

# HOW NEW GOALS EVOLVE OUT OF EFFECTUAL ENTREPRENEURSHIP- PSYCHOLOGICAL UNDERPINNINGS OF LEVERAGE CONTINGENCY

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## ABSTRACT

Leverage contingency is one of the control strategies of effectuation theory that deals with entrepreneurs' flexible response to unexpected events. Effectual entrepreneurs are able to change their goals over time through the innovative application of new contingencies. Although recent research concentrates on effectual response(s) towards new contingencies, we need to apply established psychology theories to clarify leverage contingency as a control-based strategy. This study shows that personal control, which is a well-developed theory in psychology and deals with human responses to aversive events, is suitable to elaborate effectual response to unexpected events. Drawing in a multiple case study of seven technology firms, we conclude that the need for personal control motivates entrepreneurs to change their goals in the face of new contingencies.

## INTRODUCTION

Effectuation theory proposes that in environments characterized by high uncertainty, entrepreneurs do not take action based on predetermined goals (Sarasvathy, 2001). Instead, they start with available means; then, goals emerge over time through innovative applications of new contingencies (Read et al., 2009). Entrepreneurs' ability to leverage new contingencies and their flexible response to unexpected events is a major concern for effectuation theory.

Some recent researches concentrate on unexpected contingencies and effectual response towards them. For instance, Engel et al. (2017) propose networking activities as the antecedents of new contingencies. Harmeling (2011) study contingency as a resource of opportunity, and Harmeling and Sarasvathy (2013) addressed effectual response towards contingencies, distinguishing it from other possible responses, including avoidance and adaptation. However, effectuation as a theory is still a subject of criticism. In particular, regarding the sub-construct of leverage contingency, the main challenge is to explain the contingency exploitation process (Arend et al., 2015). To make such a theoretical contribution and address the underlying dynamics of an immature theory, we could benefit from theories of other fields of study (Whetten, 1989). Applying established psychology theories would help us clarify effectuation as a control-based explanation of entrepreneurial action (Read et al., 2016).

This paper aims to benefit from an established psychology theory to address the psychological underpinnings of leverage contingency (Read et al., 2016). Our study draws upon personal control, which is a well-developed theory in psychology and deals with human responses to aversive events (Corah & Boffa, 1970). Personal control is the degree to which an individual feels he has the autonomy and impact on events related to him (Spector, 1986; Greenberger et al., 1989; Rotter, 1966; Lefcourt, 1976). In the organizational psychology literature, quitting the job and

pursuing an entrepreneurial career path have been mentioned as one of the employees' responses to the sense of inadequate personal control (Greenberger et al., 1991). In our research, we consider personal control theory to address the psychological underpinnings of an effectual stance against unexpected events. Specifically, we use empirical evidence to answer these questions: why do entrepreneurs have a flexible stance on contingency? How do goals evolve out of new contingencies in the entrepreneurial process?

## **THEORETICAL BACKGROUND**

Leverage contingency is one of the control strategies of effectuation theory that deals with entrepreneurs' flexible response to unexpected events (Sarasvathy, 2001; Chandler et al., 2011). Unexpected events are those unpredicted events that there is a lack of knowledge about their cause (Manis & Meltzer, 1994) or ignored because of decision-makers' bounded rationality (Simon, 1959). According to effectuation, entrepreneurs mostly take action with a general goal in their mind. But they are flexible in how to achieve them (Mauer et al., 2017). Effectual entrepreneurs are able to change their goals over time through the innovative application of new contingencies (Read et al., 2009).

Unforeseen events may have unexpected effects on the entrepreneurship process. These effects could be positive and emerge as an opportunity or could be negative and appear as a problem (Wiltbank et al., 2006). These events are more likely to happen in an uncertain environment and simultaneously be a resource for new uncertainties. Therefore, entrepreneurs' response towards contingencies has been considered in effectuation as a decision-making theory under uncertainty.

Some recent researches study contingency as a resource of opportunity (Harmling, 2011). They addressed effectual response towards contingencies, distinguishing it from other possible responses, including avoidance and adaptation (Harmling, 2011; Harmling & Sarasvathy, 2013). They confirm that effectual entrepreneurs leverage contingencies across new goals instead of avoiding or adapting to them (Reymen et al., 2015). In other words, they learn to convert both positive and negative contingencies into new goals (Dew et al., 2009). More recently, research proposed networking activities as the antecedents of contingencies (Engel et al., 2017).

Personal Control is introduced in psychology literature in the 1970s, but personal control theory attracted researchers' attention in the field of organizational psychology in the 1980s. According to the literature, two types of individual control can be identified: perceived control and desired control. Perceived control is the extent to which decision-makers perceive themselves to possess the control, and desired control is the extent to which they wish to have control (Greenberger et al., 1988). Individuals possess a perception of control at any given point in time. When they feel their control is not adequate, they react in a way so to increase it to the desired level (Greenberger et al., 1991).

Organizational psychology literature conceptualized personal control in two dimensions: autonomy and impact. Autonomy is defined as the degree to which an individual feels he is determinant to events related to his (Lefcourt, 1976). It reflects an individual's sense of choosing to initiate, continue, and regulate actions (Spreitzer, 1995). The impact is the amount of influence that he places on his work's outputs and that these outcomes are not independent of his behavior. In other words, the impact is opposite to learned helplessness (Spreitzer, 1995). The research studies show that when the individual's authority and influence are high, the level of individual control is also high (Brockner et al., 2004; Tangirala & Ramanujam, 2008).

Several studies have investigated the relationship between personal control and dealing with unpleasant events in the psychology literature. These studies show that having a limited level of personal control reduces the stress associated with the occurrence of aversive events (Averill,

1973; Ganster et al., 2001). The uncertainty of an event's occurrence is related to its aversiveness (Burger & Arkin, 1980). Therefore, individuals often utilize rational and planned approaches to control, but it does not always work because sometimes, good or bad events may occur accidentally (Lao, 1970). Therefore, the need for control is one of the motivational aspects that can affect an individual's rational decision-making (Ajzen, 1996).

## **METHODS**

Our research employed multiple case design to use replication logic (Eisenhardt, 1989; Yin, 2009) to elaborate effectuation theory. Theory elaboration (Lee et al., 1999) is often used to extend existing theory, investigating unaddressed theoretical links in the literature (Girbert, 2005). We have begun to gather in-depth data since 2012 through interviews, on-site visits, and archival documents. Effectuation as a theoretical lens fits this research setting for two reasons. First, nanotechnology as an emerging and developing technology is inherently a significant source of uncertainty as well as undeveloped formal institutions (e.g., intellectual property rights, standards, and well-defined laws) (Puffer et al., 2009). Second, the setting has limited resources (e.g., materials and laboratory equipment) for developing nanotechnology, and due to the sanctions, there are lots of restrictions on accessing international suppliers. In our analysis, we adopt an event-driven research model (Poole et al., 2000) to take account of temporal dynamics (Mitchell and James, 2001) and follow analytical strategies suggested by process researchers (Langley, 1999; 2013; Van de Ven, 2007).

Data analysis is performed in two steps: within-case (historical) and between-cases (comparative) (Gerring, 2007). In our within-case level analysis, we adopt an event-driven research model (Poole et al., 2000) to take account of temporal dynamics and follow the analytical strategies suggested by process researchers (Langley, 1999; 2013; Van de Ven, 2007). We identified important events and arranged them in chronological order. Events fall into two main categories of environment events and response events. We define environment events as those unpredicted events due to a lack of knowledge about their cause (Manis & Meltzer, 1994) or ignored because of entrepreneurs' bounded rationality (Simon, 1959).

Unexpected events include environmental events, meetings, or information that the entrepreneur faces unexpectedly and without searching. This unexpected event involves information that potentially has a positive or negative impact on the business. The interviewees often used words like "accidentally," "unexpectedly," "to our astonishment," "surprisingly," and "shockingly" in expressing unexpected events. That is, the unexpected events were those that they could not guess at all, or they might have thought it in a completely different way. Response event includes the entrepreneur's response to unexpected environmental events identified in two external goal and internal mechanisms of personal control. As stated by Locke and Latham (1990), we define the goal as "something we consciously want to attain, yet the thing we want to attain is usually something exogenous." In between-case analysis, we applied a mixed strategy (i.e., simultaneous consideration of the case and the events) (Miles et al., 2014) to provide an explanation based on literature and theoretical replication logic (Yin, 2008).

## **FINDINGS**

### **The Change in Entrepreneur's Perception of Negative Events Over Time**

The findings of this study indicate that entrepreneur's perception of negative events changes over time. In the early development stages of the new venture creation that there is no clear and specific

goal; he perceives an event as unexpected that he had not predicted. Specifically, negative events that happened in the early years are described considering available means. In other words, a negative event is one that makes one or more available resources futile. Also, the intensity of a negative event is described by the amount of its impact on the resources in the entrepreneur's hand. A strong negative event is the one that has a significant impact on what he has, what he knows, and whom he knows. In contrast, a weak negative event is the one that has a small effect on the entrepreneur's available means.

Naser describes an unexpected event that he encountered in 2008 as follows:

*"I have known Reza for years. We were classmates when I was studying for my master's degree. I knew he could help me do this project. When I accidentally noticed he could not work with me, I felt helpless in this situation, and I can do nothing because I did not know what the product should be because I was counting on Reza. Therefore, I had to think about it and do something so that I can keep him beside me."*

While goals emerge over time, the perception of negative events would change. An event is considered to be negative that has occurred contrary to the predictions and may have a negative effect on the firm's goals. In this context, the attributes of unexpected events are defined considering the goals. The entrepreneur perceives an event as negative because it reduces the goals' feasibility or desirability. In other words, a negative event is the one that reduces the possibility of achieving a specific goal or the amount of its value for the entrepreneur.

Naser describes the unexpected event that he encountered in 2010 as follows:

*"The machine's subsystem suddenly conked, and we did not know why this happened. Since it was an expensive part, it was almost impossible for us to buy a new one. So it seemed that the development of this technology is no longer possible for us. While we were getting new information to solve this problem, we realized a newer technology that could be created without this subsystem. This led us to target this newer technology, and we began to develop it. The important thing was that since this newer technology was less tricky, we could easily get the investors' attention."*

### **Negative Unexpected Events and Perceived Personal Control**

We examine how negative contingencies persuade entrepreneurs to create new goals. The data analysis confirms that unexpected negative events are associated with a decrease in an entrepreneur's perceived personal control. When a negative event occurs, the entrepreneur perceives that he has insufficient control over business-related behaviors, and meaningful outcomes occur independently of his actions. Specifically, negative events create new contingencies that reduce the entrepreneur's sense of having discretion over his resources or goals. Also, the entrepreneur feels like his influence over the outcomes of entrepreneurial behavior has diminished. Hence, he makes new decisions and creates new goals by combining available resources to restore the lost sense of control. Farid describes his thoughts as follows:

*"When we could manage to build the first machine, we decided to enter the market of industrial machines and sell them to companies. We were doing fine with our early customers regarding the initial interactions, but they stopped buying for some unspecific reasons. In that situation, we could not do anything about industrial machines, and we had to stop. Therefore, we began to manufacture laboratory machines, the ones that we still manufacture today on a routine basis, and we even have exported them, too."*

The lack of sense of control was observed to have a huge effect on goal change, a situation that can be summarized in the following proposition:

Proposition 1: The lack of sense of personal control that originates from the decrease in perceived control motivates entrepreneurs to change the goal in the face of unexpected negative events.

### **Positive Unexpected Events and Desired Personal Control**

Our observations indicate that an unexpected event's positivity is interpreted based on the impact of that event on the entrepreneur's available resources. In other words, an unexpected positive event is an event that enables the entrepreneur to create a new set of resources' combinations that were not previously possible. Therefore, this new and positive information generated by the unexpected event increases the desired personal control. Increasing the desired control means that the new contingency provides the decision-maker with the sense that he can be more determinant in his own affairs and resources. Also, he feels like he would be able to influence the outcomes of business activities more than ever. Under such circumstances, he is prompted to make decisions that enhance perceived control. Specifically, he forms new goals by creating new combinations of resources that are under his control. In that way, he increases the sense of perceived control and tightens the gap between perceived and desired control. Saeed describes his thoughts as follows:

*"It was during this period that another strange thing happened. I accidentally encountered Nader, an old friend and a classmate of mine at the Faculty of Pharmacy, and this encounter became a starting point for doing a joint project. I planned a new project to benefit his job experiences and social ties."*

In fact, the sense of an increase in desired control was observed to significantly affect entrepreneurs' response to creating new goals. This situation can be summarized in the following proposition:

Proposition 2: The sense of lack of personal control that stems from an increase in desired control motivates entrepreneurs to create a new goal in the face of unexpected positive events.

## **DISCUSSION AND IMPLICATIONS**

In the literature on effectuation theory, leverage contingency is a control strategy in response to unexpected events (Read et al., 2016). In this study, we investigated personal control's role to elaborate entrepreneurs' flexible stance toward new contingencies. Personal control was conceptualized along two dimensions: perceived and desired control (Greenberger et al., 1988). The results demonstrate that entrepreneurs' reaction to contingent events is driven by the motivational need for decreasing the gap between two kinds of control. Negative and positive contingencies widen the gap between desired and perceived control, respectively, by reducing perceived control and increasing desired control. Accordingly, the decision-maker forms new goals through an innovative combination of available resources to enhance or restore his sense of control. In other words, decision-makers' need to have effective personal control that motivates them to leverage contingency and create new goals.

Our findings are in line with research findings in favor of personal control in organizational behavior. As it is shown by Greenberger et al. (1988), the difference between desired control and perceived control would be one of the important factors in creating job dissatisfaction. Therefore, quitting the job and pursuing an entrepreneurial career path is one of the employees' responses in the face of lack of control (Greenberger et al., 1991). In other words, engagement in an entrepreneurial activity reduces the gap between desired and perceived control and leads to a sense of effective personal control.

Overall, this study attempts to unpack the mechanism of a mean-oriented response to new contingencies in an entrepreneurial process. We showed that the sense of lack of control acts as a catalyst for the goal change. Our results provide evidence that perceived control is a powerful

motive influencing the entrepreneurs' response to unexpected events. Our findings indicate significant theoretical implications, as it applies an established theory of organizational studies. Our research will make a value-added contribution to effectuation, studying the underlying psychological dynamics of leverage contingency. These findings could open new paths for further research on personal control's contribution in explaining effectuation as a whole. Considering personal control in the effectuation is significant for two fundamental reasons. First, it is frequently mentioned in the literature that an effectual entrepreneur is flexible in dealing with unexpected events (Wiltbank et al., 2006; Chandler et al., 2011). Our findings show that personal control can explain the psychological foundations and motives of this flexibility. Second, as mentioned in the literature, all other effectuation principles are the control strategies (Read et al., 2016). Hence, personal control may help us to explain other principles too.

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