Hidden innovation projects: When is the right time to surface?

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Abstract

As internal allocation of resources becomes more elaborate, companies striving for innovation often struggle to develop and implement radically novel projects that do not fit their established formal organization, logics or routines. Indeed, such projects face significant internal challenges due to which they are often not initiated at all or terminated internally before reaching sufficient maturity to go into production and market launch.

Management research has recently started describing such hidden initiatives, called bootlegging, which entrepreneurial employees develop to avoid premature termination and to pursue their projects “in the shadow” of the formal organization. While prior research has provided first descriptions of the phenomenon as well as suggested some of its antecedents, an understanding of the process, during development and surfacing compare to official project, of bootlegging projects is largely missing. This study focusses on bootlegging project processes and, more specifically, on the challenges that bootlegging projects face during development and allocation of resources and surfaced and official announced back into the formal organization. We draw on a comprehensive study of 15 bootlegging projects in a leading multinational technology-driven organization. Comparative analyses of these cases provide insights into barriers that bootlegging projects may face and deriving propositions how they can be overcome by (i) strategic networking, (ii) targeted embedding, and (iii) actionable selling. Implications are derived for the emergent research on bootlegging as well as for fostering novel and radical innovation in established organizations.

Jelcodes: L14, O17
ABSTRACT
Companies striving for innovation often struggle to develop and implement radically novel projects that do not fit their established formal organization, logics or routines. Indeed, such projects face significant internal barriers due to which they are often not initiated at all or terminated internally before reaching maturity for production scale-up or market launch. Management research has recently started describing secretive strategies, called bootlegging, which entrepreneurial employees develop to avoid premature termination and to pursue their projects ‘in the shadow’ of the formal organization. While prior research has provided first descriptions of the phenomenon as well as suggested some of its antecedents, an understanding of the process of bootlegging is largely missing. This study focusses on bootlegging processes and, more specifically, on the challenges that bootlegging projects face when moving from “shadow to light”, i.e. when they are announced in order to be integrated back into the formal organization. We draw on a comprehensive study of 15 bootlegging projects in a leading multinational technology-driven organization. Comparative analyses of these cases provide insights into important intervening conditions that bootlegging projects may face and allows deriving propositions how they can be overcome like (i) strategic networking, (ii) targeted embedding, and (iii) actionable selling. Implications are derived for the emergent research on bootlegging as well as for fostering radical innovation in established organizations.
INTRODUCTION

It is widely acknowledged that innovation is critical for companies’ performance and their survival due to global competition (Adams et al., 2006). By introducing new innovative products and services, organizations can successfully protect their competitive advantage and counter rapidly changing customer needs (Brown and Eisenhardt, 1995). As sources for their innovations, organizations may either reach out to external sources of knowledge, e.g. customers or communities (West et al., 2014; Dahlander and Gann, 2010; Chesbrough, 2003) or draw on their employees’ creativity (Baer, 2012; van Dijk and van den Ende, 2002). Whether sourcing innovations externally or internally, research shows that organizations tend to do well in developing incremental innovations, but struggle to develop and implement radical innovations (Kelley et al., 2011; O’Connor and McDermott, 2004). This may be due to internal resistance or market and technology uncertainties or organizational reasons and can occur in the form of barriers (D’Este et al., 2012). To overcome those difficulties, radically novel ideas and projects are sometimes developed secretly by employees with an entrepreneurial mindset. Management research has more recently started to explore this phenomenon, called bootlegging, as a potential means of fostering radical innovation in established organizations (Criscuolo et al., 2014). Bootlegging, more specifically, refers to “the process by which individuals take the initiative to work on ideas that have no formal organizational support and are often hidden from the sight of senior management, but are undertaken with the aim of producing innovations that will benefit the company” (Criscuolo et al., 2014: 1288). While bootlegging thus generally represents a form of deviance from legitimate behavior in organizations (Mainemelis, 2010; Merton, 1968), bootlegging processes have often enabled the implementation of radical innovations that have turned out to be highly profitable for the organization. Successful examples by authors include the BMW series 3 touring car (Augsdörfer, 2008), and the Agilent Technologies 1200 series chemical test equipment (Masoudnia and Szwejczewski, 2012). It may also represent a widespread phenomenon, as research has suggested that in an R&D laboratory 5-10% of the employees emerge as bootleggers, and bootlegging can be found in all industrial sectors (Augsdörfer, 2005).

While prior research has provided first descriptions of the phenomenon as well as suggested some of its antecedents, an understanding of the process of bootlegging is largely missing. This study focusses on bootlegging processes and, more specifically, on the challenges that bootlegging projects face when moving from “shadow to light”, i.e. when they are announced in order to be integrated back into the formal organization. In other words, the purpose of this study is to identify key barriers and to propose solutions to overcome them for not only
successfully developing bootlegging projects, but also transferring them back into the formal organization in view of scale-up and market launch. We draw on a comprehensive study of 15 bootlegging projects in a leading multinational technology-driven organization. Comparative analyses of these cases provide insights into important barriers that bootlegging projects may face. Furthermore, we derive propositions how to overcome those barriers and how to successfully manage the intra-organizational transfer process. These findings can help organizations support radical innovation projects that are being carried out “in the shadow” of the formal organization.

The paper proceeds as follows: First, we review the emergent literature on bootlegging. We then describe the empirical context and methodological approach of our study and proceed to give an overview of the results. The paper closes with a discussion of the results.

**BOOTLEGGING AND TRANSFER**

As an organizational phenomenon, the term bootlegging, again, refers to, “the process by which individuals take the initiative to work on ideas that have no formal organizational support and are often hidden from the sight of senior management, but are undertaken with the aim of producing innovations that will benefit the company” (Criscuolo et al., 2014: 1288). This phenomenon originally referred to hiding alcohol in one’s boots, which happened during the U.S. Prohibition (Criscuolo et al., 2014), and was first coined by Knight (1967) in the management literature (Knight, 1967; Masoudnia and Szwejczewski, 2012). It refers to projects without formal legitimacy or approval by the senior management, which are operated in secret and in parallel to the official innovation processes (Augsdörfer, 2005).

For a better understanding of the phenomenon, bootlegging projects have to be distinguished from other secretly organized projects like moonlighting, skunk works, and permitted bootlegging. With moonlighting, employees use organization time and resources for personal gains, projects, and profits. It is also a clandestine activity, but in contrast to bootlegging, it does not support an organization’s interests (Masoudnia and Szwejczewski, 2012). Skunk works, first established and named by the Lockheed Martin Corporation in 1943\(^1\), allows a selected group of project members to work on a secret project only known to management. It is a kind of elite department working officially, but in secret from the outside, and hidden from the other projects of the organization (Rich and Janos, 1994). The organizational continuation

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\(^1\) A windowless facility built by Lockheed at the airport of Burbank, California, during the Cold War was known as the skunk works. There, secret military projects were developed. The term is borrowed from Al Capp’s comic strip Li’l Abner, which was popular in the 1940s (Rich and Janos, 1994).
of this secret project is the skunk works model of innovation, and is already implemented for the development of novel ideas by technology-driven organizations like IBM and Siemens (Fosfuri and Ronde, 2009). The third case, permitted bootlegging, is a strategy used in organizations like 3M and consists in allowing the use of a specific amount of work time (i.e. 20%) by employees to develop their own ideas (Augsdörfer, 2008). Yet, bootlegging shares similarities with other phenomena such as “self-organization” (Koch and Leitner, 2008), “underground projects” (Abetti, 1997a, b) and “unsponsored (invention) R&D projects” (Alexy et al., 2015).

Prior research on bootlegging has described the phenomenon as well as started exploring its antecedents. The antecedents for bootlegging, especially reasons and motivations, have been found to result from management, process and uncertainty aspects (for a review, see Masoudnia and Szwejczewski, 2012). For instance, a frequent impulse for starting a bootlegging project is the rejection of an idea by management, because it is perceived as being outside of the organizational strategy (Abetti, 1997a, b; Masoudnia and Szwejczewski, 2012). Further, key reasons include bypassing time-consuming or cumbersome formal procedures (Koch and Leitner, 2008) or reducing the fear of (public) failure (Masoudnia and Szwejczewski, 2012). More recently, Globocnik and Salomo (2015) showed that rewards for innovation efforts, intrapreneurial self-efficacy, and strategic autonomy can foster bootlegging. Other antecedents that research has examined include individual-level attributes of bootleggers such as personal initiative based on individual proactive creativity (Alexy et al., 2015; Criscuolo, et al., 2014) or status considerations (Alexy et al., 2015). In particular, as bootleggers often divert resources from their organizations’ hidden, forgotten or official projects to their own bootlegging project (Globocnik and Salomo, 2015), their behavior has been referred to as creative deviance (Globocnik and Salomo, 2015; Criscuolo, et al., 2014; Mainemelis, 2010).

In contrast to this initial research, which has described bootlegging and started exploring its antecedents, hardly any research has studied the bootlegging process itself and more specifically the factors that might explain the success of bootlegging projects that is their intra-organizational transfer towards becoming officially supported projects. Masoudnia and Szwejczewski (2012) mention that the transfer typically takes place in two steps. Firstly, bootleggers communicate the project idea and initial results to the direct manager/next supervisor, taking the project from true bootlegging to quasi-bootlegging. Secondly, the bootleggers present the project or prototypes to management and decision-makers to seek acceptance and further support for the development (Masoudnia and Szwejczewski, 2012). In the context of the organization we studied, these events can result in the bootlegger becoming
the official leader of the project, either within his current unit or by moving to a new unit, or they can result in the bootlegger to having to transfer the project to another leader, unit, or department.

In fact, transfer is a critical moment for bootleggers as success will imply that the project developed underground will eventually be accepted by the organization and will eventually develop into a new product or service or technology, even if the official project sometimes gets attributed to a new project leader. Failure of transfer, in contrast, will imply that the organization has not been convinced of the value of the project or idea for the company, and it is likely that the bootlegger will feel offended by that decision.

The transfer of a bootlegging project is also a critical moment because, as has been recognized recently by the literature, idea generation is different from idea implementation, and therefore it is not enough to understand how to generate more creativity within organizations, we also need to better understand which ideas are eventually implemented and why (Baer, 2012). Most importantly, idea implementation has been argued to be a socio-political process (Van de Ven, 1986; Yuan and Woodman, 1990; Frost and Egri, 1991; Baer, 2012). For instance, for Kanter (1988: 186) “the features of successful ideas have more to do with the likelihood of gathering political support than with the likelihood of the idea to produce results” (Kanter, 1988). In other words, the ability to mobilize resources, to gain support, and to “sell” one’s ideas have been emphasized as key factors affecting idea implementation (Dutton and Ashford, 1993). Yet, a more recent literature has started to test more complex patterns where the nature of the idea or the motivation of the innovator interplay with his / her networking ability to affect eventual idea implementation. In particular, Baer (2012) examined how people’s motivation to engage in idea implementation and their ability to cultivate and use their social networks affect idea implementation. He found that these two aspects are specifically significant in increasing the odds of seeing one’s idea implemented when an idea is more novel and creative, but tend to have a very limited effect when an idea is only incrementally novel. In addition, the organizational context has been found to affect the idea implementation (e.g. Axtell et al., 2000). In fact, the organization may be more or less supportive to innovation (Axtell et al., 2000) and may be more or less prone to resistance to change (Kanter, 1988). New ideas, in particular when highly novel, can threaten specific employees or units or departments in the organization, thus triggering resistance and bashing (Green et al., 1995).

In summary, while we don’t know much about the factors affecting idea implementation, that is, the odds that a new idea is eventually implemented within the organization, the literature offers a number of explanations relating to the employee him or herself (e.g. networking ability,
political skills, motivation), the organizational context (e.g. hierarchy support), and the nature of the idea or issue at stake (e.g. degree of novelty, disruptive nature). Yet how these elements interplay is still poorly understood. And how they actually apply to bootlegging projects, as a specific category of innovative projects or ideas, is still unknown.

Hence, our study addresses this important gap in the literature: what factors affect the successful transfer, and thus the “implementation”, of a bootlegging project within an organization? What types of difficulties and / or intervening conditions do bootleggers face when attempting to transfer their bootlegging projects? How can they overcome these difficulties and, more specifically, what specific actions or strategies do they take to increase the odds of a successful transfer of their bootlegging projects?

Given the lack of knowledge about the factors that might affect the successful transfer of a bootlegging project, we conducted exploratory interviews with a sample of bootleggers working in a same organization in order to analyze different aspects of their bootlegging project and process, and the success or failure of transfer of the project. In the next section, we explain how we collected data in order to address our research question. Then we show our results and make propositions. Finally, we discuss our findings, including the limitations, and suggest avenues for future research.

**METHODS**

We draw on a comprehensive study of 15 bootlegging projects in a leading multinational technology-driven organization over one year. The empirical context thus represents an embedded single case study (Yin, 2009), and we used exploratory, qualitative research design as recommended for investigating poorly understood phenomena (Strauss and Corbin, 1998; Yin, 2009). We proceeded as follows: (i) We searched and selected bootlegging cases by using “pyramiding” (von Hippel et al., 2009); (ii) we conducted interviews with the identified bootleggers; (iii) we transcribed the interviews and coded them; (iv) we asked internal experts to rate the bootlegging projects along a certain number of dimensions, in particular to assess the degree of innovation of the project; (v) we conducted a second round of interviews with each bootlegger; (vi) finally we surveyed employees from different departments in order to cross check information collected from the bootleggers.

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2 For confidentiality reasons we will not disclose the name of the company.
Data Sources

Firstly, we used pyramiding in order to identify and select the interview partners (von Hippel et al., 2009). Pyramiding is an alternative to snowballing sampling (Goodman, 1961), but has a distinct advantage when identifying relevant interview partners. It is a sequential search approach with different steps which consist in “following referrals that subjects make to others” (Stockstrom et al., 2016: 508). It is a method for identifying persons with a strong interest in a topic. These persons typically tend to have a particular type of expertise or to be high on a given attribute which distinguishes them from the rest of the relevant population (von Hippel et al., 1999; 2009). According to Stockstrom and colleagues (2016), pyramiding “seems promising if populations are ill-defined, less understood, and opportunities for learning exist” (Stockstrom et al., 2016: 515). We used this methodology, because bootlegging is an ill understood phenomenon in the organization, bootleggers are not officially listed in the staff directory, and they are a particular type of employee that can only be identified through peers within the organization. We started the pyramiding process by first contacting employees from the innovation management and from the innovation transfer office. We asked these employees the following question: “Do you know colleagues who conducted radical or disruptive projects in an unconventional way or did bootlegging projects?” This first step allowed us to identify the first bootleggers in our sample (Poetz and Prügl, 2010). We thus contacted these first identified bootleggers and asked them if they knew other colleagues who did/are doing bootlegging projects. In total, we identified 29 potential candidates who were located in the pre-development department, the series production department, the design department, the quality department, and the IT department. By using pyramiding, we maximized the chances of identifying most of the bootleggers in the organization. Twenty-four identified employees agreed to participate to the study.

Before the first official interview round, we conducted informal exchanges with the potential candidates of our study to make sure they had or were conducting bootlegging projects. In this phase, we wrote memos in order to later discuss which candidates should be included in the study. After reflecting on this information, we agreed that five potential candidates should not be included in the study. The projects they were referring to were not completely official, yet acknowledged by some senior managers or board member (i.e. “quasi-bootlegging”). So in total, 15 projects were elicited for an in-depth study, which concerned 19 bootleggers (as some were team members on a similar project). Given the exploratory nature of this study, 15 projects can be considered an acceptable number (e.g. Eisenhardt and Graebner, 2007). The 15 selected projects were different in some respects: (i) While 12 were considered “radical” by their
initiator, 3 were considered “incremental” (less radical); (ii) whereas most were located in the pre-development and R&D departments, a small number was located in the other departments; (iii) some had or were intra organizationally successfully transferred, while others had not been or were not; (iv) some had been or were developed alone, while others were developed in teams; and (v) some were product innovations, while other were process innovations. All selected bootleggers had been employed for at least four years at the time that we identified them and had thus extended working and project experience (as project managers and/or team managers). In addition, the projects have different timelines, with the oldest projects having started in November 1984 and the most recent ones being still in progress (i.e. still under the surface). Among the 15 bootlegging projects, 7 have been transferred successfully and resulted in the launch of a new product or service, 4 have been transferred successfully and are ‘work in progress’ as official pre-development projects and 4 have failed to transfer and were stopped (Status as of 05.2016). The 5 bootlegging projects which were started before 2010 included 4 successfully transferred projects which became successful innovations for the organization and 1 which failed to be transferred because of managerial decisions and the world economic crisis.

**Data collection**

In qualitative research, the use of multiple data sources is important for validation and cross-cases analysis, and case studies typically combine data from archives, interviews, questionnaires, and observations for a better understanding of the cases (Eisenhardt, 1989). We thus used multiple sources of data:

(i) We ran two interview rounds with the bootleggers in order to iteratively deepen insights about concepts and potential relationships and validate analysis (Yin, 1994); in particular, in the second round, we rechecked the cases that had been labelled “uncertain” as they were ongoing projects of which we did not know whether they would eventually result in “success” (successful transfer) or “failure” (failure to transfer) (Dougherty, 1992). We were able to reclassify 3 of the 15 projects. We also presented to the bootleggers codified measures of the main outcomes we sought to use for the analysis (degree of innovativeness of the project; types of barriers met; actions taken to overcome the different barriers).

(ii) We also gained access to and studied related project documents, presentations and business plans.

(iii) We also surveyed a sample of managers and employees to cross check a certain amount of information gathered from the bootleggers, mainly relating to the perception of the bootlegging phenomenon. Forty-five employees of different management departments participated in the
survey. We used this quantitative method to enhance the study, given the concerns of management and decision-makers about bootlegging. According to Masoudnia and Szwejczewski (2012), these underground activities are difficult to control by management, which can raise concerns (Masoudnia and Szwejczewski, 2012). The survey was handed over or sent by an online survey instrument and was answered anonymously by all the surveyed employees.

And (iv) finally, we collected data from three internal experts to which we presented descriptions of the projects, and we asked them to rate the projects along various dimensions assessing novelty. We used the second interview round with the bootleggers to double-check the experts’ assessments and found no important deviation. The three experts were chosen as follows: One expert works in the innovation strategy department and the other one works in the product management department of the organization. Both are involved as experts in the “prioritization committee” which meets once a year to rate the projects presented to the management and to indicate a priority list of projects for the coming year. A third expert was also asked to rate the projects. We chose this employee because he has a lot experience regarding bootlegging projects in the organization because he started his first bootlegging project in mid-80s. We asked the experts to tell us to which extent they estimated that each project involved, or would involve, (i) new technology, (ii) new manufacturing facilities, would address (iii) new market segments, would imply (iv) new applications, would require (v) new distribution channels or approaches (Dougherty, 1992). Among the 15 selected projects 10 were assessed as “radical”3 and 5 as “incremental”. We created a profile for each project which allowed collecting all the information concerning each case and facilitated the comparison between cases. These profiles were updated as we collected the secondary data. The process took approximately one year.

**Coding procedure**

Primary data was collected from interviews with the bootleggers involved in the 15 selected bootlegging projects. Based on our literature review and on our hypotheses regarding the research question, we created a semi-structured interview guideline to guide our data collection. All interviews were conducted face to face. They lasted between 30 and 70 minutes, and they took place in meeting rooms of the organization. Altogether, 19 interviews were conducted, as

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3 Different definition for radical innovation are known but we choose the following – “radical innovation are characterized by the development in a risky process and relying on novel or undeveloped knowledge, and operating in unfamiliar technology or business domains” (Kelley et al., 2011) and different names exist (breakthrough, game changer, discontinuous, step out, horizon 3 (O’Connor and McDermott, 2004))
for four projects we were able to interview team members as well as the initiator of the project. We started the face-to-face interviews by asking the interviewees to describe their bootlegging project. Afterwards we followed the interview guideline structure logic. During the interviews, we had the flexibility to ask follow-up and open-ended questions. The interviews were completed during a period of three months (i.e. from mid-April to mid-July 2015) and then were transcribed. The transcriptions amounted to 118 pages.

Although several studies have indicated the high reliability of retrospective interviews (e.g. Gutek, 1978; Hollingworth and Miller, 2007), self-reported data can, however, be subject to retrospective and recall biases (Podsakoff et al., 2003). We deal with this potential problem in two ways: (i) Although we coded all the interviews, we used the most recent cases to first address our research question. Among the 15 cases, 10 were started after 2010. After using this data, we looked at each of the remaining cases one by one to see whether they added different perspectives or a very different analysis. We did not find any differences. (ii) Then, we conducted a second round of interviews to see to which extent we could corroborate the data collected in the first round, time being seen as a form of triangulation (Denzin, 1978). For instance, based on our coding scheme, we built a summary table of the barriers / success factors for bootlegging projects and of the actions / strategies susceptible to help the bootlegger overcome those barriers. This table was used in the second round of interviews to help go through these topics again with the bootleggers, cross-check with information from the first round of interviews, and double check our understanding of the different cases (see Appendix 2). We did not find strong discrepancies between the data collected in the two rounds. Finally, (iii) we used secondary data to triangulate the primary data we had and to enhance the validity of our analysis.

After the transcription of the interviews was completed, we started the coding process by reading and coding the raw data line by line as well as by writing theoretical memos (Corbin and Strauss, 1990). Coding was conducted independently by the two authors. We pursued the following procedure: (i) First, each author conducted open coding of the data, making codes emerge as we read the transcribed interviews. Then codes relating to a similar theme were grouped into larger categories, composed of subcategories. (ii) Then the two coders discussed their categories (master headings and subheadings) and agreed on a set of 11 large categories or themes which were balanced in how they reflected the data (meaning that a category which would be related to too much content would have to be split into new and more balanced categories). The coders also agreed on the way in which these 11 large categories could be related to one another (axial coding). (iii) One of the authors recoded the data based on this
final set of categories in order to rearrange the data accordingly. (iv) Then the authors transferred the final categories into a table, listing the categories, explaining them, and allocating the data to each category.

AN EMERGENT FRAMEWORK OF BOOTLEGGING TRANSFER SUCCESS
Causal conditions: The starting point of bootlegging transfer
As we are particularly interested in understanding the transfer phase of a bootlegging project, our analyses focus on bootlegging projects that were either currently being transferred or had already been transferred, successfully or not, at the time of our study. However, we also delved into motivations and experiences reaching back to the beginning of each individual bootlegging project, as the historical development may have had an impact on its chance to be successfully transferred. We neither expected nor found that differences in bootlegging projects’ start and development before the decision to transfer mapped clearly onto their transfer success and findings as to the beginnings and developments of bootlegging projects were in line with prior bootlegging research and are thus reported here in more brevity.

We found that the motivation to start a bootlegging project tends to mostly fall into two categories. Firstly, bootlegging can be caused by the rejection of the project by a formal selection committee (which is in line with e.g. Abetti, 1997a, b) as mentioned by the following bootlegger:

“It was not my aim to go into the underground. In the first year, the project was a completely normal pre-development project in the prioritization process. In the second year, it was not prioritized and received no budget. There was only one way, and this was to turn it into a bootlegging project. Either the project is not processed and you let one year pass or the subject is elegantly rephrased and defined in a different way in order to implement it covertly.” (INT03)

Second, bootlegging projects can be started by the willingness to mature the project further, as exemplified in the following quote:

“...On the other hand, one of the motives for bypassing processes is because you know that you’d be asked questions that you cannot answer yet. And this is

4 Similar to reasons mentioned to protect the project from managerial interruptions and disapproval during the early stages (Abetti, 1997a,b) and to avoid having ideas killed as a result of presenting unfinished work (Koch and Leitner, 2008)
not due to one’s own inability, but rather due to the fact that one’s own resources are scarce, such as the time and the money one needs to develop the necessary maturity.” (INT08)

Beyond “rejection” and “immaturity”, we found “economizing” to be another enabling motivation. In our study, was a broadly shared consensus among our interviewees that bootlegging projects tend to cost far less than comparable official projects, independent of their degree of novelty. Economizing comes mainly from the fact that there is no procedure to follow, no administrative hurdle to suffer from, and great efficiency in how resources are used (e.g. employee costs and working hours), as exemplified in these quotes:

“In contrast to this, if you had really started it from the outset procedurally, it would have been much more expensive, simply because it would have taken much, much longer.” (INT11)

“The improvisation has its charm, this efficient and cost-effective realization. If it became official, it would not be attractive anymore. Right now, it is a challenge how to deal with the project implementation.” (INT01)

If rejection, immaturity and economizing represent key reasons to go ‘underground’, our analyses show that once these initial hurdles have been overcome, the bootlegger chooses to ‘surface’. More specifically, when the bootlegger expects to have a significant chance of acceptance within the regular budget cycle (<> rejection) with a sufficiently mature project (<> immaturity) that needs significant investments (<> economizing), he or she will choose to transfer it into the official, routine organization.

**Intervening conditions: The challenges of bootlegging transfer**

Our analyses reveal that transferring bootlegging projects from “shadow to light” is a difficult endeavor with many traps to avoid. Bootleggers encounter difficulties at all levels, including the market, the organization and department, the individual and the project when they attempt and use strategies to legalize and legitimize their project. At the market or sectoral level, the current client base may not be able to express their need for the bootlegged product or service. Also, competitors may not yet have a similar solution under development. In such cases, this lack of competitive pressure may inhibit a sense of urgency and raise skepticism as to the market value of the “surfacing” bootlegging projects, as the following bootlegger recounts:
“The project was rated by many as very positive. Also, the internal strategy received the project positively. There was a large group in the organization that was for the project, but certain employees in the strategy were against it. The reason: Because everything would need to be designed from scratch and you (the organization) would earn no money with the innovation. Because of this, the project was canceled after one year.” (INT01)

Next, at the organizational or departmental level, resistance to bootlegging project transfer can arise from perceived competition with or substitution of formally assigned roles or projects. This can occur whenever the bootlegging project addresses a problem domain which would normally be addressed by an official function or department in the organization (if it were an official project), as mentioned by one bootlegger:

“It was not my official duty to deal with this solution and it was not intended that XY managers officially launch a development project.” (INT09)

The threat of substitution of formal roles and projects can raise competition over time and budget as another bootlegger remarked:

“...no resources in the right specialized department, which is the first resistance which can be observed and there are no receptors that are in place to still record something. Second, no one is free and nobody has planned it and no budget exists. When we surface in November, the biggest challenge will be that the receptors in the specialized department would also like to implement it as an idea and not treat it like the famous cuckoo’s egg, which is kicked out of its nest.” (INT08)

Things obviously become even more difficult when the project is interdisciplinary or requires involvement of several departments, as success of the project would imply that these other departments find time and a budget as well and that no conflict over who is going to take over the bootlegging project once it becomes official. Such perception of competitive threats through outside solutions may stimulate the so-called “NIH” (not-invented here) syndrome (Katz and Allen, 1982; Antons and Piller, 2015) as emphasized by this interviewee:

"...We feel massive, not-invented-here resistance. This holds, of course, in a classical sense, for all projects which, at one time or another, offend others by having alternative solutions.” (INT06)
Finally, our analyses show that these NIH-related dynamics are exacerbated to the extent that the bootlegging project utilizes external knowledge. When bootlegging projects were built on knowledge or technology that were available or developed in-house, such projects tended to be much more easily accepted by and transferable into the routine organization. These competition-related factors turned out to be the most frequent challenges which bootleggers faced when attempting transfer.

At the individual level, our analyses revealed that the ability or, conversely, the inability to persuade others could represent a major roadblock towards transfer success. As all types of engagement and commitment toward a bootlegged project are, by nature, unofficial and demand colleagues to cooperate in an illegitimate, deviant activity, the social influence skills of the bootlegger proved to be particularly essential elements to facilitate project transfer. More specifically, bootleggers had to overcome hurdles to convince colleagues to join, influential superiors to support and potential specialized departments to deploy resources towards his or her project, as the following bootlegger explains:

“Yes, it was not directly full resistance, but you have to persuade and convince people repeatedly. And to sell the idea in a way.” (INT12)

Beyond social influence skills, we also found that bootleggers needed to have the ability to keep the project secret as long as possible – until it reached sufficient maturity to be officially communicated and integrated into the routine organization.

“So I think I got almost all the support I needed as a bootlegging project. I would say in retrospect, I got everything I needed. I always had the minimum of what I required... Much was about my own power of accomplishment to bring it to a certain level of maturity... So I can only be glad that I was under the radar for a long time and already a lot of accomplished facts has been created.” (INT06)

Not least, one of the key difficulties of bootleggers turned out to be dealing with the constant lack of proper resources and technological as well as personal setbacks. Thus, individual resilience proved to be a key intervening factor for succeeding at bootlegging project transfer:

“So, funding was a huge obstacle and from my point of view the biggest obstacle was this “flowerpot thinking.” (INT10)
Finally, at the most fine-grained level, the project level, we found two factors that could intervene and thus represent barriers to a successful transfer. Firstly, we were not surprised to find out that the level of maturity continued to play a role when transferring the project. That causal condition for going underground in the first place continued to prove critical even after further development of the project. A project with a high level of immaturity would have a difficult time to get funding:

„...but not showed to the outside and the decision-makers at the top. For certain reasons of maturity and because the issue is very complex, but now we are going to present it in November.” (INT16)

Secondly, the project’s lack of fit with the organization’s innovation strategy proved to be an important obstacle for transfer. Lack of fit makes it difficult to gain acceptance and support from various internal stakeholders because the official innovation strategy is aligned with the organizational strategy, which is approved and initiated by the board members. One interview partner noted:

“...and it is always difficult to get this budget if it comes from a particular field and it just evolved (in this case) from the XY department field...and then it is always difficult to bring sponsors and all on board. Because this does not always fit 100% into any innovation strategy.” (INT20)

**Strategies: Succeeding at bootlegging transfer**

Our transfer model (Appendix 1) derives strategies that bootleggers use to handle these intervening conditions as these intervening conditions may deter project transfer in many cases. The actions and strategies that we uncovered in our interviews can be categorized as (i) strategic networking, (ii) targeted embedding, and (ii) actionable selling.

*The role of ‘strategic networking’ for bootlegging transfer*

First, our data revealed that a critical factor in transferring the project resides in how the bootlegger is able to rely on an internal network of colleagues and hierarchical superiors. While a minority of our interviewees worked on their project alone, a majority did ask colleagues for help at specific moments when they were lacking competences or resources (i.e. hard skills like technical knowledge, market information). At the same time, the number of colleagues who
were asked to help were consciously limited in order to avoid information about the project to fan. Also, the colleagues asked to help out were often friends the bootlegger trusted strongly:

“Of course, the problem is the coordination with the specialized department. That is always difficult and it works best here, as always, if you have a good network. So get to know people in the various departments and have a better contact with them, when you have been working for 10 years with certain specialized departments, and then you know the people and then it is more likely that they will say, "Yes, I’ll take a quick look at this. That’s no problem." It is more difficult when people do not know you very well, and then it is, of course, easier for them to block you or by saying, "We have no capacity"." (INT20)

Second, we found that having a strong internal network or having the social skills to strategically connect to relevant others in the organization was important not only when developing the project and driving it to the necessary maturity level but also for transferring the project. In particular recruiting “followers” and enthusiasts and getting them to commit at critical moments can be key for a successful transfer:

“And, of course, we also wanted that it to be tested under real conditions and decided to also reach out to the potential (internal) users or to their managers. They we approached and said: "Here we have a pilot and do you want to get involved?" And they said: "Yes and super cool, and we support". And within the first few days, half of the staff, that we have ever contemplated, were logged.” (INT10)

Third, the most cited strategy to ensure successful transfer is to find support from an influential person in the organization. This could be the next supervisor, a project leader or a higher ranked manager, such as a mentor. Support by the next supervisor, and especially if there is a trustful personal relationship, can be helpful to obtain authorization to take the budget out of official projects or if resistance from other departments and colleagues are faced. The higher ranked manager can be supportive for process steps and to speed the transfer, because of his/her strategical position in the organization. These aspects were pointed out by most interviewees:

“...I believed in it, and the next supervisor thought it was great. So this is really important. In this case it was important to integrate him, because he was or is a confidant...This depends so much on the personal relationship and the next supervisor.” (INT10)
“You cannot withhold everything. It has to be open and to search for the right people, with whom you can speak. And here it is important to understand how these people “tick” in this organization and to speak with them about it. Completely openly. Even then over the hierarchies and to know; they will be standing behind us, too.” (INT11)

We thus derive:

**Proposition 1: Strategic networking (network, campaigners, promoters) is positively related to successful bootlegging project transfer.**

*The role of ‘targeted embedding’ for bootlegging transfer*

While the above strategies aim at rallying the necessary support from one’s network and influential decision-makers, we found another set of strategies which aim at embedding the project in a targeted way within the existing formal organization. More specifically, we found that finding an internal customer, integrating the specialized department (that is the department in this particular organization that we studied which will take over the project) early with the bootlegging initiative and creating an understanding among key stakeholders is paramount for transfer success.

Thus, among this set of strategies, to find a “customer” in the organization is a first critical factor. This means that transforming a bootlegging project into an official project often depends on the project being needed and adopted by another department or function in the organization. The chance of transfer appears to be maximized when the bootlegger identifies an internal client who needs the bootlegging project, as emphasized in this quote:

“This is important that there is a "customer" of a department or from the series development. If a solution is sought and the corresponding bootlegging project solves this problem or task, there is a rapid transfer success." (INT04)

Second, our data shows that successful transfer is helped when the bootlegger seeks to involve an influential colleague from the specialized department to which the project will eventually be transferred if successful. This can take the form of informal exchanges about the idea or project and go as far as involving the colleague into the development of the project. This move has, in particular, the effect of reducing the NIH syndrome from the department which will later on influence the acceptance or refusal of the project:
“It is hard to define (transfer to specialized department) because the colleague I did this with was in the department XY (specialized department). It is very good if your fellow worker is there, where it has to go and has to be transferred.” (INT11)

“So the transfer in a possible series (production) is always a bit difficult and needs a lot of time. But beforehand we aligned with the specialized department and the other colleagues in the exchange.” (INT20)

Thus we derive:

**Proposition 2: Targeted embedding (internal customer, early integration of concerned department) is positively related to successful bootlegging project transfer.**

The role of ‘actionable selling’ for bootlegging transfer

Meanwhile, the presentation of a prototype or a minimal variable prototype (MVP) is an important fact to create visual awareness by physical materials, which combine the idea of the product or service, and bootleggers used this strategy to convince other organizational members. The visualization of the idea was helpful, to estimate the possible value and development status of the project. Therefore, the presentation of prototypes as an information carrier for the project, was important to convince other organizational members:

“*In general, an approach which we or at least I like to follow is that it is really difficult on the “green meadow” without an example to make a decision, if this is a great idea resp. the million-dollar cash cow. Indeed, you have to have the courage to start with the first prototype...If it is functional, afterwards with user studies and this was the target before a decision is made. We started and developed it in order to receive feedback; “if it is functional or it doesn’t work. Of course, this is also a strategy to bypass certain resistance”. “*” (INT21)

“And there we organized an event with the additional product (to have the product tested)...And once with the additional product and once without it. And then the people said: “Unbelievable, unbelievable. We have to have this”. So the
experience of certain topics is always really important, to get the final acceleration and essentially to thrill the decision-makers.“ (INT13)

**Proposition 3: Actionable selling (prototypes) is positively related to successful bootlegging project transfer.**

**DISCUSSION**

**Summary**

Our findings suggest that the failure or success in the transfer of a bootlegging project towards being officially supported and implemented is a rather complex phenomenon affected by a number of interplaying factors. If the actions and strategies undertaken by bootleggers to succeed in having their project successfully transferred seem critical, the effect of these actions and strategies seems to be affected by a number of favorable or unfavorable intervening conditions as well as by context elements. Thus, new idea / project implementation may be largely a “socio-political” process, but a number of elements seem to condition the efficiency of that process. First, the organizational context in which the employee who decides to bootleg finds him or herself has important consequences on the ability of this employee to gather resources (time and money in a first step) to pursue his / her project. For instance, employees working in an R&D division seem to have more flexibility in rearranging their working time and using their budget than employees working in other departments. Also, the culture of the department may affect the way employees are monitored and thus their degrees of liberty as well as the way new ideas are welcomed. Second, even if the bootlegger has great social and political skills, interviews mention, among other elements, the necessity to “find an internal customer”, meaning another department that will be interested in adopting the new product, service, or technology or in taking over. The strategic fit of the project is thus an element that tends to strengthen (if it is good) or reduce (if it is not good) the effect of the actions taken by the bootlegger to convince others.

In addition, our findings provide a useful typology of the types of actions and strategies that bootleggers may use to develop their project, convince others of its value, and seek acceptance by the hierarchy. In particular, we identified three types of strategies: strategic networking, targeted embedding, and actionable selling. Through these actions bootleggers are able to strategize the success and implementation of their project.
Contributions

Our findings make several contributions to the literature. First, we contribute to the nascent literature on bootlegging. While the literature has tended to focus on the determinants of bootlegging at the individual level, our study adds to the literature by contributing to understanding what affects the “success” or “failure” (that is the successful or unsuccessful transfer) of a bootlegging project. This is a particularly important aspect of bootlegging since success or failure have important consequences both for the bootlegger and for the organization. For the bootlegger it may affect his / her intrinsic motivation at work, either increasing it if the project is successfully transferred or reducing it otherwise. For the organization, it may affect its innovativeness as bootlegging projects are in part rather radical projects, resulting from out-of-the-box thinking.

Second, our findings have also several implications for the management of innovation within organizations. First, interestingly, our interviewees emphasize the advantages of being underground when developing an innovation. Being hidden and shielded allows the employee to experiment without fearing failure and without being controlled and watched. They can thus manage the tensions and risks of innovation in a more relaxed way. This may be an advantage over other arrangements like an official free time to develop personal projects. Second, our findings suggest that bootleggers tend to follow rather similar and efficient “new product development” process: they do rapid prototyping to be able, in a further step, to show colleagues what they have done and to convince others of the value of their idea. This rapid prototyping is usually cheap and allows a thorough understanding and evaluation of the idea, product, or process that they want to push by others. Moreover, bootleggers typically need to convince others and / or to “find customers” in their organization before they disclose their project to their hierarchy or to the official project selection committee. Overall, these steps and moves seem to define a rather efficient new product development model, the “bootlegging model”, yet one that requires internal innovators to have some freedom to pursue their ideas.

Third, our findings have implications for the literature on social capital and more specifically on the role of social capital within organizations and in work contexts. Social capital eases resource mobilization and issue selling within organizations (e.g. Dutton and Ashford, 1993). Our empirical evidence adds to that literature by focusing on what affects the success or failure of issue selling by innovating employees seeking to implement their novel ideas. Our findings
suggest a rather complex framework where individuals have agency but the effect of that agency 
depends in part upon intervening conditions (reinforcing or devaluing that effect) and the 
organizational context.

Finally, our findings have implications for the literature on intrapreneurship or corporate 
entrepreneurship. Bootleggers can, in fact, be considered as intrapreneurs as they need to 
mobilize resources they may not have in order to conduct a project that, at the moment when it 
is pursued, would not be officially pursued by the organization. In addition, pursuing a 
bootlegging project shares many similarities with pursuing an entrepreneurial opportunity. Yet, 
while the literature on corporate entrepreneurship and intrapreneurship typically espouses the 
perspective of the organization (see Corbett et al., 2013, for a review), which needs to renew 
itsel continuously or to be more innovative, bootlegging supposes a more decentralized and 
shop floor perspective where intrapreneurship is instigated by employees on their own rather 
than a managerial approach designed by top management, for instance through corporate 
venturing. This bottom up perspective adds to the definition of intrapreneurship as it implies 
that an organization could be considered to have an entrepreneurial orientation if a sufficient 
cnumber of employees were found to take entrepreneurial postures such as bootlegging. An 
interesting question then arises of how top management can manage such decentralized 
initiatives. In our interviews, it has recurrently been mentioned that in the organization that we 
studied bootlegging was more difficult nowadays than it used to be because today employees 
tend to be more tightly monitored and budgets are decreasing. Some interviewees mentioned 
that in the past some “slack” budget was usual in which bootleggers could draw to develop their 
underground projects. This suggests that organizations which want to be more entrepreneurial 
should also pay attention to the fact that organizational design, such as strict monitoring and 
lack of slack (time and budget), may have counterproductive effects through discouraging 
decentralized entrepreneurial initiatives. The bootlegging perspective on intrapreneurship also 
suggests that it might be very interesting to compare the success factors of “internal micro 
ventures” like bootlegging projects with that of external ventures like startups.
Limitations and Future Research

A first limitation of our work is that we studied bootlegging projects in a single organization. Comparing with data from other organizations would allow us to analyze whether our findings are generalizable. Another limitation of our study is to provide information on the factors that affect the transfer of bootlegging projects towards official implementation, but without controlling for the factors that affect the implementation of “official” projects and ideas. In other words, what factors affect the implementation of the ideas and projects submitted to the official selection committee and that have not been underground prior to submission? Do these factors and the way they interplay differ from those affecting the implementation of bootlegging projects?

In fact, this limitation constitutes a first avenue for future research. Collecting data on the factors affecting the implementation of “official” projects versus bootlegging projects would allow to better understand the extent to which the implementation of bootlegging projects is specific and, in particular, implies specific actions and strategies from the bootleggers. In this respect, it would be interesting to tie these differences to the particularities of bootlegging projects, such as for instance the fact that they are more mature when the bootlegger seeks implementation (as compared to an official project) and that the bootlegger tends to be more strongly emotionally attached to his / her project (than to his / her official projects). Other differences may exist that future research should seek to uncover. In addition, in case factors affecting transfer of official versus bootlegging projects were different, it would be interesting to study whether bootleggers tend to adopt the same behaviors when seeking implementation of their official versus bootlegging projects. This would allow one to discover whether differences in the factors affecting implementation of the two types of projects result from individual level differences or project differences.

Future research could also study the extent to which the outcomes of the actual implementation of bootlegging projects differ from that of official projects and, in particular, if success on the market tends to differ for the two types of projects. It would then be interesting to study whether differential success, if proved, results from the nature of the projects themselves – for instance bootlegging projects may be more in tune with market needs- or if it results from the selection process and implementation of the different types of projects – different biases may exist in the way the two types of projects are selected and chosen for implementation.

Then, future research should investigate more precisely how the bootlegging projects are conducted, what events tend to trigger specific actions or strategies by the bootleggers, and how
this process conduct affects transfer. Our results have shown that specific actions and strategies are important for successful transfer, but we know too little about which and when each type of actions and strategies is more efficient. In particular, as a series of intervening conditions affect the impact of the actions and strategies adopted by bootleggers it would be highly informative to know which action or strategy helps most to overcome different types of obstacles and difficulties. This would allow one to identify a promising pattern of actions conducive to a higher chance of success in transfer.

Also, future research could deepen our understanding of how bootleggers use their internal social networks to advance their project. Some interviewees insisted on the trust relationship they had with their fellow teammates, but if trust is important when working secretly on a project, expertise is likely to be an important resource, too. Therefore it would be valuable to study how bootleggers choose their partners at the different stages of the project and how the type of internal network held by an employee affects his/her odds of seeing his/her project successfully transferred. In addition, it would be interesting to disentangle the role of a bootlegger’s social network – which draws an existing set of connections - and the role of his/her social skills – which could allow them to make new connections. In fact, social skills may be more important than one’s social network at the time of bootlegging.

Finally, future research could investigate the origins of the novel ideas pursued by bootleggers in order to test whether the creativity process eventually affects implementation. For instance, von Hippel (1988) pointed out that innovations could be user innovations that are novelty driven by the needs of users unable to find adequate products in the market. Other research has suggested that user innovators were played a role within organizations (Herstatt et al., 2016). Some of the innovations in our sample were clearly user innovations, that is, ideas that occurred to the employee while being frustrated by a user situation. In other cases, the innovations developed through bootlegging were not user innovations. The literature has suggested that user innovations tended to have higher commercial value than other types of innovations (Herstatt and von Hippel, 1992). It would thus be interesting to see (i) whether bootlegging projects are more likely to be user innovations than other projects – as user innovators may have a higher intrinsic motivation to pursue their novel ideas - and (ii) whether being a user innovation increases the odds of being transferred successfully and to be a commercial success. More generally, it would also be interesting to study how the innovations pursued in bootlegging projects are conceived of and how this may differ from how official
projects are conceived. This would allow one to tie the strong motivation to pursue a novel idea through bootlegging to the way the novel idea has emerged.

**CONCLUSION**

As mentioned by Grace Hopper, a developer of the first compiler for a computer programming language and U.S. Naval officer: “If it's a good idea, go ahead and do it. It is much easier to apologize than it is to get permission.” Nascent research on bootlegging has described the phenomenon as well as started exploring its antecedents either at the organizational or individual levels. In this study, we aimed at enhancing our understanding of these activities pursued in the “shadow of the formal organization”, by conducting an extensive one-year study regarding intervening conditions and success factors affecting the intra-organizational transfer of bootlegging projects. We contribute to different strands of literature and in particular to the emergent literature that points out the importance of understanding how novel ideas are developed and selectively implemented within organizations.

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5 Built to Learn : The inside story of how Rockwell Collins became a true learning organization (2003) by Cliff Purington, Chris Butler, and Sarah Fister Gale: 171
REFERENCES


Emergent bootlegging project transfer model

Context:
- Department context (difference in org slack (time, budget), e.g. pre-dev)

Causal conditions:
- Choice to transfer
- Forced to transfer (impossibility to keep secret)

Phenomenon:
Transfer from bootlegging to official, legitimate project (pre-dev or series)

Strategies:
1. Strategic networking
   - Use limited, trusted internal network across departments
   - Get commitment from fellow campaigners
   - Gain hierarchical support (power promotor)
2. Targeted embedding
   - Find an internal “customer”
   - Integrate the spec. department early in the project ⇒ reduce NIH
   - Create awareness among key stakeholders and decision-makers
3. Actionable selling
   - Show prototypes (create “facts”)

Transfer success:
(Acceptance as pre-development project or as regular project in specialized department)

Intervening conditions (project level):
- Maturity of project
- Strategic fit of project

Intervening conditions ( indiv-level):
- Social skills: Ability to convince (e.g. colleagues to join, superiors to support, “internal customers” to buy, etc.)
- Ability to keep secret
- Resilience (e.g. due to identification with the project)

Intervening conditions (org/dep-level):
- Competition with current legitimate projects (stronger when interdiscipl.)
  - alternative (technical?) solution, ➔ replacement of others’ roles, ➔ devaluation of others’ competences, ➔ internal resistance envy “NIH”
- Technology and knowledge used (internal vs external)

Intervening conditions (market-level):
- External competitive pressure (competitor has launched similar product)
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