

***INTERNATIONAL BUSINESS SUCCESS OF SMALL AND MEDIUM SIZED
FINTECHS IN THE CONTEXT OF INDUSTRY 4.0 AND DIGITALIZATION - A
THEORETICAL MODEL AND EXPERTISE BASED EVIDENCE***

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ABSTRACT

Increasing globalization and digitalization have changed the economic environment for companies. Awareness of market chances abroad and a rising competitive constraints stimulates the interest of enterprises becoming international. But especially small and medium sized enterprises unlike large scaled enterprises lack the internal resources needed therefore. Often the adaptation to new business processes due to the digitalization lag behind. To have a successful internationalization process the framework conditions for the corporations, regarding to different aspects like available recourse and the degree of digitalization seems to be crucial. Small and medium sized enterprises from the FinTech branch looks on the surface fully adapted to the digital processes and with this, best conditioned for an international market entry. But have a look in detail, beside the origin digital products and services they offer, the internal processes often lack due to the requirements digitalization needs. The purpose of this research is to figure out if the degree of digitalization of internal administrative processes has an impact on the business success and the internationalization degree. The research model thereby considers three aspects: business success, business internationalization and digitalization of internal administrative processes. The empirical part consists of a theoretical model and expertise-based evidence through expert interviews to proof the model. It is expected that a high degree of digitalization of internal administrative business processes have a significant positive impact on the success of an internationalization scope of an enterprise.

INTRODUCTION

According to the German Mechanical Engineering Industry Association the internationalization is the biggest growth driver for the German economy (VDMA 2016). The awareness for the importance for small and medium sized enterprises to internationalize forced through increasing globalization and changing economic environment e.g. through digitalization is omnipresent (Faix et al. 2013). Therefore, entering foreign markets for small and medium sized enterprises is as important as for large scaled enterprises. Even though there are some exceptional examples of small and medium sized enterprises which have successfully adapted to these changes, often small and medium sized enterprises lack the internal resources needed for the entry into and development of foreign markets. The degree of small and medium sized enterprises acting in foreign markets is significant smaller than the number of internationalized large scaled enterprises (Schumpeter 1997). Reasons therefore could be, that small and medium sized enterprises have different specifically structural and internal problems related to their size which distinguished them from large scaled enterprises and which requires other market entry modes and market entry strategies than these ones the literature keep on hand for large scaled enterprises (Adenäuer 2009). But the chances new markets give, the rising competitive constraints caused though international acting companies in the domestic market as well as the need to follow industrial customers to foreign market, stimulates the interest of small and medium sized enterprises becoming international (Faix et al. 2006). To have a successful internationalization process the framework conditions of the corporation, regarding to different aspects like the availability of recourse, internal administrative processes or the degree of business digitalization are crucial (Berman 2012).

In combination with the digitalization the term “Industry 4.0” increasingly appears. Regarding Berger there is a strong need to reaction because of the so-called “fourth industrial revolution” and with this the adaption to the needs of “Industry 4.0” (Berger 2014). Henning and Johannes define it as “a new level of value chain organization and management across the lifecycle of products (Kagermann et al. 2013).

Small and medium sized enterprises from the FinTech branch looks on the surface fully adapted to the digital processes and the requirements the forth industrial revolution comes with and with this also best conditioned for an international market entry. Per definition, the term “FinTech” itself is a portmanteau of the term "financial technology". What it covers are technology-driven financial innovations that bring forth new financial instruments, services or intermediaries (Deutsche Bundesbank 2018).

The purpose of this research is, to figure out the impact of digitalization on the success of business internationalization relating to German small and medium sized FinTechs. The research question was developed because when having a look in detail, beside the origin digital product and service FinTech companies offer, it seems that the internal processes often lack due to the requirements digitalization needs. This contradiction could result from a deficit of knowledge and low awareness of the chances and new business opportunities offered by digitalize business and internal administrative processes, which then leads to a poor ability to change and react to economical digitalization change (German Federal Ministry of Economic Affairs and Energy 2015). To proof the hypotheses a second data analyses was done, afterwards experts from different relevant fields were asked to give an estimation to the developed research model. In this survey the variables business success, degree of digitalization and degree of internationalization were asked.

THEORETICAL MODEL

Research Question

Ex post of an empirical data analyzes in the mode of a quantitative survey among all German FinTechs in 2018 has shown that there is no statistical correlation between the degree of internationalization of a company and the degree of digitalization of the internal administrative business processes of that company. The purpose of this research now is to figure out for the future, if the degree of digitalization of internal administrative

processes has an impact on the success of business internationalization for companies. It is expected that in future highly digitalized enterprises will have an significant positive advantages when it comes to the question of going international than fewer digitalized companies.

The current literature focused predominantly on large scale enterprises. This might result from the bigger interest in them because of a presumed bigger national economic impact. The existing theories in the field of internationalization as well as market entry strategies and different market entry modes are developed to the needs of large scaled enterprises. But there is obviously a structural difference between small and medium sized enterprises and large-scale enterprises and with this the existing strategies are not helpful for the managerial decision of and how to enter foreign markets as a small and medium sized company. Till today the digitalization effects on the success of internationalization plans of businesses are not content of existing researches. This might result from the fact that the tools which could be used within a company to become a digital office are very new on the market and effects on the business are rarely analysed in special in the field of small and medium sized businesses. Beside this there are few more aspects which demonstrate the novelty of this research. Summarized it could describe as the following:

- The model about the assumed future impact of managerial digitalization on the success of business internationalization was newly created. Specifically, a novel focus on the new business models of FinTech companies was done.
- Internationalization theories, market entry strategies and market entry modes were analyzed against the background of the needs of small and medium sized companies.
- The first time the impact of digitalization of internal administrative processes within a company on the business success has been proofed.

After the conceptual framework of the existing theories in the field of internationalization, market entry and digitalization and the definition of the term FinTech as well as Industry 4.0 were created, the research question could be built. Regarding to the findings of the current research state to business internationalization in context with the presented theories internationalization of businesses is a success factor and with this the internationalization of businesses is important for competitiveness for the enterprises in general. This work leads to the finding, that digitalization is also a success factor for enterprises and with this important for a long-lasting success of the companies. Till now, there is no definition by law about the term “FinTech”(Deutsche Bundesbank, 2018) The German Bundesbank define it as a technology-enabled financial innovation and with this it is a segment of the financial system. The term itself is a portmanteau of the term "financial technology". What it covers are technology-driven financial innovations that bring forth new financial instruments, services or intermediaries (Deutsche Bundesbank, 2017). In combination with the digitalization change and the digitalization of firms, in the media and literature the term “Industry 4.0” increasingly appears. The phenomenon of Industry 4.0 was first mentioned in 2011 in Germany as a proposal for the development of a new concept of German economic policy based on high-tech strategies and found more and more its way through Europe. (Berger, 2017) According to current literature, there is a strong need to reaction because of the so-called “fourth industrial revolution” and with this the adaption to the needs of “Industry 4.0” (Roblek, Meško, Krapež, 2016).Regarding to the authors Zezulka et al. there are three factors which sum up this term (Zezulka, et al., 2016):

- Digitization and integration of any simple technical-economical relation to complex technical-economical networks
- Digitization of products and serviceoffers
- New market models

With focus of small and medium sized enterprises the literature shows a gap in theories and strategies for internationalization in regards to the special needs of these enterprises. Even though these enterprises, compared to large scale enterprises, are also very important for the economy. So, the preliminary research question could be formulated as:

Would a high degree of digitalization benefit small and medium sized enterprises by internationalize their businesses successfully?

Hypothesis Development

To investigate the cause and effect and interpret the results of the research to valid the theory, it requires a hypothesis. The author of this approach uses the theoretical generalizability of a hypothesis by generalizing the findings in the context of the extant theorizing. So that the reader can make inferences about extrapolating the findings to other settings (Polit und Beck 2010). The null hypothesis in this approach is:

H₀ = The higher the degree of business digitalization of internal administrative processes, the higher the degree of international business success of a small and medium sized Fintechs.

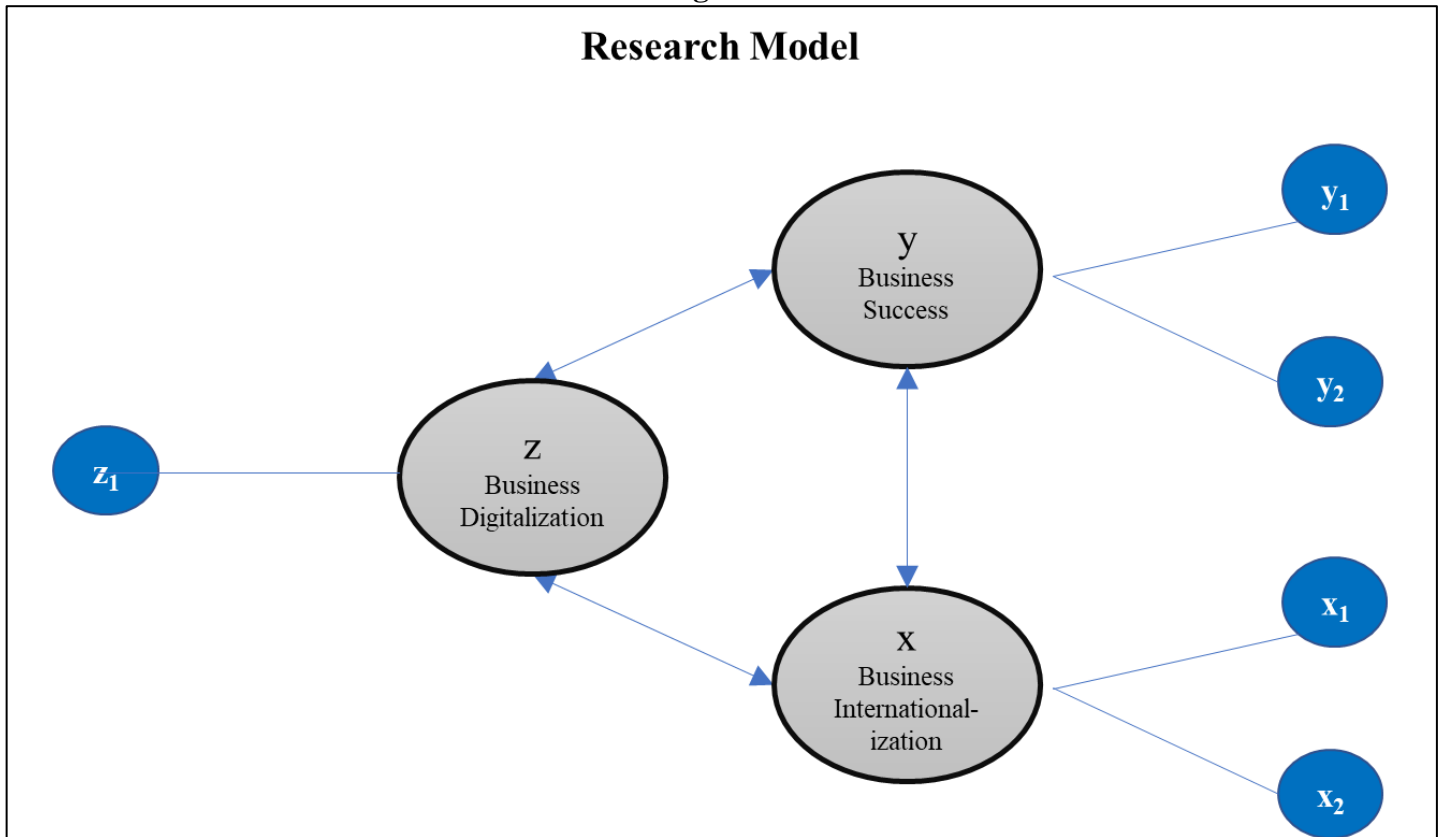
Derived from the null hypothesis the following hypotheses could be formulated:

- H₁ = A high degree of Business Success has an impact on the Business Digitalization
- H₂ = A high degree of Business Success has an impact on the Internationalization
- H₃ = A high degree of Internationalization has an impact on the Business Digitalization
- H₄ = A high degree of Internationalization has an impact on the Business Success
- H₅ = A high degree of Business Digitalization has an impact on the Business Success
- H₆ = A high degree of Business Digitalization has an impact on the Internationalization

Compared to the findings from the quantitative survey before H₁ and H₂ as well as H₅ and H₆ could be confirmed. H₃ and H₄ were not confirmed. These results show that today digitalization as no significant impact of business success in foreign market regarding to small and medium sized German FinTechs (Teltz, 2018).

Model Development

Figure 1



Research Model

Source: Authors Creation

The research model shows the dependences between the variables:

- (x) = The international business market entry
- (y) = The business success in general
- (z) = The business digitalization of internal administrative processes

These three aspects build the independent and dependent variables and could be seen as the basis for the indicator variables, which will be explained later. The model should give an overview about the proof concept if a high degree of digitalization benefits small and medium sized enterprises like FinTechs by internationalize their businesses successfully.

EXPERTISE BASED EVIDENCE

Methodology

The methodological literature suggests the use of qualitative research by case studies for theory development; whereas quantitative research is used for theory testing (Eisenhardt und Graebner 2007). Therefore, in a first step the theoretical model will be proofed by expertise-based evidence with the tool of expert interview which are undertaken by an online survey. For the interviews, people who have a wide knowledge the relevant areas were asked about their estimations to different fields among the research question of this work. The interview was created in a web based online platform called umfrageonline.de and the questions were written in German as well as in English language. In the period from 3th January 2019 to 3th February 2019 the interview partners had the time to fill in the online questionnaire.

Defined as an expert are persons who have a wide know how in at least one of the following fields:

- Digitalization
- Finance
- FinTechs
- Internationalization
- Small and Medium Sized Enterprises
- Academical Work

These persons could be CEOs of companies in the relevant areas like Finance, FinTechs or Taxation with focus of small and medium sized enterprises as well as academical interview partners like professors of business faculties with focus on the research interested fields for example in digitalization or internationalization.

The following table shows an overview about the distribution of the fields of research interest of the experts. In some cases experts were categorized in more than one research field (for example a professor of economic faculty with research focus on digitalization were categorized in “Academical Work” and “Digitalization”). The author of this work knows all of the interview partner in person and met most them directly before or after the online interview. The few who were not direct met were contacted via e-mail, per telephone or LinkedIn. The number of experts were 20 and all of them answered the questionnaire. The questionnaire got eight questions; all closed questions build on a Likert Scale. The questionnaire could be found in the attachment.

Table 1

Number of Experts in the relevant Fields of Research Interest	
Field of Expert Knowledge	Number of Experts
Digitalization	12
FinTechs	7
Small and Medium Sized Enterprises	6

Academical Work	3
Finance	9
Internationalization	3

Number of Experts in the relevant Fields of Research Interest
Source: Authors Creation

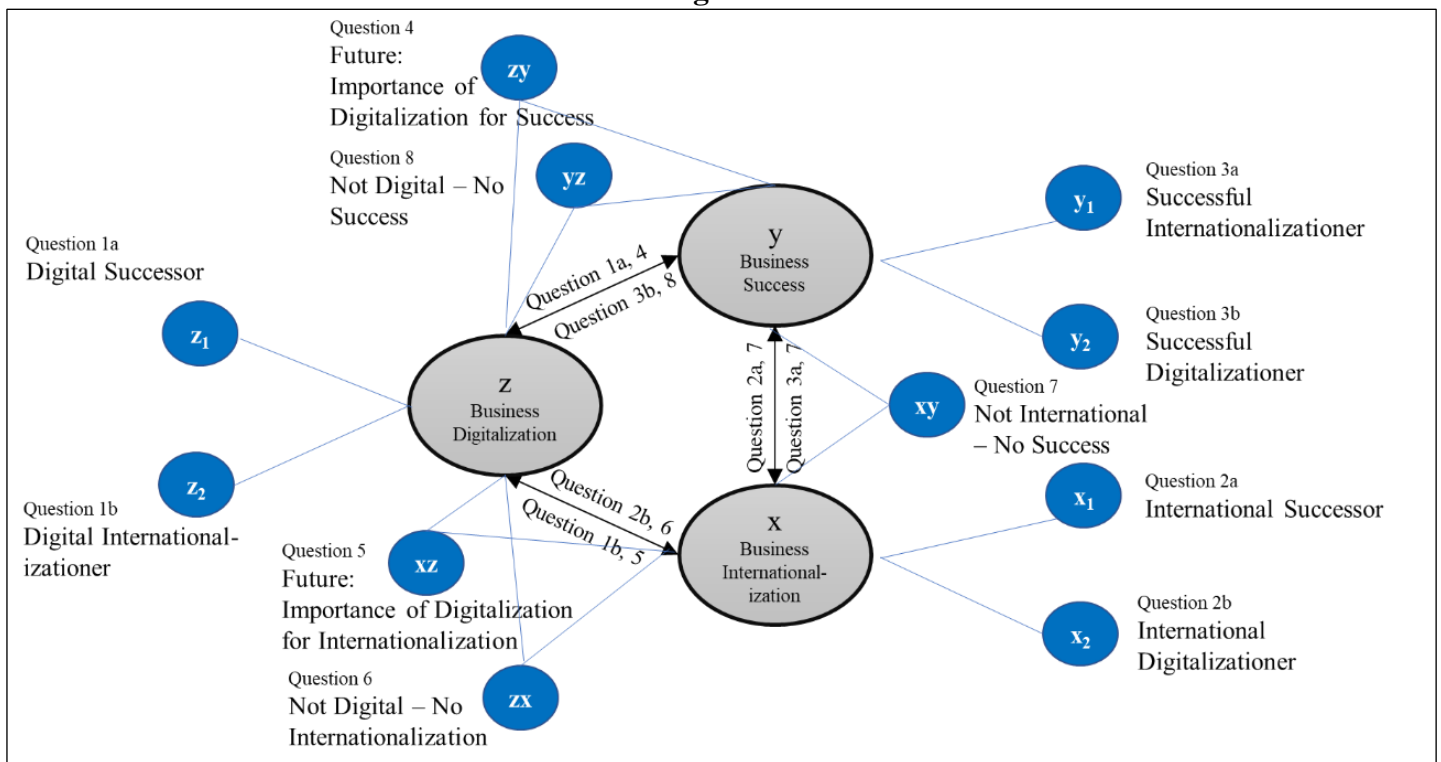
Declaration of the Variables

The dependent variables regarding the main hypotheses are the degree of internationalization of the small and medium sized FinTech business and got the declaration “x” and the other dependent variable is the business success of these companies, this variable was named with “y”. The independent variable is the degree of internal administrative digital processes and declared with “z”. There were indicator variables behind every variable defined as well as thereof deduced variables that combined the indicator variables. All of them could be found in an overview in the annex as well as in the research model for the expert interviews in the following.

Complemented Research Model

Deduced from the definition of the variables the research model could be complemented with the indicator variables as well as the analyzed correlations between the variables.

Figure 2



Research Model for the Expert Interviews
Source: Authors Creation

Findings of the Expertise Based Qualitative Survey

Against the background of the results of the empiric data analyzes of the quantitative survey before; the estimation of the experts regarding business success of the German small and medium sized FinTechs relating to business digitalization was asked with the questions 1a and 4, as well as 3b and 8. With these questions the future role of digitalization for the business success should be proofed. As well as, if a company is not digital in

their internal administrative processes, they would not be run a success business in general. Between these variables could not be observed a correlation.

The correlation between internationalization and digitalization was asked with the questions 2b and 6. In these sections of the interview the future relevance of business digitalization for being international was asked as well as estimation about the statement, that if a company is not digital in their internal administrative processes, they would not be international as well. Between these variables could be found a medium effect (x_2 compared to $z_x = r = 0,40$). The coefficient of determination shows a result of $R^2 = 0,16$ which underlines the strong correlation.

In the opinion of the experts the tendency that national focused FinTechs would not be successful in the future with their business (question 7, variable xy) correlates significant with the estimation that the more internationalized a FinTech is the more successful it is. Between these variables could be found a medium effect of $r = 0,60$. In this case the coefficient of determination is $R^2 = 0,36$.

An overview of all results could be found in the attachment.

RESULTS

Regarding to the effects from the interviews for the hypothesis the following could be summed up: The most significant correlation could be found between business internationalization and business success. The focus of the questions behind this were if a German small and medium sized FinTech could be successful without being international. The experts estimate that this is not possible. With this statement $H_4 =$ “A high degree of Internationalization has an impact on the Business Success” as well as $H_2 =$ “A high degree of Business Success has an impact on the Internationalization” could be confirmed. No correlation could be found between business digitalization and business success for the hypothesis “ $H_5 =$ A high degree of Business Digitalization has an impact on the Business Success” as well as a low negative correlation between business success and digitalization for German small and medium sized FinTechs, “ $H_1 =$ A high degree of Business Success has an impact on the Business Digitalization”. So H_5 and H_1 must be denied. A high degree of internationalization has an impact on business digitalization, this confirmed H_3 . Whereas a high degree of business digitalization has no impact on the internationalization degree of a company (H_6). For the Nullhypothesis means that it could not be confirmed because the independent variable seems not the be the business digitalization but the degree of internationalization. In the following table there is an overview about the confirmed and not confirmed hypothesis as well as a comparison to the results from the suvey among the FinTechs before.

Table 2

	Hypothesis	Status of confirmation after the Expert Interviews	Status of confirmation after the Survey among the FinTechs
H_0	The higher the degree of business digitalization of internal administrative processes, the higher the degree of international business success of a small and medium sized Fintechs	Not confirmed	Partly confirmed
H_1	A high degree of Business Success has an impact on the Business Digitalization	Not confirmed	Confirmed
H_2	A high degree of Business Success has an impact on the Internationalization	Confirmed	Confirmed
H_3	A high degree of Internationalization has an impact on the Business Digitalization	Confirmed	Not confirmed

H ₄	A high degree of Internationalization has an impact on the Business Success	Confirmed	Not confirmed
H ₅	A high degree of Business Digitalization has an impact on the Business Success	Not confirmed	Confirmed
H ₆	A high degree of Business Digitalization has an impact on the Internationalization	Not confirmed	Confirmed

Effects for the Hypotheses regarding the results of the Expert Interviews

Source: Authors Creation

CONCLUSIONS

The purpose of this research was to figure out if in the future the degree of digitalization of internal administrative processes got an impact on the success of business internationalization among German small and medium sized FinTech companies. And with this if there is a correlation to the before gained data from the survey among German FinTechs to their success, internationalization degree and digitalization degree. It was expected that a high degree of digitalization of internal administrative business processes have a significant positive impact on the success of an internationalization scope of an enterprise. Target group were experts from different field like finance branch, digitalization or academics. For this in a first step a literature research of the classical market entry strategies and international trading theories were conducted. Also, the authors developed an own term for the definition of a small and medium sized FinTech company because for both term “small and medium sized company” as well as “FinTech” there are no clear definitions in the existing literature. The results of the literature research show that there is a gap in the existing literature regarding the theories and strategies for foreign market entries and the internationalization of business of the special needs of small and medium sized companies in comparison.

What could be found in the results of the expert interviews is, that on the one hand internationalization supports success and the other way around but on the other hand digitalization has no impact on success or internationalization in the option of the experts. Only a correlation between an already international acting enterprise and their degree of digitalization could be found. Reasons therefore could be that regarding to the experts to this time digitalization is a consequence of being international as a fintech company but to digitalize the internal processes currently to expensive or would lower the performance of business success and internationalization processes within German small and medium sized Fintechs. Interesting is the significant correlation between internationalization and business success which confirmed the findings from the literature review of this abstract.

Limitations of results from the expert interviews lay in the disadvantages of qualitative research methods itself. The quality of the data gathered is highly subjective. The spread fields of knowledge from the experts should compensate this but there is always a rest risk.

Future researches could analyze if the estimations of the experts correspond to facts and figures of the economical development of FinTechs in Germany in the next years. This could be gained through quantitative data analyzes.

ACKNOWLEDGMENT

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Ann-Kathrin Teltz
University of Latvia, Latvia

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