. Lumi exhibited more interest than Tuisku in continuing with the commercialization of the product, but did not want to do so until the research reached maturity. Lumi was not displeased with the fact that after the abandonment of the ongoing commercialization efforts, the project turned into a more traditional research project.

Pyry, the most junior researcher on the team, displayed the most interest in commercialization. Lumi and Tuisku agreed that Pyry was the best choice for assuming responsibility for the day-to-day business activities associated with the project and building contacts with prospective clients and partners. Pyry voiced strong disappointment over the postponement of the commercialization efforts and the shifting of the project towards a traditional research endeavor.

The sensemaking of the scientist-minded team members was guided by academic ideals. They voiced concerns about going public with a product that was not sufficiently researched as well as about losing face if they made false promises regarding the product's performance. They felt that if they compromised their research in the pursuit of commercialization, they would damage their standing in the academic community and forsake the principles with which they identified personally. They were comfortable with taking sufficient time to establish the viability of their research, even if it cost them the opportunity for business success.

In contrast, the sensemaking of Pyry, the more entrepreneurial member of the team, emphasized acting quickly and seizing market opportunities. Pyry saw potential in the market and wanted to act quickly so the team's product would be among the first to go to market. Pyry was very disappointed that the group did not take action during the project and had concluded that the opportunity for success was already lost as a result.

The three academic entrepreneurs' perspectives on the attenuation of the commercialization efforts represent two rather different interpretations of the situation. According to Lumi and Tuisku, the commercialization efforts had not failed but were simply postponed. Lumi contended that after more research had been done on the product, it could still be marketed successfully.

Pyry, on the other hand, believed the opportunity for commercialization had been missed. Pyry expressed a great deal of disappointment over the way the project had been conducted because Pyry had hoped that at this stage of the research, the team would move forward with the effort to find partners to develop their product.

The perspectives of the entrepreneurs shed light on the individual and social aspects of sensemaking. Whereas the two more research-focused scientists, Lumi and Tuisku, believed the commercialization efforts would have been unsuccessful because the product lacked maturity, Pyry was adamant in the belief that the team could have gone on to develop a business if they had been more determined to commercialize the research.

Regardless of these differences in perspective, all three academic entrepreneurs more or less agreed that no apparent conflict was present in the meetings or discussions between the participants. Even though Pyry contended to have pressed the others to continue with commercialization rather than focusing on research efforts, Lumi and Tuisku stated that the scientists all agreed that the product was not yet mature enough to go on the market. And although Pyry stated that he opposed the decision not to go further with commercialization, none of the participants thought that this disagreement was present in the collaborators' discussions.

The roles of the scientists became quite pronounced during the project. Tuisku, as the lead researcher, was considered the key member of the project team. The research group leader, Lumi, perceived by all three scientists as mentor type, offered guidance throughout the project. Pyry, as a young researcher, assumed a smaller role in the research but played a key role in the

commercialization efforts, which was evident in the fact that the team members had reached an agreement that Pyry would become the venture's chief executive officer (CEO).

The roles of the entrepreneurs and their dynamics illuminate the power aspect of CSM. Lumi, as a professor and the leader of the research group, was considered an authority figure by both Pyry and Tuisku. Tuisku, on the other hand, had significant power as the lead researcher of the project.

Pyry hinted that this power dynamic played a key role in the abandonment of commercialization efforts. Pyry stated that they were not in a position to dispute the authority of the professor or the lead researcher during discussions between the entrepreneurs. Pyry felt that Lumi's authority was challenged by the experienced business advisor, who demanded that the academic entrepreneurs act in a quick manner to advance the product's commercialization. This clash of authority, said Pyry, was the issue that finally ended the communication and cooperation between the business advisor and the scientists. Lumi, on the other hand, was nonchalant about the breakup, stating that collaboration was unnecessary because the research was not mature enough to continue with commercialization.

The power of the two more experienced scientists thus controlled the sensemaking of the group, because Pyry was not willing or able to push the group towards continuing with the product's commercialization. Although Pyry commented openly about the effects of the power dynamic on the project, Tuisku and Lumi did not consider it an important issue. The two authority figures contended that the group was unanimous in its perspectives, which emphasizes the way power was experienced by Pyry, who did not have it, and by Tuisku and Lumi, who did.

Discussion

This case study displays the intricacies of sensemaking in AE. The context in which the academic entrepreneurs operate has several distinguishing features that affect the way scientists approach the commercialization of research. If universities and scientists continue to be encouraged

to more actively promote their work in society through commercialization, more consideration needs to be given to these features.

The funding mechanisms that required the scientists to explore commercialization for their research pushed them towards entrepreneurship. The changing social context was thus reflected in the project. Because universities are now expected to take a more active social role through the commercialization of research, new funding mechanisms have been established to guide scientists towards these ends. Although funding based on commercialization projects can successfully guide scientists towards AE, it may be insufficient to inspire the commitment required for successful business ventures to emerge.

Without proper support in the form of education and practical advice, these projects can devolve into more traditional research projects, making commercialization an obligatory side note for the scientists. The exploration of commercialization opportunities can lead to fruitful ventures, but as a result of the current lack of meaningful support, scientists can feel ill-equipped to face the challenges associated with commercialization projects. In this case, the scientists found the university's support inadequate for them to successfully assume their new roles as academic entrepreneurs. They sensed that without support from the university in the form of courses on entrepreneurship or concrete advice on setting-up a business, they were incapable of starting a business venture by themselves. Similar challenges have been recognized in prior research on academic spin-off processes (Binkauskas, 2011; Rasmussen, 2011).

An important factor in the sensemaking process was the identity of the academic entrepreneurs. Two group members stated clearly that they were primarily scientists, which was made apparent by their cautious approach to commercialization. They were hesitant to market their results to potential clients, partners, and investors because they felt it could put their academic careers at risk, choosing instead to sacrifice potential commercial success. The more entrepreneurial Pyry,

on the other hand, was uninterested in continuing the research after the apparent failure of the others to move forward with commercialization.

The power imbalances inherent in research groups guided the academic entrepreneurs as well. The young researcher did not challenge the tenured professor, even though the latter opted for a relatively hands-off mentoring approach. Pyry's reluctance to voice dissenting opinions reflects the role of power of the academic hierarchy. In part, the failure to act in accordance with this disagreement gave rise to the sense that all parties had agreed that not progressing with commercialization was the right choice, even if this was not, in fact, the case.

The context of the academic community was thus a strong factor in the sensemaking of these academic entrepreneurs. The potential risk of losing face by going public with results too early outweighed the potential rewards to the academic entrepreneurs and the potential benefits to society, which is at odds with the inherently risk-taking nature of entrepreneurship. The scientist is discouraged from taking such risks, if not explicitly, then through the nature of the academic community, where recognition from peers is a common measure of success. In addition to the potential career risks, the academic entrepreneurs in this case study discussed feeling shunned and criticized because of their participation in a project involving commercialization. This observation is in accordance with Goethner et al.'s (2011) study, which suggested that attitudes towards entrepreneurship are a central factor in scientists' entrepreneurial intentions.

The challenges the academic profession presents to entrepreneurship have been recognized in prior studies as well. Haeussler & Colyvas (2011) found that scientists with less experience and fewer published articles are less likely to participate in commercialization than their more experienced, tenured counterparts. The effect was pronounced in fields where public science goals, such as the number of one's publications and citations, are important. This suggests that scientists in the earlier stages of their academic careers perceive commercialization as a professional risk and are thus

cautious of AE as a career prospect.

On the micro level, academic entrepreneurs should consider the competencies required in business when choosing their roles in commercialization projects. Dividing responsibilities based on academic seniority can lead to bogged-down business decision-making. Separating the management of business and research might not be straightforward, but it should lead to more successful exploitation of commercialization opportunities. In business decision-making, the roles need to be more explicitly stated, so that the team can take action and challenge the viewpoints of others regardless of the academic hierarchy.

Contributions

This paper contributes to the study of academic entrepreneurship by offering a deeper perspective into the individual and group processes of scientists working in a commercialization project. The case study presents a clear picture of how the academic environment with its nuances and power hierarchies affect the sensemaking of scientists embarking on their way to academic entrepreneurship. It offers a better understanding of the reasons why research commercialization efforts fail to come into fruition by looking at the individual perspective, which hasn't been thoroughly explored in prior research.

From a practical perspective, this study offers scientists, universities and other stakeholders of academic entrepreneurship processes a better sense of the scientists' mindset. As a look at a project where the scientists did ultimately not go through with commercialization, it pronounces the factors which should be taken into account when aiming for successful academic entrepreneurship projects. The requirements of operating a business venture should be considered when assembling the team of scientists and responsibilities should be divided with these requirements and capabilities in mind. Likewise, scientists and business advisors as well should consider the traditional power hierarchies of the academic profession with regards to decision-making in these projects. Finally, universities,

governments, and other institutions need to offer better support for scientists if they expect to foster a culture of academic entrepreneurship.

Conclusion

This case study highlights the intricacies of AE. The individual scientists' stories present a picture in which commercial potential, academic career prospects, personal identities, and power hierarchies play important roles.

This paper shows that it is not enough for governments and universities to promote and fund AE. Success requires more support and change from both institutions and individuals. In addition to offering scientists education and support in the practicalities of entrepreneurship, the entrepreneurial mindset needs to be fostered in the scientific community.

This story of three scientists embarking on a journey of commercialization provides an important window into the micro level of AE. To truly understand the nature of AE and the implications that growing expectations of commercial activity have for scientists, more attention should be given to individual cases of AE.

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