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Academic Spin-off Managers as Builders of Resources

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Abstract

The paper focuses on the financial and non-financial resources of university spin-off companies. It explores how spin-off managers with prior business experience use causal and effectual logics when building finance-related resources for their companies. The research draws from narrative interviews and documentary data from five case companies, which were submitted to qualitative content analysis. The managers’ report diverse ways of building finance-related resources over time. Causal logic dominated their narratives, whereas effectuation logic was demonstrated in narratives in particular concerning the early stages of the spin-offs when experienced outsiders helped the company build resources and the utilization of resources available through academic or professional contacts. The paper contributes to discussions of how finance-related resources are built-up over time in academic spin-off companies.

Keywords: Academic spin-off, financial resources, non-financial resources, effectuation, causation, managers’ narratives
Introduction

This multi-case study explores academic spin-off managers’ interpretations of the resource-building processes of their companies. More specifically, the paper focuses on how managers narrate the building process of finance-related resources over time.

Academic spin-offs are new legal entities that emerge from universities to commercialize knowledge and generate profit (Pattnaik & Pandey, 2014). Prior research has shown that several actors contribute resources to academic spin-offs over time (Fernandes-Alles et al., 2015). Much prior research on company resources looks for scientific generalizability through large numbers, with limited opportunities to dig deeper into how spin-off managers as decision-makers describe and understand the resource building process. There is a lack of research that focuses on spin-off managers as active and selective builders of company resources, which this study aims to address.

The objective of the study is to investigate the resource building process from the theoretical perspective of causation (planning) and effectuation (using what is readily available) (Sarasvathy, 2001). The purpose is to analyze how spin-off managers’ resource building narratives draw from causation or effectuation logics. The study comprises five cases from two Finnish universities and one university of technology. All case companies are led by managers with prior business experience.

The paper introduces the theoretical background, after which the methodology is explained. The empirical section outlines the case analysis and cross-case comparison, followed by a discussion of the findings, the contributions, and the conclusions.

Theoretical Background

The study focuses on two logics of entrepreneurial activity and company resources: causal and effectual. According to Sarasvathy (2001), in causation logic entrepreneurs seek to cause pre-
defined effects by acquiring the means connected to the desired outcome. Typical causation logic activities are performing market analyses, producing plans, and engaging in systematic resource acquisition.

According to Sarasvathy (2001), in effectuation entrepreneurs take the available means and identify the impacts they can create with these. Thus, a single resource can be used for multiple purposes when seeking to create a business opportunity. Entrepreneurs experiment with the level of expenses that they can afford to lose, leverage relationships, and exploit contingencies. Valuable individual resources include the entrepreneur’s characteristics, abilities, knowledge, and social networks. At a firm level, they include physical, human, and organizational resources.

Causation and effectuation represent two sides of human reasoning that work in parallel or may become intertwined (Sarasvathy, 2001). Past research has suggested that effectuation logic is demonstrated to a greater extent in early stages, although greater levels of effectuation can be triggered later, for example by resource position of an enterprise (Reymen et al., 2015).

The case study presented in this paper explores the inter-connectivity of these logics in the context of company resource building and asks how spin-off managers’ narratives concerning finance-related resources are informed by these logics.

**Methodology**

The study combines intensive and extensive case study strategies (Eriksson & Kovalainen, 2010, 2016). It outlines, analyses, and compares five mini-cases to provide good stories (Dyer & Wilson, 1991) and develop an understanding of the academic spin-off company from the inside through five managers’ individual voices and resource building narratives. Multiple cases are used to explore the variety and diversity of ways in which causality and effectuation inform managers’ interpretations concerning the finance-related resources of their companies. The cases are academic
spin-off companies and the unit of analysis are managers whose interpretations are analyzed from qualitative interview data and with qualitative content analysis. The names of the companies and individuals have been changed to guarantee anonymity. The narratives for each case are told with the voices of the manager’s, although they are not their exact words. They are summaries created based on the research data.

The data were collected as a part of a larger project on 11 academic spin-off companies: five had managers with prior business experience and were selected for this paper (Table 1).

Table 1. Spin-off managers interviewed in each case company

<table>
<thead>
<tr>
<th>Case</th>
<th>Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1:</td>
<td>UniInno  Mikko–A CEO with a background as an entrepreneur.</td>
</tr>
<tr>
<td>Case 2:</td>
<td>Academic SU Riikka–A CEO with a business background, e.g. in sales and marketing. Tero–Investor and an operational director with a background, e.g. in marketing and as a co-owner of a business.</td>
</tr>
<tr>
<td>Case 3:</td>
<td>Invention Ltd Jarkko–CEO with a long business experience in small and large companies, e.g. in product and technology management.</td>
</tr>
<tr>
<td>Case 4:</td>
<td>TechInvent Tommi–CEO with business experience in large and small enterprises.</td>
</tr>
<tr>
<td>Case 5:</td>
<td>SciComp Kirsi–CEO with a business background, e.g. in business development and product management.</td>
</tr>
</tbody>
</table>

Managers’ Funding-Related Narratives
There follows five narratives told through the voices of academic spin-off company managers.

**Case 1: The preference list dynamic of resource building**

Mikko: When UniInno started, we chose one business model from several options to have a credible story for potential investors. Since the beginning, I had my preferences listed and a plan that was supposed to guide our search for funding from private investors complemented by government funding. For me, it was important that our investors had good networks and other relevant business competencies. A competent investor would demand a lot from us and thereby drive our business plan forward. I thought that with an investor like a government investment company, UniInno would not be able to realize its full potential. In my plan, I had a three-step preference order for the investors: The most preferred one was a large international funder with large financial resources and good business connections. The second was a Finnish government investment company or a smaller investor, and the third was business angels. A large investor would help us to recognize market opportunities and let us complete product development before market entry. My initial plan had to change, however, because we did not want to dilute shareholder ownership by taking in investors too early.

**Case 2: The tennis playing dynamic of resource building**

Tero: I acted as a “midwife” and a first-round investor when Academic SU was spun out from academia. However, I consider myself more a team member than an investor because I am not exit oriented. When working in a startup is like playing tennis: you must look at the ball when serving because if you start thinking where you are serving, you will serve to the net. The same in business: you might draw erroneous conclusions or you lack information.

I collected the first-round of funding for Academic SU from my acquaintances: my old company partners who sit on our board now and an experienced industry senior who helps by
giving sales contacts. There was no need to search further afield because funding could be found close by. We gathered the commercial team from old colleagues who used to work in the company that I co-owned. Later, when we needed more funding, we started to meet with investors who were easily accessible. Later, we went to an expo to approach new investors more systematically. We negotiated with two investor syndicates, but the first pulled back and the second introduced terms we could not accept. But we needed more money and started to discuss with a group of experienced startup investors that were a backup option. These investors knew the risks and could make a quick decision. Both our first and second investors are smart capital: the first was familiar with the industry and the customers, and the second brought in technical competence.

Riikka: I ended up working for Academic SU because I had worked in the company that Tero and some of the first-round investors owned. Later, we pursued a second funding round. When evaluating with whom to continue discussions, we paid attention to the rapidity of the investors, their terms, and the competence and experience they could bring. We found our second-round investors through a board member brought in for his/her experience and contacts. We also utilized government funding agency instruments as this is something that we learned in our previous jobs. When looking for a third funding round, we focused on venture capital (VC) funds due to the size of the required funding.

**Case 3: The less preferences dynamic of resource building**

Jarkko: A collaborating company had a big role in the development of Invention Ltd. I worked for this company as a young man and still keep contact with it; it has provided us funding and other support. They offered office space, helped us with product development, were flexible in terms of finances, and the chairman of the company gave perspectives and moral support. We did not really have any preferences concerning our investors, except we
would like to have an anchor investor that could make investments over several rounds. We are disappointed that some of our current investors have not taken this role despite their extensive financial resources. Part of our funding has been collected from friends, family, and professionals in the target market. These investors have been found by the inventor behind the company. Besides funding, these investors’ contributions have been limited, mostly providing opinions on some issues. I have talked with some VC funds with little result, but also found some angel investors. Besides funding, they have not contributed to the company’s development. Sometimes our investors wish to participate, which only creates work as they do not have the required competence to contribute. It has been hard to pitch to VC funds because they want to set demanding goals for us, and many do not understand our industry.

We have received funding from European Union (EU), which has allowed us to hire an academic researcher who uses our technology in her/his research. The roots of this project are our connection to the university where the inventor used to work.

**Case 4: The limited value dynamic of resource building**

Tommi: We could have handled the finance process of the company better. Our investors have mainly come through network connections. An academic, who was a founding partner in the company, played an important role in bringing in investors, some of whom have business backgrounds. Some have been involved in the company, but sometimes I wonder how much investors can add value. I mean, investors can also add negative value, but this has not happened much in TechInvent. I would only call one of the investors as a business angel when others have invested into the company based on someone’s recommendation. In my opinion, that network is the most important contribution that investors can make. However, I would have expected a little bit more from an experienced professional in the target market, who is also our investor. I don’t think he has used his network as much as
possible. Through the involved professors, we have also ended up working with a research organization. This has brought us revenue and technology. In future, a VC fund or a large company in our industry would be a good funder. They would be able to do follow up investments and are able to value the company correctly. Also, an investor that would be smart capital and would know the industry would be good. Then again, we are not too picky about future investors.

**Case 5: The resource formation dynamic of resource building**

Kirsi: Our pursuit of building resources has been intentional. The investors of the company, government-investment company, and university fund had invested into SciComp before I joined. Before taking a role as a CEO, I wanted to commit these investors to help me by bringing complementary competence into the company through the board work for example. In practice, this meant that the investors appointed board representatives based on SciComp’s needs. Previously, little consideration was given to SciComp’s needs when board members were selected. We do also get support from our investor contact persons and I feel that they challenge us, are there for us and help us. We were also asked to participate in a collaborative research project between industry and academia, which provides an opportunity to know what happens in academic research. This project is partially funded by government funding agency. If we will take new investors in future, they will have to open doors and there needs to value fit.

**Cross-Case Analysis**

This section presents a cross-case analysis of resource collecting in conjunction to funding across the case companies. Table 2 provides a summary of each case per stage of the company.

Table 2. Summary of resource collecting in connection to funding across cases
<table>
<thead>
<tr>
<th>Cases</th>
<th>Early Phase of Spin-off Development</th>
<th>Later Phase of Spin-off Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1, UniInno: The preference list dynamic</td>
<td>Plan including clear preference of funders and their contributions</td>
<td>Plan was altered so that founder’s share would not be diluted</td>
</tr>
<tr>
<td>Case 2, AcademicSU: The tennis playing dynamic</td>
<td>Funding and other related resources gather by an experienced entrepreneur</td>
<td>Intentional search for contacts and funding, influenced by potential non-financial resources</td>
</tr>
<tr>
<td>Case 3, Invention Ltd: The less preferences dynamic</td>
<td>A collaborating company investing and providing resources. Funding collected where it can be found</td>
<td>Funding collected where it can be found, although a wish for an anchor investor</td>
</tr>
<tr>
<td>Case 4, TechInvent: The limited value dynamic</td>
<td>Funders found through network connections according to the need. Scepticism regarding non-financial resources</td>
<td>Funding collected where it can be found, although some preferences regarding investors. Scepticism regarding non-financial resources</td>
</tr>
<tr>
<td>Case 5, SciComp: The resource creation dynamic</td>
<td>Resources not build based on company’s needs</td>
<td>Resources (i.e. complementary competence) built according to the need of the situation together with the investors</td>
</tr>
</tbody>
</table>

Source: Research material.

**Causality**

The causal logic informed the dynamic of each manager’s narrative to some extent, most strongly in the cases of UniInno (case 1), AcademicSU (case 2), and SciComp (case 5). However,
there were differences in how the managers followed causal logic when talking about the resource building process. For CEOs at AcademicSU (case 2) and UniInno (case 1), it was clear that they pursued resources other than money when looking for investors. They described themselves as intentional in their search, planning what they were looking for, and evaluating their options. For them, it was important that their funders could bring in non-financial resources. This was a strong feature in the narrative of Mikko (case 1 CEO). He expected the investors to require a clear story and business model, and this was what they had formed. In his narrative, resource building was a causal process based on his ambitions and experiences and during which he planned how the investors could help. He perceived industry experience and extensive networks essential for a significant contribution. In AcademicSU (case 2), Riikka (CEO) perceived investors as an opportunity to acquire complementary human capital. They could provide insights into terms of an industry relevant to them, but in which they did not have experience. She saw the investors as an extension of their resource base who could help them with certain aspects of the business.

AtSciComp (case 5), the situation was different to UniInno (case 1) and AcademicSU (case 2) as the company was not searching for new funding at any point during the research. The CEO of SciComp (case 5) narrated herself as an intentional resource builder. In her narrative, she and the investors had worked together on the support that the investors would provide for the company according to the company’s need. The resources that the investors provided were thus part of SciComp’s causal planning process, extending their resource base. In her narrative, she described herself as an active actor who required causality in her role as a CEO.

The narratives of the TechInvent (case 4) and Invention Ltd (case 3) managers demonstrated plans regarding the kinds of funding to search for in the future. However, these plans focused on the amount of capital needed. For these managers, funders were perceived predominantly as sources of funding and other resources that they could provide were not that important. In both cases, the
managers’ expressed opinions about the negative value that investors had contributed or could potentially contribute. In TechInvent (case 4), the CEO did not see investors as that relevant in terms of non-financial resources. The managers’ narratives were informed by causal logic as they had preferences regarding where to acquire funding, although did not act on this strongly. Both managers stated that they would take money from where available. In TechInvent (case 4), the causality also influenced the narrative through goal setting. The manager did not see much need for external input as they had clear plans of where to go—they would only need a sparring partner if trying to find their way. So, perhaps causality was exactly the reason why the manager, in this case, saw little chance for the investors to contribute non-financially.

In TechInvent (case 4) and Invention Ltd (case 3), the overall preference was towards investors with enough capital to make larger investments. This demonstrated a causality that did not extend, in the narratives, to the acquisition of non-financial resources.

**Effectuation**

The managers talked about more effectual approaches in their search for funding and other resources. In AcademicSU (case 2), Tero’s (investor and operational director) narrative was informed by effectuation. Tero told an anecdote about working for a startup company, which demonstrated his reluctance to paying too much attention to desired outcomes or long-term goals and that the focus should be on the activity at hand. His narrative lacked some causality. He collected the required funding from close industry-experienced acquaintances only because it was easily accessible. He could also reach old colleagues to bring commercial competence to the team. Hence, in Tero’s narrative, the start of the company followed effectuation; in that, he pulled together a variety of resources available to him so the company could be kicked-off.

In the narrative dynamic of Invention Ltd (case 3), a chairman of a collaborating company played a similar role to Tero. Jarkko explained that he and his company provisioned a wide variety
of resources for Invention Ltd (case 3), even connecting Jarkko (CEO) with the company. These initial stages of the company could be called effectual. The chairman of the collaborating company brought together resources that helped turn the initial invention into a product. Simultaneously, the collaborating company was growing a client for themselves. Later, after Jarkko had taken the lead as a CEO, the approach continued as effectual. Invention Ltd searched for funding broadly without strong preference, gaining investments from friends-family-fools (FFF) investors, business angels, and the European Union (EU). Some of these investors provided non-financial resources such as user feedback (FFF investors) or possible research results to be used in marketing (EU funding). Still, for Jarkko, funding seemed to be more of a matter of money and in his narrative, this resource usage appeared as unplanned.

Similarly, in TechInvent (case 4), the CEO mainly perceived funders as a source of money. Non-financial contributions were acknowledged, but also negatively. The professors involved in the company helped find investors and collaborators through which the company could gain revenue and technology. Again, we see persons involved at the beginning (and also later), here the professors, playing a key role in acquiring funding (and resource related to it) and other resources through their existing networks. Thus, the company used resources available to them, and the narrative was not informed by clear funding plans. However, in this case, although involved for a long time, the professors did not appear to be very active in setting-up the company, which was only set up after Tommi (CEO) became involved. Interestingly, the CEO did not demonstrate much interest in building other funding related resources. So, although the search scope for funding was broad, he was very selective in his use of other resources, demonstrating causal reasoning with these.

These cases demonstrate that in the managers’ narratives there were experienced individuals with access to a multitude of resources. These individuals helped acquire funding and other
resources for the companies, particularly at the beginning. Thus, effectuation can be identified at the beginning, when there was resource scarcity. Effectuation also informed the narratives regarding the use of resource available through academic or professional contacts. These resources were used to a limited extent, but were not part of an explicit plan and came about through contacts. Causality could otherwise be said to have dominated the narratives.

**Discussion**

The managers’ narratives demonstrated more effectuation in early stages and with academic and professional contacts. However, causation had a significant or even dominant role in spin-off managers’ narratives.

**Influence of Investors**

In UniInno (case 1), the business model selection and a clear story were essential for the manager when searching for funding. This shows that the pursuit of funding can create pressure for startup companies to adopt causal reasoning. Reymen, et al. (2015) provided results suggesting that stakeholders such as investors may push for a narrower scope in activities of a startup. It may be that investors want to see a clear plan pre-investment. Thus, when an early enterprise interacts with investors, they may be led to think causally, although this would not necessarily be only suitable or most efficient option during early stages.

**Managers as Gatekeepers**

According to the causally informed narratives, the managers evaluated investors or their representatives in terms of their background in a relevant industry, useful work experience, and networks. Some research on business angel–investee co-operation (Sætre, 2003; Nevalainen & Eriksson, 2016) has suggested that investee’s management prefer investors with industry or entrepreneurial backgrounds, although softer contributions may be more easily welcomed from
other investors (Macht, 2011a). However, softer contributions never came up in the manager’s narrative as something that they pursued for. The managers were looking for industry or commercial competence or networks. Softer contributions (mostly moral support) had been received by some managers but were not intentionally sought.

In SciComp (case 5), the manager describes herself as an active shaper of resources gained from investors. This case demonstrated how sometimes the management does not only choose investors so that they possess the wished-for resources, but they can later build useful resources together with their funders. This was demonstrated by Nevalainen & Eriksson (2016) in an in-depth study. From management’s perspective, such cooperation allows the funder to become a partner working towards a shared goal, and in a way, this is effectuation. Instead of finding new funder with the wished-for resources, the company pursued to exert control on resources already available to transform them to novel resources. However, in this case, such an activity took place in the context of a causal reasoning based on company’s resource needs. Macht (2011b) called for more research on the management’s agency as gatekeepers for investors’ non-financial contributions, and this would seem justified.

**Effectuation Demonstrated in Early Stage and With Academic and Professional Contacts**

Effectuation in early-stage narratives was identified—for example, Tero (investor and operation director) played pulled together multiple resources when kicking off AcademicSU (case 2). Reymen, et al. (2015) suggested that effectual reasoning in decision-making is likely to be dominant in early-stage enterprises. In several of these cases, an experienced individual played a key effectual role in kicking off the startup. These startups may have started more slowly or not at all without these individuals—for example, the technical team at AcademicSU (case 2) had worked on the technology behind the company for years and made some initial sales, but the company only
kicked-off after Tero’s (investor and operational director) involvement. However, one noteworthy fact is that in these cases the effectuation was connected in the narratives of experienced individuals helping the companies to collect resource, and this activity was not strictly dependant on the phase of the company. In some cases, the role of these individuals as effectual resource acquirers was just more prominent in the narrative prior the company was started or during early stages. In the results, Reymen et al (2015) the level of effectuation across cases stabilized after a company was set-up, but the case-by-case variation stayed higher during the startup phase and becoming more consistently causal in pre-startup phase. In addition to this, it should be noted that Reymen, et al. (2015) focused on decision-making when we have our focus on resource acquisition.

Regarding effectuation, in Invention Ltd (case 3) and TechInvent (case 4), the managers utilized academic or professional connections, including those of the academic team behind the company, for funding or revenue. These resources were used for the benefit of the company, but were not mentioned in explicit plans. This could mean that these resources are used in an effectual manner according to their availability. This would be an interesting topic for further research. Are certain resource sources such as academic or professional connections often excluded from the causal reasoning?

Contributions

This section presents the theoretical and managerial contributions of the research.

Theoretical

This study provides empirical evidence on causality and effectuation (Sarasvathy, 2001) in resource building of academic spin-off managers with business experience. The findings show that the narratives of these managers are informed both by causality and effectuation, although causality is dominant and effectuation informed particularly narratives related to early stages and academic resources and professional contacts.
The study suggested further research topics. First, whether interactions with investors influence managers’ reasoning in early stage startups and what implications this has. Second, whether perceived resource types or sources influence managers’ reasoning. Does causality emphasize hard resources and are more unconventional sources of funding and non-financial resources side-lined. Third, past research categorizes different parties as contributors of particular resources types. However, managers may perceive themselves as active resource builders co-operating with funders.

**Managerial**

We make two recommendations. First, an experienced individual with connections and resources could play an important role in starting a company, bringing funding and building other resources. Universities should consider keeping such individuals close to give spin-off enterprises a good start.

Second, not all enterprises fully grasp the opportunity to build non-financial resources. Companies prone to causality are more likely to carefully consider those funding and related resources that they could build. However, causal reasoning may limit the sources of resources. Managers of spin-off enterprises should be aware of this to fully understand their possibilities.

**Conclusion**

This research elaborates causality and effectuation in conjunction with resource building related to funding in academic spin-off companies. The investigation showed how managers narrated the dynamics of resource building in different ways, stressing the individuality of each case. The dynamics showed managers as causal planners, effectual resource collectors, and collaborative resource creators. Common patterns between resource types, sources, causality, and effectuation that call for further research were also identified during this research. Furthermore, it was also shown how the effectuation-informed narratives mostly concerned early-stage enterprises and academic and professional resource sources.
Acknowledgements

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