This paper was presented at The ISPIM Innovation Conference – Celebrating Innovation: 500 Years Since daVinci, Florence, Italy on 16-19 June 2019. The publication is available to ISPIM members at www.ispim.org.

# Motivation as Determinant of Bootlegging Innovation

Alexander Krueger*

EBS Universität für Wirtschaft und Recht
Gustav-Stresemann-Ring 3, 65189 Wiesbaden, Germany
E-mail: alexander.krueger@ebs.edu

Arne Buchwald

EBS Universität für Wirtschaft und Recht
Gustav-Stresemann-Ring 3, 65189 Wiesbaden, Germany
E-mail: arne.buchwald@ebs.edu
* Corresponding author

**Abstract:** One key source of innovation is the individual employee, who can develop innovations either with or without the official authorization by management – the latter phenomenon is called bootlegging. Previous research focused mostly on structural determinants while little is known about individual determinants of bootlegging behavior. We relate two research streams that address deviance and motivation to develop a conceptual model that explains bootlegging behavior in the workplace. Based on the assumption that an innovating agent can simultaneously engage in compliant and in deviant innovative behavior (i.e. bootlegging), we conceptualize these distinctly different types of behavior as two dependent variables and derive intrinsic and extrinsic motivational sources as independent variables. Our conceptual model contributes to existing literature on individual-level determinants of bootlegging and offers a basis to further study workplace innovation.

**Keywords:** Bootlegging, Innovative work behavior, Creativity, Motivation, Deviance, Innovation

## 1 Introduction

Successful innovations ultimately benefit organizations as a whole. However, the driving factor behind innovations is the individual employee (Krueger Jr, 2000). Individually driven innovation can occur in two distinctly different ways: Within the structural boundaries created for this purpose (Aram, 1973), and outside of them (Burgelman, 1983, Kanter, 2000). Thus, innovators inevitably find themselves at a crossroad, where they chose either the official or the in-official innovation route.

The first conduct takes place within managerially designated structures. In such a setting, space for innovation is opened up through a top-down decision by the management and subsequently implemented by the individual employee (Wheelwright and Clark, 1992) as a form of innovative work behavior (Cooper, 1990). Innovative work behavior is defined as “all individual actions directed at the generation, introduction and

or application of beneficial novelty at any organizational level" (Kleysen and Street, 2001, p. 285), compliant to the structures and processes of the individual organization.

In contrast, the non-compliant variation of an innovation process is the development and pursuit of ideas without managerial consent (Burgelman, 1983, Kanter, 2000). This mostly uncharted phenomenon, termed as "bootlegging" (Knight, 1967), is defined as "an R&D activity in which motivated individuals secretly engage in bottom-up, nonprogrammed innovation efforts not officially authorized by management but which are for the benefit of the company" (Criscuolo et al., 2014, p. 1290).

Previous scientific literature on bootlegging has mostly focused on structural factors to explain why individual innovation endeavors were taken 'underground' and secretly realized (Abetti, 1997, Augsdorfer, 2005). Recent research, however, starts to also acknowledge determinants of bootlegging on the individual-level (Globocnik and Salomo, 2015). This comprises studies on the relationship of bootlegging and creativity (Augsdorfer, 2012), intrapreneurial self-efficacy (Globocnik and Salomo, 2015), psychological empowerment (Buchwald et al., 2015) and risk propensity (Globocnik, 2018). While several scholars link creative output (i.e. innovation) to motivation (Amabile, 1997, Amabile and Pratt, 2016, Globocnik, 2018), the effect of motivational factors on the decision which innovation road to take, the official or the unofficial one, has not yet been investigated. Accordingly, our research question is:

*Which motivational factors determine the behavior of compliant or non-compliant individual innovation?*

We systematically address this question by introducing individual-level determinants to the bootlegging literature. To close the existing research gap, we derive propositions and develop a conceptual model as a basis for future empirical work.

The paper is structured as follows: Section 2 provides a brief sketch of previous literature on innovation management and bootlegging; Section 3 introduces the concepts of motivation and deviance from a theoretical perspective; Section 4 includes the development of our propositions on the theoretical accounts, and Section 5 concludes our paper, acknowledges limitations, and provides suggestions for future research.

## 2 Literature Review

### *Innovation in Organizations*

There is an ample body of literature on innovation in organizations (Anderson et al., 2014). One important determinant of organizational innovation are the creative actions of individual employees (Krueger Jr, 2000). They are a significant basis for continuous innovation and improvement in companies (Amabile, 1988, De Jong and Den Hartog, 2010). Based on this premise, companies try to leverage individual power by designing official structures that encourage and allow innovative initiatives (Janssen and Huang, 2008). But structured innovation processes also tend to hinder problem solving (Amabile, 1997, Augsdorfer, 2008) since a certain degree of disorder, improvisation and self-control are indispensable elements for successful innovation processes (Amabile and Pratt, 2016). This dynamic is at odds with official innovation structures, also referred to as front-end formality, with which companies try to ensure that coincidences are minimized

and creativity is channeled in an efficiency-oriented manner (Aram, 1973, Globocnik and Salomo, 2015).

### *Bootlegging – Non-Compliant Innovation*

Bootleggers innovate outside of official structures, and do so often in secret (Aram, 1973). Nevertheless, this behavior rarely remains hidden from other team members and – in some cases – they are even drawn in as active contributors (Abetti, 1997). The element of secrecy thus refers primarily to the interaction between the innovator and the upper management level (Augsdorfer, 2005), while direct supervisors may even know about the bootleg-attempts of their subordinates. Bootleggers don't strive for management-approval (Augsdorfer, 2008), but are aware that their side projects must be treated as secondary to official projects in order to deflect unwanted attention, which would put the implementation of the bootlegging activity at risk and might jeopardize the job (Masoudnia and Szwejczewski, 2012). The limited previous research on bootlegging focused largely on structural and organizational factors that determine bootlegging behavior, such as bureaucratic barriers (Abetti, 1997), lack of autonomy, or formal processes and management practices (Masoudnia and Szwejczewski, 2012). In most studies, bootlegging efforts are framed as productive processes that lead to positive effects, such as improvements, new products, successful troubleshooting or learning (Augsdorfer, 2005, Masoudnia and Szwejczewski, 2012) or a higher innovation output (Criscuolo et al., 2014). However, adverse effects of bootlegging have also been researched and documented. They include resource diversion, time consumption, disobedience, spill-over effects to the broader team (Abetti, 1997, Augsdorfer, 2005, Masoudnia and Szwejczewski, 2012) and negative influence on an individual's ability to innovate in a formal setting (Criscuolo et al., 2014).

## 3 Theoretical Foundation

### *Deviant Behavior*

A well-established theoretical approach frames bootlegging as a form of positive deviance, which some authors also refer to as creative deviance (Buchwald et al., 2015, Criscuolo et al., 2014, Globocnik and Salomo, 2015, Mainemelis, 2010). It is triggered by a self-initiated and proactive creative process (Mainemelis, 2010, Masoudnia and Szwejczewski, 2012, Unsworth, 2001) and inevitably violates current organizational norms (Criscuolo et al., 2014, Globocnik and Salomo, 2015). Bootleggers thus disregard formal work requirements in favor of following their creative impulses. However, their guiding principle remains the objective to achieve positive goals for the company (Augsdorfer, 2005, Spreitzer and Sonenshein, 2004) and to actively solve problems following their innate creative drive (Unsworth, 2001). Innovation through bootlegging is evaluated based on the benefits for the organization and not based on the means by which these benefits were achieved (Mainemelis, 2010).

### *Motivation*

The second theoretical component of our study refers to motivation. The degree to which a company motivates its employees to develop new ideas is the most important prerequisite for creative output (Amabile et al., 1996) and, thus, for organizational innovation (Amabile, 1988). The higher the levels of motivation are, the higher is the creative performance of employees (Amabile and Pratt, 2016). Conceptually, motivation can be divided into extrinsic and intrinsic factors (Amabile, 1993, Deci, 1976): On one hand, intrinsic motivation is positively linked to creative performance (Amabile, 1993). Individuals with a high level of intrinsic motivation put more effort and dedication in tasks and thus are likely to use multiple approaches to find solutions. They tend to go beyond their comfort zone in conducting tasks (Amabile, 1990). On the other hand, extrinsic motivation is negatively linked to creative performance as it neutralizes the effects of intrinsic motivation (Amabile et al., 1996, Deci and Ryan, 1985).

Initial empirical evidence seems to suggest that internal motivational factors, such as respect, positive recognition, or personal satisfaction play a more decisive role for the innovating agent than external incentives such as, for example, financial benefits (Unsworth, 2001). Previous research proposed an integrative meta-theory of work motivation that further differentiates external and internal sources of motivation (Leonard et al., 1999). Subsequent studies implicitly proposed single motivational determinants that can be assigned to our framework of internal as well as external motivational sources to bootlegging behavior (Augsdorfer, 2008, Augsdorfer, 2012, Criscuolo et al., 2014, Globocnik and Salomo, 2015).

## 4 Conceptual Development

We develop the propositions to explain bootlegging behavior as behavioral outcome of motivational factors based on the research on employee motivation (Leonard et al., 1999). The unit of analysis is the individual employee. In order to gain a better understanding of the different factors in innovative behavior we contrast compliant innovative behavior with its non-compliant counterpart, bootlegging, in a dual-factor approach. At first glance, the two dependent variables seem to be the reverse of the other. However, in our conceptual model, the internal and external motivational sources could possibly influence the dependent variables in a different, non-contrary way. For the independent variables we draw on the salient model of Leonard et al. (1999) that contains five sources of work motivation, three extrinsic sources (goal internalization, self-concept external and instrumental motivation) and two intrinsic sources (intrinsic process and self-concept internal motivation). This particular framework is suitable for our study because it focusses explicitly on workplace motivation.

### *Goal Internalization Motivation*

Goal internalization motivates individuals to “accept group goals because the attainment of such goals is important to the individual” (Leonard et al., 1999, p. 991). It refers to the compatibility of an employee's individual value system with the company's general value system (Barbuto Jr et al., 2004, Ryan, 2011). While individual values overlap with overarching goals, it is not important whether the individual fully agrees with the

company's mission (Barbuto and Story, 2011). A high degree of goal internalization motivation facilitates an effective formulation and accordingly more consequent realization (Ryan, 2011) in accordance (i.e. compliant) with the objectives of the company (Riketta and Van Dick, 2005). On the other hand, an orientation towards non-official standards could cause conflicts with those goals and, therefore, drive non-compliant behavior. Yet, we propose:

*P1a: A higher level of goal internalization motivation leads to a higher level of compliant innovative behavior.*

*P1b: A higher level of goal internalization motivation leads to a lower level of bootlegging.*

### *Self-Concept External Motivation*

Self-concept external motivation refers to individuals with "a high, weak, ordinal self-concept" (Leonard et al., 1999, p. 989), which translates to a highly external determined orientation. These individuals base their self-awareness and motivation on perceptions by others (Barbuto and Scholl, 1998, Yang and Lai, 2011). Employees motivated this way aim for positive feedback, recognition, external confirmation and finally status in this regime. Consequently, the resulting behavior depends on the expectations of the reference group or a higher authority (Barbuto and Story, 2011, Ryan, 2011). On one side, external expectations are a natural part of an employment relationship which work towards a role-conform accomplishment of a certain task. On the other side, however, bootleg research also refers to recognition and admiration of colleagues as strong motives for hiding the results until such a mature state is reached that ensures the successful revelation of the secret project (Augsdorfer, 2008). We therefore propose:

*P2a: A higher level of self-concept external motivation leads to a lower level of compliant innovative behavior.*

*P2b: A higher level of self-concept external motivation leads to a higher level of bootlegging.*

### *Instrumental Motivation*

Instrumental motivation relates to the mechanism that "attainment of group goals leads to a greater level of extrinsic rewards" (Leonard et al., 1999, p. 989). In this case, employees associate their behavior with the particular motivation-linked outcomes. These include, for example, bonuses, promotions or salary increases. These instruments transform the relationship towards a direct transaction (Barbuto and Scholl, 1998, Ryan, 2011). Employees who are influenced by instrumental motives will strive for an optimal balance between input and output (Barbuto Jr et al., 2004). It is therefore important to link the compensation system with the company's objectives to ensure that employees act accordingly (Globocnik and Salomo, 2015). When it comes to creative performance, rewards increase the commitment and performance pressure of employees and can, therefore, lead to a departure from routines and well-functioning norms (Eisenberger and Aselage, 2009). At the same time, it is established that external motivational instruments – if used improperly – block creativity (Amabile, 1990, Augsdorfer, 2008), the nucleus of any innovative output. In this case, the overall innovation output decreases independently

of its realization path. Nevertheless, also a relatively higher level of bootlegging activity seems reasonable. Given the effects of external motivational instruments, a prolonged protection of the idea allows for a higher probability of success and therefore favors un-official innovation behavior:

*P3a: A higher level of instrumental motivation leads to a lower level of compliant innovative behavior.*

*P3b: A higher level of instrumental motivation leads to a higher level of bootlegging.*

### *Self-Concept Internal Motivation*

Self-concept internal motivation is present when "an individual has a high, weak, fixed self-concept" (Leonard et al., 1999, p. 990). This source of motivation comes from inside the innovative individual and is commonly known as the classic intrinsic motivation that is based on satisfaction derived from the achievement of goals or tasks (Barbuto Jr et al., 2004). Driven by this specific motivation, the individual optimizes his internal standards, values and competencies and thus his ideal self through his distinct behavior, whereas external factors such as recognition or rewards fail to trigger the desired outcome (Barbuto and Scholl, 1998, Leonard et al., 1999, Ryan, 2011, Yang and Lai, 2011). Employees pursue their goals by proving to themselves that they are equipped to meet the specific challenge. In bootleg literature this is recognized as driving force for innovative behavior (Augsdorfer, 2012). Since success is their predominant objective, we argue that those individuals, if necessary, disappear into hidden activity to protect their ideas. On the contrary, more convenient and safer perceived conditions let individuals openly strive for achievement. This leads to the following proposition:

*P4a: A higher level of self-concept internal motivation leads to a higher level of compliant innovative behavior.*

*P4b: A higher level of self-concept internal motivation leads to a higher level of bootlegging.*

### *Intrinsic Process Motivation*

Intrinsic process motivation will lead individuals to "only engage in activities which they consider fun" (Leonard et al., 1999, p. 989). Pure, inherent, pleasure in the task itself (process), not the result of the task (achievement), is the central motive (Barbuto and Scholl, 1998, Ryan, 2011). This translates to immediate gratification (Barbuto Jr et al., 2004), which is likely to result in more innovative action and, thus, creative output. The process focus distinguishes this variable from the classical understanding of intrinsic motivation (Barbuto and Scholl, 1998, Barbuto Jr et al., 2004, Deci, 1976, Hackman and Oldham, 1976). Hence, a possible link to bootlegging is implied by the fact that the work itself is experienced as exciting (Augsdorfer, 2012). Employees motivated in this way will not let themselves be held back from any external constraints and bootleg to further enjoy their activity.

*P5a: A higher level of intrinsic process motivation leads to a higher level of compliant innovative behavior.*

*P5b: A higher level of intrinsic process motivation leads to a higher level of bootlegging.*

Finally, we synthesize our propositions in the conceptual model below (Figure 1):

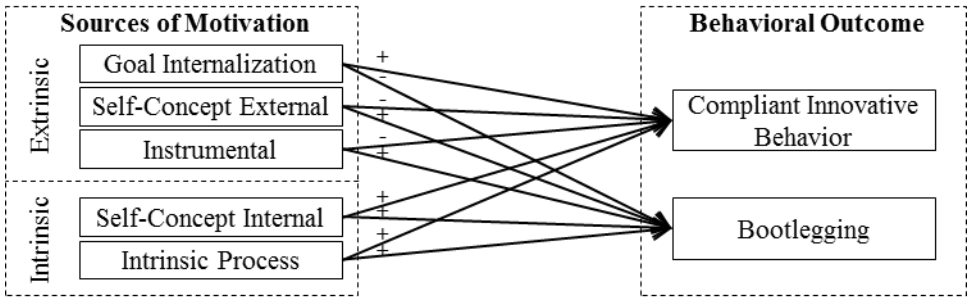


**Figure 1** Conceptual Model of Compliant Innovative Behavior and Bootlegging

## 5 Conclusion

In this paper, we aimed at developing a conceptual model to explain the decision of an individual innovator, to bootleg instead of using official innovation channels. While previous research had mostly focused on structural factors (Abetti, 1997, Augsdorfer, 2005) our research brings the individual level into focus. We synthesize different streams of literature on motivation, deviance, and innovation to explain bootlegging behavior with a particular focus on motivational factors. Our conceptual model contributes to the recently emerging discourse of individual-level determinants of bootlegging literature.

From a practical perspective, this research provides managers with a more thorough understanding of the phenomenon of bootlegging and its individual-level determinants. As a result, organizations will be in a better position to maximize their internal innovation resources, which will make them more competitive on the global marketplace.

We acknowledge the following limitations: First, while we developed the model on theoretical accounts, the validation of it remains for future work. Second, the explanatory power of our model in a later full paper could be further increased by integrating additional moderating variables between independent and dependent variables, such as willingness to take risk (Amabile, 1988, Deci and Ryan, 1985) or the need for cognition (Wu et al., 2014).

## References and Notes

Abetti, P. 1997. The birth and growth of Toshiba's laptop and notebook computers: A case study in Japanese corporate venturing. *Journal of Business Venturing,* 12**,** 507-529.

Amabile, T. 1988. A model of creativity and innovation in organizations. *Research in organizational behavior,* 10**,** 123-167.

Amabile, T. 1990. Within you, without you: The social psychology of creativity, and beyond.

Amabile, T. 1993. Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace. *Human Resource Management Review,* 3**,** 185.

Amabile, T. 1997. Motivating Creativity in Organizations: On Doing what You Love and Loving what You Do. *California Management Review,* 40**,** 39-58.

Amabile, T., Conti, R., Coon, H., Lazenby, J. & Herron, M. 1996. Assessing the work environment for creativity. *Academy of management journal,* 39**,** 1154-1184.

Amabile, T. & Pratt, M. 2016. The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning. *Research in Organizational Behavior,* 36**,** 157-183.

Anderson, N., Potočnik, K. & Zhou, J. 2014. Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of management,* 40**,** 1297-1333.

Aram, J. D. 1973. Innovation via the R&D underground. *Research Management,* 16**,** 24-26.

Augsdorfer, P. 2005. Bootlegging and Path Dependency. *Research Policy,* 34**,** 1-11.

Augsdorfer, P. 2008. Managing the unmanageable. *Research-Technology Management,* 51**,** 41-47.

Augsdorfer, P. 2012. A Diagnostic Personality Test to Identify Likely Corporate Bootleg Researchers. *International Journal of Innovation Management,* 16**,** 1250003-1-1250003-18.

Barbuto, J. & Scholl, R. 1998. Motivation sources inventory: Development and validation of new scales to measure an integrative taxonomy of motivation. *Psychological Reports,* 82**,** 1011-1022.

Barbuto, J. & Story, J. 2011. Work motivation and organizational citizenship behaviors. *Journal of Leadership Studies,* 5**,** 23-34.

Barbuto Jr, J. E., Trout, S. K. & Brown, L. L. 2004. Identifying sources of motivation of adult rural workers. *Faculty Publications: Agricultural Leadership, Education & Communication Department***,** 5.

Buchwald, A., Urbach, N. & Mähring, M. 2015. Understanding Employee Engagement in Un-Official Projects–A Conceptual Model Based on Psychological Empowerment and Constructive Deviance.

Burgelman, R. A. 1983. A process model of internal corporate venturing in the diversified major firm. *Administrative science quarterly***,** 223-244.

Cooper, R. G. 1990. Stage-gate systems: a new tool for managing new products. *Business horizons,* 33**,** 44-54.

Criscuolo, P., Salter, A. & Ter Wal, A. 2014. Going Underground: Bootlegging and Individual Innovative Performance. *Organization Science,* 25**,** 1287-1305.

De Jong, J. P. & Den Hartog, D. N. 2010. Measuring innovative work behaviour. *Creativity and innovation management,* 19**,** 23-36.

Deci, E. 1976. Notes on the theory and metatheory of intrinsic motivation. *Organizational behavior and human performance,* 15**,** 130-145.
Deci, E. & Ryan, R. 1985. The general causality orientations scale: Self-determination in personality. *Journal of research in personality,* 19**,** 109-134.
Eisenberger, R. & Aselage, J. 2009. Incremental effects of reward on experienced performance pressure: Positive outcomes for intrinsic interest and creativity. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior,* 30**,** 95-117.
Globocnik, D. 2018. Taking or Avoiding Risk through Secret Innovation Activities—The Relationship among Employees' Risk Propensity, Bootlegging, and Management Support. *International Journal of Innovation Management***,** 1950022.
Globocnik, D. & Salomo, S. 2015. Do Formal Management Practices Impact the Emergence of Bootlegging Behavior? *Journal of Product Innovation Management,* 32**,** 505-521.
Hackman, J. & Oldham, G. 1976. Motivation through the design of work: Test of a theory. *Organizational behavior and human performance,* 16**,** 250-279.
Janssen, O. & Huang, X. 2008. Us and me: Team identification and individual differentiation as complementary drivers of team members' citizenship and creative behaviors. *Journal of Management,* 34**,** 69-88.
Kanter, R. M. 2000. "When a Thousand Flowers Bloom: Structural, Collective, and Social Conditions for Innovation in Organizations." In Research in Organizational Behavior. Vol. 22, edited by B. Staw and R. Sutton. Elsevier Science, 2000.
Kleysen, R. F. & Street, C. T. 2001. Toward a multi-dimensional measure of individual innovative behavior. *Journal of intellectual Capital,* 2**,** 284-296.
Knight, K. E. 1967. A descriptive model of the intra-firm innovation process. *The journal of business,* 40**,** 478-496.
Krueger Jr, N. F. 2000. The cognitive infrastructure of opportunity emergence. *Entrepreneurship Theory and Practice,* 24**,** 5-5.
Leonard, N. H., Beauvais, L. L. & Scholl, R. W. 1999. Work motivation: The incorporation of self-concept-based processes. *Human relations,* 52**,** 969-998.
Mainemelis, C. 2010. Stealing fire: Creative deviance in the evolution of new ideas. *Academy of Management Review,* 35**,** 558-578.
Masoudnia, Y. & Szwejczewski, M. 2012. Bootlegging in the R&D Departments of High-Technology Firms. *Research-Technology Management,* 55**,** 35-42.
Riketta, M. & Van Dick, R. 2005. Foci of attachment in organizations: A meta-analytic comparison of the strength and correlates of workgroup versus organizational identification and commitment. *Journal of Vocational Behavior,* 67**,** 490-510.
Ryan, J. 2011. Development of a measure of work motivation for a meta-theory of motivation. *Psychological reports,* 108**,** 743-755.
Spreitzer, G. & Sonenshein, S. 2004. Toward the construct definition of positive deviance. *American behavioral scientist,* 47**,** 828-847.
Unsworth, K. 2001. Unpacking Creativity. *Academy of Management Review,* 26**,** 289-297.
Wheelwright, S. C. & Clark, K. B. 1992. *Revolutionizing product development: quantum leaps in speed, efficiency, and quality*, Simon and Schuster.
Wu, C.-H., Parker, S. K. & De Jong, J. P. 2014. Need for cognition as an antecedent of individual innovation behavior. *Journal of Management,* 40**,** 1511-1534.
Yang, H.-L. & Lai, C.-Y. 2011. Understanding knowledge-sharing behaviour in Wikipedia. *Behaviour & Information Technology,* 30**,** 131-142.