

# **Comparison of innovation, effectuation and firm performance of SMEs in Switzerland and the USA.\***

*Andreas Ziltener*

## **Summary**

This paper compares SMEs in Switzerland and the USA using the structural model of Roach et al. (2014), which investigates aspects of effectuation as mediators between innovation orientation, product/service innovation and firm performance. This is accomplished using samples of 190 Swiss-based and 169 US-based SMEs. Subjective measures of performance are used as the dependent variable.

## **Background**

Small and medium-sized enterprises (SMEs) employ 67.7 percent of the workforce in Switzerland and make a significant contribution to the success of the Swiss economy. In the past 15 years, innovation has declined considerably compared to other European countries and the USA (EIS, 2019; Arvanitis & Hollenstein, 2005; Arvanitis et al., 2011). Since resources are naturally limited in SMEs, they must be used wisely for entrepreneurial purposes. The Effectuation Theory of Sarasvathy (2001) offers a suitable framework for investigating this resource-oriented view, since this theory describes a decision logic in which the approach is not goal-oriented but rather means-oriented. Ever since then, scholars have sought to test effectuation's affect on performance. As a result, the search for the influence of causation versus effectuation on firm performance has been lacking in the literature. Empirical investigation into this area has been hampered by (a) the suitable explication of effectuation as a construct, (b) adequate scale development and (c) its relationship to innovation.

## **Prior Work**

Roach et al. (2014) have developed a framework on innovation, effectuation and firm performance. It proposes scales suitable to the explication of the effectuation construct relative to innovation. Second it proposes a more parsimonious scale for the measurement of firm level innovation. Third, these scales are tested relative to firm performance using a sample US-based SMEs.

Galkina and Chetty (2015) used case studies of seven Finnish companies to examine the extent to which effectiveness has an impact on the networking of internationalising SMEs.

Nummela et al. (2014) investigated three SMEs (born globals) from three different countries (Finland, Ireland and Israel) and their decision-making logic. They found that when they have to react quickly or at short notice, the means-oriented approach is more likely to be

chosen. When more time is available, a causal-reasoning approach is more likely to be chosen.

Coviello and Joseph (2012) examined six small and young technology companies that have produced significant innovations. They found that those that followed the effectuation logic were more successful than those that followed the traditional way.

Roach and Ryman (2016) found in their study on the relationship between innovation, efficiency and performance in SMEs that the effectuation approach has an impact on innovation performance. They also found that a collaborative and iterative approach has a positive impact on both entrepreneurial and innovative performance. Lastly, they argued that the affordable loss approach has an impact on business performance.

## **Objectives**

According to a report by the Swiss State Secretariat for Education, Research and Innovation (SBFI, 2016), SMEs that invest in innovation generate higher turnover than those that do not. The aim of this paper is to find out under which circumstances SMEs in Switzerland innovate. Therefore, specific hypotheses are used to find out whether companies tend to invest in innovation with a focus on the potential return on investment or with a focus on the affordable loss. As these company sizes tend to have fewer resources, the question arises as to what risk they are prepared to take in order to innovate. Since not every investment pays off, a certain degree of risk taking is necessary. Yet, it is also possible to establish a correlation between which companies invest in innovation, which do not, and their willingness to take risks.

At last, the empirical results of Swiss SMEs will be compared with the results of the survey of US-based firms (Roach et al. 2014).

## **Approach and Methodology**

6,000 Swiss SMEs were invited to participate in an online survey. In conclusion, it was possible to work with 190 usable answers. For the data collection, a questionnaire with 34 questions was created and divided into seven clusters. The seven clusters were named as follows:

1. Affordable Loss (effectuation)
2. Innovation Orientation (innovative capability)
3. Product/Service Innovation (absorptive capacities)
4. Leverage Contingency: Experimentation (effectuation)
5. Means (who am I, what do I know, effectuation)
6. Partnerships: pre-commitment (whom I know, effectuation)
7. Performance

The innovative ability of the companies was evaluated using the measurement scales of the following authors:

- Calantone et al. (2002)
- Hurley and Hult (1998)
- Paladino (2007)

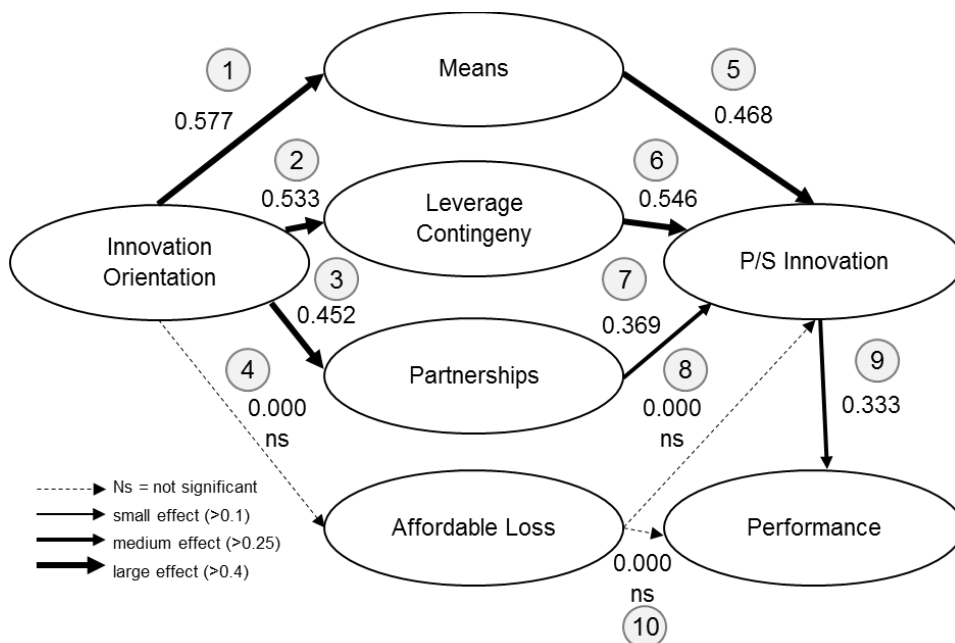
In order to evaluate the use of effectuation, the measurement scales of the following authors were applied:

- Chandler et al. (2011)
- Brettel et al. (2012)

The various influences were tested using a linear regression analysis. To test the coefficients, a single factor analysis of variance (ANOVA) was performed. With seven clusters (n=7) the Cronbach's alpha is 0.69, which according to Steiner (2003) means a good data reliability. In order to evaluate the strength of the effect (f), the classification of Cohen (1988) is used, which is as follows:

- f = 0.10, small effect
- f = 0.25, medium effect
- f = 0.40, large effect

## Results



As can be observed Means and Leverage Contingency and Partnership partially mediates the Innovation Orientation – Product/Service Innovation relationship. On the other hand Affordable Loss do not mediate this relationship. Product/Service Innovation has a middle relationship with firm Performance, but not Affordable Loss.

Thus, Means, Leverage Contingency and Partnership mediate the Innovation Orientation – Product/Service Innovation relationship, thus support H1, H2, H3, H5, H6, H7. Innovation Orientation has no relation with Affordable Loss, and this has no direct relation with Product/Service Innovation or firm Performance, thus no support is shown for H4, H8, H10.

Lastly, Product/Service Innovation as expected has a positive and significant relationship with firm Performance, confirming H9.

### **Comparison of the results between Switzerland and the USA**

H3: While in Switzerland the Innovation Orientation of SMEs has a strong effect on the Partnership (pre-commitment), this influence is not considered significant in the USA.

H5, H6: For Swiss SMEs, reliance on partners has a strong effect on Product/Service Innovation. In the USA, on the other hand, this effect is classified as medium. The same effect strengths can be observed for the influence of the willingness to experiment (Leverage Contingency) on Product/Service Innovation.

H7: Partnership has a medium effect on Product/Service Innovation for SMEs in Switzerland, whereas in the case of US-based SMEs, the effect is found to be insignificant.

H10: In Switzerland, the Affordable Loss has a non-significant effect on business performance among SMEs, whereas in the US the effect is considered to be moderate.

### **Implications**

This research establishes an empirical relationship between effectuation, innovation and firm performance, by comparing an innovation centric effectuation model in Swiss and US SMEs. Practical implications include establishing a relationship between given means, leverage contingencies and innovation performance, indicating that the ways through which SMEs use their innovation networks may affect innovation outcomes and ultimately performance.

The different results of the comparison can be attributed to the different cultures, as described by Schreier et al (2019). For example, the differences with regard to the pre-commitment could be attributed to the fact that the Swiss tend to rely more on contracts for cultural reasons. Swiss SMEs are embedded in a very secure and stable financial and social system. There is also a certain social ostracism when entrepreneurs in Switzerland fail. This security awareness presumably also influences the handling of affordable loss. Only as much capital is risked as the company can cope with. This is where Swiss SMEs differ fundamentally from those in the USA.

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