How scientists maintain the lead in a commercialization project

Palo-oja, Outi-Maaria
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Outi-Maaria Palo-oja

Päivi Eriksson
Abstract

This study focuses on commercialization of knowledge in universities, which refers to activities such as university-industry collaboration, patenting, licensing, and establishing university spin-off companies. The case used for this study illustrates how scientists, industry and innovation experts, funders, and intermediating organizations talk about commercialization in project meetings. The study extends the concept of commercialization of knowledge and argues that, in face-to-face interaction such as meetings, power relations play an important role in making sense of what ‘commercialization’ means and how it can be carried out in universities. The study is based on empirical data (observation, documents) gathered from a two-year commercialization project, and it explores how the members of the project steering group gave and made sense of commercialization in meetings where the challenges and opportunities concerning the project were discussed. The Critical Sensemaking heuristic and mixed analytical methods were used to analyse power relations in these meetings. The findings illustrate how scientists remained in key positions to guide the sense of commercialization during the two-year project. They used both structural power that was integrated in the project rules and socially agreed power that was based on scientific knowledge. The main contribution of the study lies in demonstrating how the study of commercialization as a social process offers a new avenue to understand non-academic activities such as commercialization at universities.

Keywords: commercialization of knowledge, critical sensemaking, meeting, power relations, project, social process
Globally, politicians, governments, and other decision makers encourage universities to commercialize their academic knowledge. The majority of the studies about commercialization of knowledge in universities have been concerned with the national- and university-level policies and practices, and less attention has been given to the micro-level activities in universities (Montonen, 2014). This study argues that to understand what commercialization means in different universities and for different actors involved, more attention should be paid to how and why local understandings of commercialization evolve and some of them become privileged over the others.

This study draws attention to commercialization activities carried out in externally funded projects, which is an increasingly important feature in Finnish universities (Ylijoki, 2016). Externally funded projects vary substantially in terms of content and goals, predictability, resources involved, control, project scope, and boundaries (Bakhshi, Ireland, & Gorod, 2016). Nevertheless, all projects set up the timeframe and goals and guide cooperation between project partners (Svennevig, 2012a). Projects bring together individuals with different commitments, backgrounds, and statuses, and social interactions between partners make projects changing and adaptive (Cicmil, Williams, Thomas, & Hodgson, 2006). Because of this, project management that guides and controls the project is a central activity. This case study examines commercialization in the project context, focusing on project management in particular.

In this study, commercialization is defined as a social and political process that evolves over time and involves several actors and their sensemaking activities (Palo-oja, 2018; Montonen, Moilanen, & Eriksson, 2019). This definition draws attention to the role of power in commercialization, which has rarely been studied (Markman, Siegel, & Wright, 2008). More specifically, the research question that we ask is: how and why does a specific sense of commercialization become privileged over others? The Critical Sensemaking (CSM) heuristic (Mills & Helms Mills, 2004; Aromaa et al., 2018) is used to explore how power relations guide various understandings of commercialization. The CSM heuristic allows us to analyse the emergence and dominance of different meanings of commercialization and, at the same time, pay attention to rules and practices, contextual factors, and power relations between the actors.
This chapter proceeds with the presentation of the data and the methods of the case study. Following this, the ‘Commercialization Project’ case is described and analysed. The analysis shows that the project management used its formal power to lead the debate in steering group meetings. They and a few others with scientific expertise were given the opportunity to guide the sensemaking of commercialization. The chapter concludes by arguing that commercialization at universities is a political process rather than a technical or managerial activity.

**Theoretical Framework**

To make cooperation possible, the actors of permanent or temporal organizations, such as projects, make an effort to understand each other and interpret events and issues enacted in social interaction (Weick, 1995). This sensemaking process is guided by different contextual factors as outlined in the Critical Sensemaking framework (Helms Mills, 2003, 144-145; Mills & Helms Mills, 2004). Organizational rules (Mills & Murgatroyd, 1991) based on the underlying formative context (Unger, 1987) render organizational routines, practices, and activities visible and expectable for the actors involved (Helms Mills & Mills, 2000, 59-60).

In organizations, power is manifested in organizational rules and guidelines (Thurlow & Helms Mills, 2009), in the discourse used (Long & Helms Mills, 2010), and in the set of goals and plans that guide the organizational activities (Gioia & Chittipeddi, 1991). These define what kind of enactment, interpretation, and understanding of events is socially acceptable (Helms Mills, 2003, 144-145).

In organizations, the manager position offers formal power to control the operating environment (Weick, 1995, 30-31) and to influence others discursively (Rouleau & Balogun, 2011; Maitlis & Sonenshein, 2010). Thus, managers often act as sensegivers for others and guide the formation and maintenance of a specific understanding by drawing others’ attention to cues that support this understanding and exclude others (Maitlis & Lawrence, 2007). Therefore, the manager position allows a plausible use of power (Maitlis & Sonenshein, 2010; Maitlis & Christianson, 2014). However, socially agreed power among organizational actors can evolve and compete with the structural power attached to the manager position (Carroll, Helms Mills, & Mills, 2008).

In meetings, structural power is reflected in the activities of the chairman when he leads the discussion (Svennevig, 2012a). In formal meetings, the chairman summarizes the
discussion (Barnes, 2007) which opens the door for influencing other participants' sensemaking (Clifton, 2006). Meeting representatives formulate their understanding (Drew, 2003) as speeches with different meanings and goals. The speeches could be defined in terms of their nature, such as introductory, closing, and transitional (Svennevig, 2012a, 2012b) which are all related to the technical speeches used in meetings, or the definition may be based on their content. For example, Clifton (2006) studied speeches that reported progress or situation, and Barnes (2007) studied speeches where the preceding discussion was compacted and polished, or glossed as she called it. In addition to these reporting speeches, the speaker may ask and answer questions, share his own or his organization’s opinions (Wilson, 2008), agree and support (Clifton, 2006) or oppose and disagree with opinions shared by others (Angouri & Locher, 2012).

Finally, the vocabulary used and the behaviour performed in meetings emphasize the background and commitments of the sensemaking actors (Helms Mills, 2003, 57). The vocabulary used is a cue for meaning construction and also provides building material for organizational rules that become plausible and privileged in the local context in which sensemaking is carried out (Long & Helms Mills, 2010). In this way, both structural and socially agreed power becomes visible, maintained, and transmitted in the speeches that each actor gives in a meeting.

Data and Methods

In the longitudinal case study (Bell, Bryman, & Harley 2018, 67) presented in this chapter, academic actors working in the science faculty of one Finnish university co-operated with industrial experts, funders, intermediary organizations, and innovation experts to develop the commercial activities of their faculty. The Commercialization Project case provides a thick description of the social interaction in the project steering group meetings over two years. Stake (1995) calls this type of research an intrinsic case study, and Eriksson and Kovalainen (2010; 2016) call it an intensive case study because the case is analysed in fine-grained detail and is embedded in its context.

The data for the case was gathered through non-participatory observation in eight steering group meetings. The first author of this chapter carried out the observation and wrote down all speeches that were held at the meetings (tape recording was not allowed). The observation data was complemented with project documents to achieve a more extensive and
richer data set (Morgan, Pullon, Macdonald, McKinlay, & Gray, 2017). Mixed analytical methods were used to calculate the number of speeches by individual members and subgroups of members in the meetings. Thereafter, the speeches were analysed by their content nature to find the meanings attached to commercialization. Finally, structural and constructed power were analysed to track down how they guided the meanings attached to commercialization.

**The Commercialization Project Case**

The Faculty of Science of a Finnish university wanted to strengthen its commercialization activities. The professors of the faculty, with the support of the dean, decided to apply for external funding for a two-year commercialization project where practices would be developed in co-operation with the industry. The Commercialization Project received funding and was organized in a typical manner: The project plan gave structure to project activities, the steering group guided and controlled the project, and the project manager was responsible for day-to-day operations.

In Finland, the *Universities Act* (2009) advises universities “to interact with the surrounding society and promote the social impact of university research findings.” Lacking any precise indicators for concrete action, Finnish universities perform a variety of commercialization activities (e.g. university-industry collaboration, patenting, licensing, and establishing university spin-off companies) in different ways. Similar variety was found in this case study; no precise definition or goal was outlined in the project plan, which allowed different senses of commercialization to emerge during the Commercialization Project.

The two-year Commercialization Project, initiated by the professors of the science faculty, brought academic researchers and managers, industrial partners, funders, members of mediating organizations, and innovation experts together to discuss commercialization prospects and challenges in the science faculty. The general management of the Commercialization Project was carried out in the formal steering group meetings, which served as social events that followed the institutionalized rules of externally funded projects. The steering group was called to meet formally nine times during the project, and these discussions followed the same agenda in every meeting with only a few admissions when it was necessary. The data of this study includes eight of the meetings because the first had already been held before the data collection started.
According to the project documents, the key objectives of the Commercialization Project were to frame an evaluation process to evaluate concepts and innovations that were grounded in research and to establish a commercialization model in the Science Faculty. These objectives proved to be challenging. Even though the evaluation process and the commercialization model were identified, they could not be implemented. In the last steering group meeting and in the final project report, the reasons for failed implementation were justified by external factors that could not be controlled by the project actors.

The formal documentation of the steering group meetings (e.g. minutes of meetings, development reports) reflects an appropriately managed project that followed the instructions set by the funder organization and the university. The meeting agendas were precise with many details clearly presented. The minutes of the meetings and their attachments were detailed and often quite long, and their content tells us that the Commercialization Project was a new kind of effort for both the funder and the university.

Table 1 provides information of the educational background and work experience of the 12 members of the project steering group. What is noteworthy is that six members had a doctoral degree in science. Table 1 indicates how many meetings each member attended and how many times they spoke at the meeting, in total and on average. As the members represented the university, industry, or funders in the project steering group meetings, they are grouped into subgroups in first column of Table 1 for further analysis.

<table>
<thead>
<tr>
<th>Member of the steering group</th>
<th>Background</th>
<th>Attendance in meetings</th>
<th>Speeches (total; average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project management:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chairman of the board</td>
<td>D.Sc, science professor, extensive* experience in academia and industry</td>
<td>8</td>
<td>299; 37</td>
</tr>
<tr>
<td>Project manager</td>
<td>D. Sc., extensive experience in academia</td>
<td>8</td>
<td>435; 54</td>
</tr>
<tr>
<td>Science professor</td>
<td>D.Sc., extensive experience in academia, some industrial experience, the founder of the project</td>
<td>4</td>
<td>119; 30</td>
</tr>
</tbody>
</table>
Table 1 shows that the speeches by the steering group members were unevenly distributed. The project manager used the floor more frequently than the other members. Taking into account the meeting attendance, the highest numbers of speeches were used by the project manager (54 speeches on average per meeting); Science Professor, the chairman of the board (37); the representative of the funder (31); and Science Professor, the founder of the project (30). Three out of four of these outspoken members represented the Faculty of Science and all of them had a doctoral degree in science. Both science professors had been active in setting up the project.
The number and length of speeches, however, tells little about their content. Even the short comments sometimes brought up new points of view that encouraged others to engage in the discussion more extensively. For example, the speech by one of the industry representatives who had a doctoral degree in science inspired others to discuss about internationalization, which later on led to the piloting of the innovation evaluation process developed in this project:

“This field could lead to an organization of the European hub around the knowledge of [a particular researcher]. I still have a strong feeling that knowledge can be developed further so that the university could form joint projects with companies. If possible, we should identify a few companies with whom to invest more of these project resources.”

Based on the synthesis of the meeting speech categories outlined in the theoretical framework, the sayings of different subgroups in the steering group meetings of the project were categorized as follows (Table 2).

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Nature and content of the speeches given by each subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technical speeches</td>
</tr>
<tr>
<td>Project management</td>
<td>219</td>
</tr>
<tr>
<td>Industry representatives</td>
<td>44</td>
</tr>
<tr>
<td>Funders</td>
<td>61</td>
</tr>
<tr>
<td>Intermediary organizations</td>
<td>20</td>
</tr>
<tr>
<td>University innovation activity</td>
<td>3</td>
</tr>
<tr>
<td>Researchers</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2 shows how the project management subgroup (including the project manager, science professor, chairman of the board and science professor, founder of the project) led the meeting discussion, bringing in new issues and closing preceding discussions or moving to the next issue. The project management subgroup outlined the current state of the project and asked direct questions from the other members. Closer analysis indicated that it was mainly the project manager who outlined the current state of the project, for instance, when talking
about the co-operation with the university administration: “That's been hard to get to the university administration.”

Industry representatives expanded the discussion by describing their practices and how they had solved certain challenges. They supported initiatives or assumptions of others through giving “real life examples” of how things are done in business contexts: “The basic level in innovation isn't just enough to the world [for customers]. Thus, we have to modify our actions continuously.”

The representatives of the funders, intermediary organizations, and those representing innovation activities of the university mostly asked questions in the meetings. The difference between these subgroups was that the representatives of the funders were mainly interested in practical issues of the project (“Is the possible extension of the project notified in the budget?”), the representatives of the intermediaries about university-industry interaction (“Are new companies established at the university spin-offs from this faculty?”), and the members of the university innovation office challenged the steering group with commercialization-focused questions, such as “What makes these products or service packages unique?” The least active members of the board were the academic researchers who explained or answered questions that were directly targeted to them and related to their subject knowledge. In addition to the speeches counted in Table 2, very short notes, vivid and humorous comments, and discussion concerning practical issues such as the schedule for the next meeting were presented in the meetings.

Overall, the project management subgroup actively shared their views in the meetings. Industrially more experienced members of the steering group stayed back, but those with doctoral degrees and previous academic experience were actively participating in discussion. The project management subgroup used its formal power to lead the debate, and they and a few others with science competence were also given the socially agreed power to construct a sense of commercialization. Not surprisingly, the members of the steering group that had strong scientific experience guided the discussion about commercialization activities, even though some board members had more experience in industrial and commercial matters.

As a result, the local sense of commercialization including suitable commercialization models for the science faculty was strongly guided by the academically experienced people with limited industrial expertise. During and after the project, the commercialization practices
of the science faculty did not change considerably. The objective of the project was to develop the evaluation process for research-based innovations and to establish a new commercialization model for the science faculty. These goals were not achieved. According to the steering group, this was due to external factors that could not be influenced by the project.

Discussion and Conclusion

In this study, we analysed how power relations were involved in guiding the sense of commercialization in the project steering group meetings. The most visible manifestation of embedded power relations was indicated by the number and content of speeches given by the subgroups of the members. The project plan with specific goals and the institutionalized meeting practices served as contextual rules, which allowed the project management subgroup to take the lead in most of the meeting discussions and most effectively give sense to what commercialization means in the university context. Thus, their science-oriented sense of commercialization was and remained dominant throughout the project extending over two years. It has also been found in prior research that those in a dominant position use their discursive ability to influence others' sensemaking (Rouleau & Balogun, 2011).

The study further shows that power relations do not necessarily have a structural basis. In addition to structural power attached to hierarchical positions in the university and the project management, power relations also emerged as socially agreed in discourse and interaction (Carroll et al., 2008). Socially constructed power was related to expert and scientific knowledge in particular. Without scientific knowledge, it was difficult to question the development of commercialization in the academic context of the science faculty, although commercialization activities and related challenges were familiar to members of the steering group (Morris, Ma, & Wu 2014). Therefore, those who had doctoral degrees and experience in academic work had the capability to act as sensegivers for the others. This power relation was grounded in the socially constructed understanding according to which commercialization of scientific knowledge requires strong expertise in science.

In a nutshell, a collective sense was enacted in the steering group meetings, according to which expertise and experience in business and innovation was not enough for the successful commercialization of knowledge in the context of the science faculty. Furthermore, the discussions in the meetings were heavily informed by the science discourse,
emphasizing the role of subject knowledge in connection to commercialization above anything else. These findings can be used to direct attention to how various meanings of commercialization are negotiated in academic contexts and the role of structural and socially constructed power relations in these processes.

As the case study illustrates, commercialization at universities is a political process rather than a technical or managerial activity, as the prior research has often assumed. In future studies it would be interesting to explore in more detail how different kinds of power approaches (Schildt, Mantere, & Cornelissen, 2019) are present and shape the content and form of a sensemaking process leading to a science-oriented understanding of commercialization.

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References


