

Link between digitalization and new product launch: A survey among B2B industrial firms

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Abstract

Digital transformation and new product success are critical factors for companies' competitiveness.

Does a link exist between digitalization measures within companies, and their new product success? A former study among trading companies has diagnosed a link already. However, as only limited to trading business and a small sample, results stay little robust. Further research is needed. Therefore, the question of this work is, if this link also exists within B2B industrial firms, hypothesizing that the link should also be there. Therefore, empirical data among 1.000 production firms in Germany has been gathered with a huge panel survey. Current times are described by high competition and fast changing trends. Companies' abilities to innovate is therefore a result and a necessary ability to encounter the threat of being outperformed by competitors. Research on this subject therefore closes a relevant scientific gap. This article enlarges the knowledge gathered from a first survey among traders, with a bigger survey among industrial firms. The method of this work is to collect data within German B2B industrial firms and to run a correlation and regression analysis to answer the question, if companies who took relevant digitalization measures, report also higher new product success and compare the results to the previous study among trading firms. The study confirms the previously found link as well for industrial firms. Companies who take digitalization measures, can take profit from them by a higher success of new products.

Keywords: New product launch, digitalization, industrial firms, digitalization strategy

JEL codes: M11, M30, L60, L10, O33

1. Introduction

The objective of this article is to inspect links between digitalization and new product launch success. The research question is: Can a link between digitalization efforts and the new product launch success, also be found in producing B2B companies? Furthermore, it shall gather more information about a first link that has been found with a survey among business to business trading companies (Salmen 2020a). Does this link also exist within industrial firms? Which further conclusions can be drawn from the relationship between digitalization and new product performance? Therefore, the work shall reveal deeper insights into how digitalization influences new product launch success.

The relevance of the subject is given by the importance of new product launch. The importance of innovation for companies' success is already revealed, e.g. Langerak et al. (2004), Cho and Pucik (2005), Langerak and Hultink (2005). Innovation assists to gain competitiveness in a harder environment and to face high price pressure, technologic change and international political conflicts: New products assure higher product margins than older "commoditized" products that are highly concerned by competition (Hunt and Duhan 2002). However, new product projects have a major tendency to fail (Hauschildt et al. 2016). Innovation is thus a high risk for companies, especially the last phase of the innovation process (the product launch) because is the process with the highest cost allocation (Cooper and Kleinschmidt 1988; O'Dwyer and Ledwith 2008). Raising success within this innovation process step, would therefore be highly relevant. As the importance of the product launch has been widely accepted, many studies have been conducted to inspect the launch success factors and especially the organizational factors could be identified to influence new product success in many studies (Calantone, Di Benedetto and Song 2011). Studies also showed that digitalization is a driver of organizational efficiency and effectiveness (Brynjolfsson and McAfee 2014; Arntz, Gregory and Zierahn 2016). The deepness to which digitalization will have an input on companies' processes and will change the business environment, is widely accepted to be overwhelming. Will digitalization also boost companies' new product launch success? This question has firstly been inspected in a study among German ironware traders, and a positive link could be found: Companies who have highly digitalized their relevant process steps, could report higher new product success (Salmen 2020a). However, the study is limited due to its small participation and because it has been conducted only in one business sector. Therefore, more research is necessary to inspect the link between digitalization and new product success. To look more into detail concerning the input that digitalization has on companies' new product success, is the objective of this work.

2. Literature review

The assumed link between digitalization and new product performance is based not only on the positive findings of a first study, but as well on assumptions drawn from a wide research in literature. Concerning new product launch, the success factors that constitute new product launch success have been analyzed, in order to understand the

input that digitalization could have on the new product launch. Since 2005, ca. 40 studies have been executed with the topic of product launch. In the 30 years before, again that number of studies exists which serves as a fundament for the younger studies (Kuhn 2007). Research has also identified success factors of new product launch. Main focus of research has been the success-relevant strategic variables of product launch, the tactic variables of product launch, and the analysis and definition of different categories of product launches. Innovative products, that is a result from many studies, are normally advantageous because the market rewards newness (Kuhn 2007; Ozer and Tang 2019) and that a good / high quality- product sells better than a bad one, as it is easier to convince customers from a good product (Kuhn 2007; Rijdsdijk, Langerak and Hultink 2011). The vast majority of studies show that a professional launch execution is the main success driver (Calantone, Di Benedetto and Song 2011; Lee et al. 2011; Song, Song and di Benedetto 2011). Professional launch execution is defined as professional execution of marketing measures, logistic measures, and coordination of measures within the supply chain. The timing of the launch, understood as the lean and agile coordination of all members within and outside of the company, that participate in a product launch, is one of the most important ingredient of launch success (Calantone and Di Benedetto 2012). The coordination of measures within the sales channel to effectuate an appropriate timing, is evidently important to obtain a successful product launch (Talay, Seggie and Cavusgil 2009; Didonet et al. 2014; Kou and Lee 2015). The handling of all these presented factors, including the development of a good product, requires a professional management of processes. This link between general management factors and new product performance has been confirmed by several studies (Kuhn 2007; O'Dwyer and Ledwith 2008; Calantone, Di Benedetto and Song 2011; Millson 2012). Considering the presented results, science revealed the strong and relevant aspects that administrative efficiency and proficiency has on new product performance. It is intuitive that digitalization which is supposed to raise productivity and effectiveness of processes, would provide support for these aspects, too.

Digitalization will change the working environment for many companies and require a huge amount of organizational change (Brynjolfsson and McAfee 2014; Frey and Osborne 2017; Boes et al. 2018). Digitalization is the process of changing the design of processes into a virtual one. The effect that digitalization has on the productivity of companies and their profitability, is not undisputed. Even though digitalization is commonly linked to expected productivity gains, current results in worldwide economies state a stagnating productivity growth for 2 decades now (van Ark 2015), concluding that the currently new ICT technologies would need more time to show effects or need the combination with intangible assets and tacit knowledge in order to be successful (van Ark 2015; Gal et al. 2019). Digitalizing in the right way, is therefore a critical issue. If the implementation of digital measures shall bring profits to companies, they need to invest into know-how, intangible assets, and a suitable overall digitalization strategy. This step seems to be critical for lots of companies. Digitalizing processes still seems to be worthwhile if done in the right way: Many studies show the positive effect and the future growing significance of this organizational change linked to digitalization, or digital tools, on company's productivity and performance (Will, Campbell and Holmes 2015; Diermeier and Goecke 2017; Eller et al. 2020; Rivaes et al. 2020; Salmen 2020b).

Their works show, that the researched companies report significant productivity gains in their administrative processes because they use digital tools, for example with online marketing (Kreutzer 2016). In future, much more data will have to be handled by companies, than in the past (Abraham 2014; Battistello, Kristjansdottir and Hvam 2018). As many companies can report significant gains from digitalization whereas others cannot, it is an important topic within current scientific discussion why there are these differences. The paradox of increasing investment into new technologies (digitalization measures in this case) and yet stagnating productivity gains is called the Solow-paradox. (Brynjolfsson and McAfee 2014; Bughin et al. 2018). Within the current discussion, recent studies could observe an increasing productivity gap between companies that succeed in enhancing knowledge and technology allowing them to reach significant productivity gains from digitalization and the use of AI, and other companies who don't. Considering these gaps, it seems clear that the process of digitalization within companies, even though of major importance for the survival and maintaining competitiveness of companies, seems to be difficult to put into practice. Companies must look for ways to improve their digitalization skills and implement digitalization into their working environment and enhance related know-how. Taking into account as well the chances of digitalization as also the risk of being outperformed by digitalized competitors, some more effort is worthwhile to understand the relation between digitalization degree within a company and new product success which has to be proved to be one of the major business fields to achieve sustainable financial performance.

3. Methods

The objective of this article is to proof if a revealed link between digitalization and new product launch which was found in trading business, exists also in production firms. Therefore, a survey has been designed to collect empirical data among German industrial firms to find these links if they exist. The survey has been sent via email to a selection of 1.184 production companies in Germany. The addresses have been bought from the SCHÖBER database. The regional focus was laid on South Westphalia, a region which contains lots of metal processing companies. The selected companies have been active in production, mainly of parts from metal and had between 20 and 200 employees in order to obtain comparable results within mid-sized companies. The survey has been sent to decision takers in sales or general managers. The concerned businesses are B2B markets. The letter contained an invitation to a website, which explained further details of the survey and a link to the survey, which was done with Lime Survey. It consisted of 28 questions. The design was easy to work with, in order to assure high response. The constructs of the questionnaire were described by multi-item-indicators. SPSS has been used to collect the data and calculate all necessary data for the regression and correlation analysis. Correlation analysis and a regression analysis have been employed with the resulting data. Literature research has been used to develop a measurement construction already for the first study, and due to positive experience, could be used again for this study. Concerning new product success, it is undisputed within literature, that it has several dimensions. (Kuhn 2007; Calantone, Di Benedetto and Song 2011; Lee

et al. 2011). Financial success (Revenues should overcompensate costs of development and production costs), market and sales success (new products should achieve a certain market share, sales numbers or obtain figures compared to the previously set budget). Success measurement of new product success has been developed in science for a long period of time. Therefore, for the means of this work, a standardized survey design could be used for new product success. The measurement of those digitalization factors could be effectuated using a comparable questionnaire developed by Salmen (2020a) for the trading survey which turned out to be reliable and valid in the former study. Results are therefore comparable. For the means of this study the survey has been enlarged by detailed questions about digital tools, in order to look closer into detail regarding the characteristics of found links.

Conceptual model and hypotheses

New product performance:

New product performance has been recognized as one of the key success drivers of companies. Success measurement is an enormous issue, related also to definition and measurement methods. These can only be used in a meaningful and comparable way if they are able to relate the contribution of measures to the achievement of a specific objective. What is the goal of a product launch? When is this successful? Using only one indicator would “probably be an oversimplification for most firms” according to Di Benedetto and Calantone (2007). For the means of this study, new product performance is seen in accordance with existing item designs (Cooper and Kleinschmidt 1987; Calantone and Di Benedetto 2012) as a mixture of the financial perspective (profit/loss of a new product), derive measures (comparison between budget/planning and reality, comparison between past product launches and current product launches, and comparison between competitors’ launches and own launches) and market performance (turnover, sales, and market share with the new products). Also, a time horizon of the last five years is defined for new product success. For the means of this study, new product performance is defined as the overall success with new products, that companies have launched within the last five years.

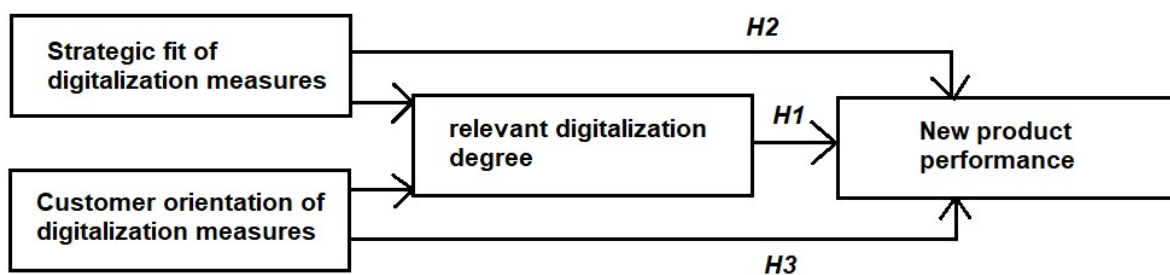


Figure 1: The theoretical model (own scheme)

Relevant digitalization degree:

The objective of the model is to measure the effect of digitalization measures on the new product launch success. The effect of digitalization could be contradictory: As concluded in the literature review, common consensus attributes productivity gains to digitalization, but also risks. Lots of dispute is about the question, whether digitalization will create more jobs than it destroys, or the other way round. This question is relevant, because if negative effects predominate, this will cause shrinking demand, so the competitive pressure will even become larger on companies. Digitalization, in that case, could have a negative input. In any case, digitalization thus causes adaption pressure. Companies have to change their processes and working contents of people. With new methods, demands and products arising, there will also be effects on the product launch procedure. Companies who use digitalization to improve their launch abilities, will surely have more success with new products and outperform their competitors. Digitalization thus influences new product success in a positive way. The “relevant digitalization degree” describes the level of digitalization that a company has arrived in the fields relevant for new product launch success. As a potential driver of productivity within the company, digitalization can boost efficiency of administrative processes, and increase effectiveness. Research has identified the key success drivers of new product launch success. These success drivers lay inside of the organizational processes of companies. If companies focus to improve those organizational processes with adequate digitalization measures, they should also obtain better product launch results. The author of this work has undertaken literature research and expert interviews to identify requirements which are fitting for those digitalization measures that should boost administrative processes in order to obtain higher new product launch success. If a company has undertaken more of these defined digitalization measures and has thus achieved a higher relevant digitalization degree, it should also reach a higher level of new product performance. This assumption is in accordance with a first study conducted by Salmen (2020a) among trading companies. Therefore, H1 is established accordingly:

H1: Companies who have a higher “relevant digitalization degree” because they have digitalized their relevant organizational processes to a higher level, obtain better launch results.

The relevant digitalization degree is composed 50% by the strategic fit of digitalization measures and 50% by the customer orientation of the digitalization measures (following points).

Strategic fit of digitalization measures:

As expert interviews have shown, and findings from literature conclude, the maturity of strategic orientation which is behind the digitalization measures (=the strategic fit), determines also the quality of implemented digitalization measures and, as a consequence, of the obtained digitalization degree of a company. This observation is in accordance with findings from the expert interviews which have been undertaken by the author to prepare the survey. Key result of the interviews was, that companies who develop their digitalization measures in accordance with a holistic strategy, take better digitalization measures which assure higher gains from digitalization. Part of the

strategic work is an analysis of companies' processes to identify working steps with high standardization potential. Also, the integration of the concerned team members is a criterion. Basing on these findings of the interviews, 10 items have been developed to measure the strategic fit of digitalization measures. If digitalization measures are before the background of a holistic strategic approach, they would bring more results. Therefore, the new product launch success will become more performing, so that H2 is:

H2: Companies, who use a general strategic approach for digitalization and thus have a higher strategic fit of their digitalization projects, obtain higher launch results.

Customer orientation of digitalization measures:

As cited studies show difficulties of companies to enhance digitalization into the organization and to take profit from necessary investments into intangible assets linked to digitalization measures, the digitalization process itself was identified as critical success driver. Companies who derive their digitalization measures from market- and customer needs, and who act customer-centralized with regard to their digitalization measures, should presumably take more profit from their digitalization process. The market orientation itself has been proved to be linked to the new product launch success. Companies who integrate customers into their product development process, adapt their product properties to the market needs and act market orientated, report a higher new product success. New product launch addresses potential and existing customers. Market orientation has been identified as one of the key drivers behind new product launch success. Therefore, the focus on customer expectations when taking digitalization measures should of course raise the success with new products:

H3: Companies, whose digitalization measures are highly influenced by the concept of customer orientation, obtain higher launch results.

Relationship between customer orientation and strategic fit of digitalization measures:

As argued above, the "relevant digitalization degree" is a concept to measure the general digitalization level of a company and is not a concept which is limited only on the new product performance aspect. Not every company that has taken digitalization measures, needs to have improved their product launch skills, for example if the strategic analysis has shown that other company fields are more relevant at present. Within the relevant digitalization degree, the construct "customer orientation of digitalization measures" is closer to the product launch success as it addresses the market view and customer perspective. Therefore, the correlation between this construct and the new product performance should be higher than the correlation between the relevant digitalization degree and new product performance, as well as between the strategic fit and the new product performance:

H4: The correlation between customer orientation and new product performance is stronger than the correlation between the strategic fit of digitalization measures and new product performance.

Measurement

Measurement methods

The empirical data from the survey has been used to find out if there are links between the relevant digitalization degree of a company, customer orientation of digitalization measures, strategic fit of digitalization measures and new product performance. SPSS and a self-developed Excel tool have been used to determine the relevant figures for the correlation and regression analysis. The correlation coefficient according to Pearson has been used. Requirements for regression analysis have been fulfilled (Fisher 1925).

All constructs were measured using multi-item seven-point Likert scales. In order to measure the strength of a construct, objective or subjective measures can be used. Generally, subjective measures tend to be biased by the personal proprieties of the recipients. Nevertheless, several studies could prove a high correlation between subjective and objective measures (Dess and Robinson Jr 1984; Venkatraman and Ramanujam 1987; Song and Parry 1997). As the collection of objective data was not possible because they were not published by both the recipients and the sample, subjective data had to be used.

The mentioned scales were developed in accordance with the previous survey among traders (Salmen 2020a) to facilitate comparability. Also, these scales have been proved to have good reliability and validity measures. The scales were developed according to previous literature for the new product performance construct: A standard survey design has been used which had been developed by Calantone & di Benedetto (2012), and Cooper and Kleinschmidt (1987). It has been slightly modified in order to match the particularities and needs of this survey. For example, instead of evaluation one new product project, the participants should evaluate all new product launches within the last 5 years. Normally, new product launch success (sometimes called: New product performance) is generally measured comparably within current studies. Indicators are used like "overall profitability of the product after a certain time", "obtained market share", "obtained sales", or "achieved situation compared to planning". So, a new product launch project has usually a time horizon of several years which makes it difficult to evaluate success. Therefore, within this study, a horizon of five years (new product projects within the last five years) has been set, in order to assure relevant results. The construction of the indicators and constructs has also been chosen in accordance with future objectives: They should prove to be qualified for future research.

For the relevant digitalization degree, the scales used for the trader-survey, have again been used because they matched also to the aims of this study and had shown good reliability and validity proprieties already in the first survey. In order to develop a measureable concept of "digitalization", expert interviews had been undertaken with digitalization experts: Strategic and technologic consultants, business agencies and software freelancers. Objectives of the interviews was to identify activity fields within companies' administrations where digitalization creates the most benefit; Also to find out which are the fields where digitalization can be used to improve new product launch performance; And to identify requirements and challenges during the digitalization process. The answers have been combined with the findings from literature research about new product launch success factors, and the effect of digitalization on companies. Basing on the interview, fields that are relevant for digitalization measures in order to improve the product launch process, could be identified. During the interviews, it became clear that the concept of "digitalization" cannot contain fixed fields. The

effectiveness of digitalization depends more on the digitalization procedure itself, whether it is customer driven, and strategically well conducted. These findings are in congruence with the cited studies which reveal the link between investment into intangible assets to enhance digitalization skills and the difficulties companies have with that procedure. The “relevant digitalization degree” is conceptualized as indicator consisting of the strategic fit of digitalization measures and customer orientation of digitalization measures. The overall digitalization degree consists of these 2 factors. For the purpose of this survey, both indicators have been weighted 50/50 in order to get the “relevant digitalization degree” of the company.

4. Results

Survey sample

64 usable questionnaires were returned to be analysed, which represents a response rate of 5,4%. Part of the respondents has been called before in order to assure a minimum response quote. Due to the simultaneous Corona-pandemic, companies were very reluctant to answer questions and invest time. Despite huge investments into personal telephone calls with the responsible manager, response was very low. Because of the experience with a similar study which showed very low response, the questionnaire was designed as easy as possible to avoid further response weakness. Among the participating firms, 78% delivered directly to the customer, 21% preferred an indirect sales channel via traders. 70% were suppliers, whereas 30% delivered complete products. For further information about the composition of the companies that filled the questionnaire (participating companies), see figures 2-3.

Validity and reliability measures have been used to check the used constructs. Cronbach's' alpha confirmed a good model fit. Seven- level Likert-Scales that have been used to measure the constructs of this work, have good testing proprieties (Krosnick and Fabrigar 1997). For the means of this article, validity has been obtained by using multi-item scores which are derived from frequently used questionnaires in the case of new product performance, and from expert interviews in the case of digitalization measures. These indicators have successfully been used in a former survey and revealed to have good reliability and validity measures. Likert scales whose content have been

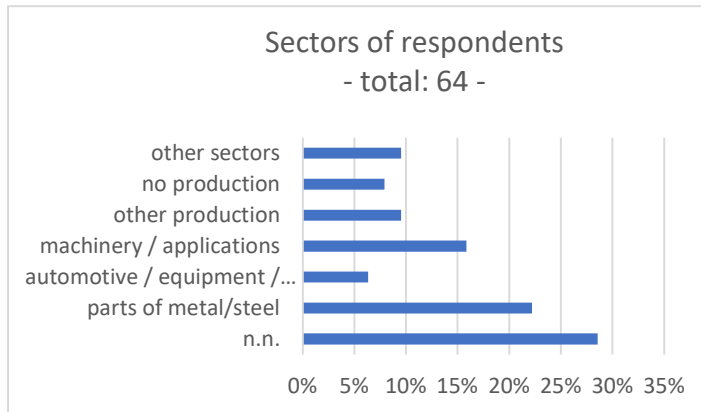


Figure 2: Characteristics of respondents - sector

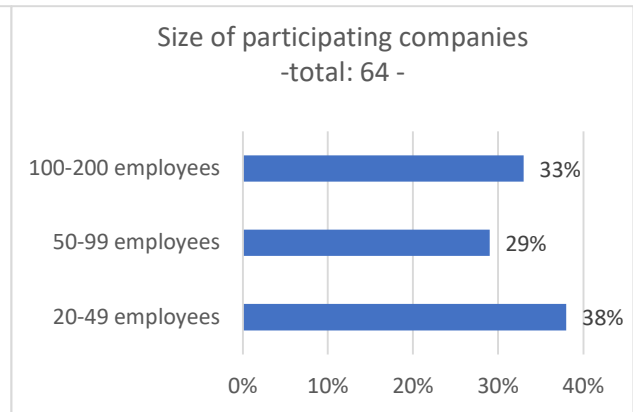


Figure 3: Characteristics of respondents – size of participating companies

strictly separated according to their topics assure high content validity (Kuhn 2007). Convergence validity has been confirmed by high inter-item-correlation (Peter 1981). Also, the characteristics of an anonymous and closed online panel supports validity of the results. The high obtained model fit and good reliability measures support high convergence validity (Nunnally 1978).

Reliability

In order to check reliability of used scales and indicators, Cronbach's' alpha has been used (Carmines and Zeller 1979; Fornell and Larcker 1981). Table 2 indicates results. All values were between .90 and .95. Inter –item correlations have mainly been between .50 and .90. This implies a high construct consistency and a good model fit (Peterson 1994).

Table 1: Reliability of measurement

Construct	Item no.	Cronbach's α	N
New product performance	8	.935	58
Strategic fit of digitalization measures	10	.951	60
Customer orientation or digitalization measures	8	.905	61
Relevant digitalization degree	18	-	

Validity

Seven- level Likert-Scales have good testing proprieties (Krosnick and Fabrigar 1997). For the means of this article, validity has been obtained by using multi-item scores

which are derived from frequently used questionnaires in the case of new product performance, and from expert interviews in the case of digitalization measures. Likert scales whose content have been strictly separated according to their topics assure high content validity (Kuhn 2007). Convergence validity has been confirmed by high inter-item-correlation (Peter 1981). Also, the characteristics of an anonymous and closed online panel supports validity of the results. The high obtained model fit and good reliability measures support high convergence validity (Nunnally 1978).

In accordance with the result from the previous study among trading companies, this work hypothesizes that digitalization boosts new product success. A correlation analysis has been employed to detect the link between new product success and digitalization.

Explorative methods showed a linear link, normally distributed residuals, and normally distributed findings.

Table 2: descriptive statistics

	Mean	SD	correlations	n
New product performance	4.77	1.15	1.00	64
Strategic fit of digitalization measures	4.47	1.45	.327**	64
Customer orientation of digitalization measures	3.95	1.25	.270*	64
Relevant digitalization degree	4.03	1.54	.328**	64

*p<.05; **p<.01

Table 4 shows the results. Most of the hypotheses were significant at the $\alpha=.01$ level. The correlation between the relevant digitalization degree and new product performance was .328 ($t=2.7$, $p<.01$), H1 was confirmed. There is a positive link between digitalization measures and new product performance. The correlation between the strategic fit of digitalization measures and new product performance was .327 ($p<.01$), supporting H2. A positive link between customer orientation of digitalization measures

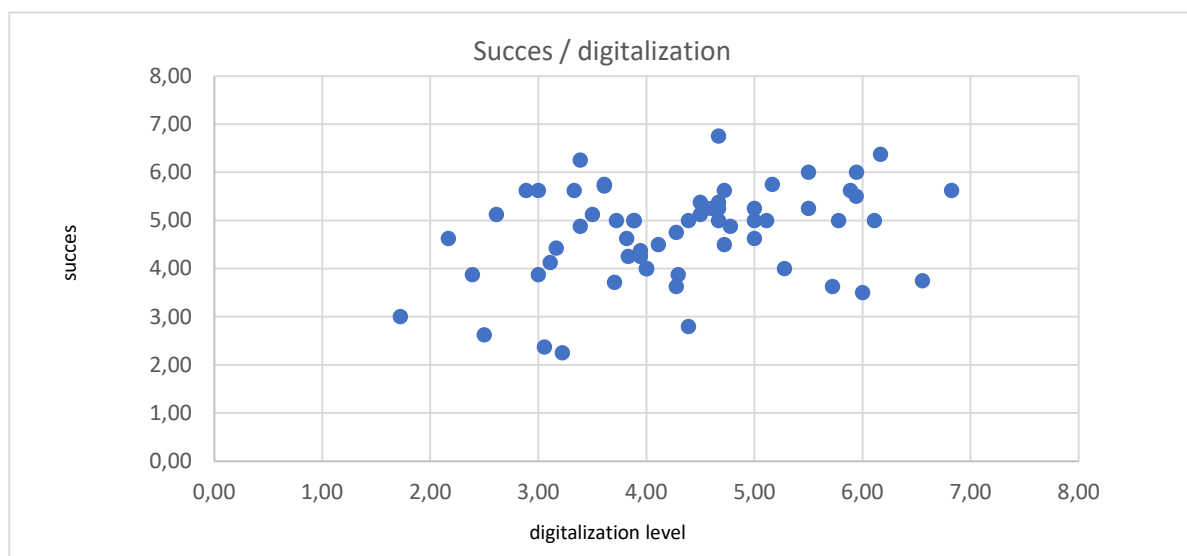


Figure 4: scatter-plot new product success/digitalization

and new product performance has been found. H3 was thus supported (correlation .27; $p < .05$).

The comparison of effects between strategic fit of digitalization measures / customer orientation of digital measures and new product performance was topic of H4, assuming that the link between customer orientation of digital measures and new product performance would be stronger than the effect of strategic fit of digital measures. Here, the link between strategic fit and new product success, shows a stronger correlation than the link between customer orientation and new product success, so H4 cannot be supported.

A regression analysis based on multiple squares has also been employed, underlining the link between digitalization and new product success (see table 2). It describes the relationship with the formula $Y = 3,52 + 0.28 \times X$. The R^2 -value is used as a measure to evaluate the model fit (Judge et al. 1988). The results show a medium strong link (Cohen 1992; Sedlmeier and Renkewitz 2013).

5. Discussion

The result underlines the importance of digitalization as a booster of new product success for companies' competitiveness. It could be shown that digitalization can support new product success also in production companies. As well the focus of customers is a driver of launch success, as also the strategic fit of digitalization measures. That means, companies who integrate the customer view and customer needs as a basis for their digitalization measures, obtain better new product performance. Also, companies who use a holistic strategic approach and integrate all concerned team members when determining and implementing digitalization measures, are more successful with new products. Companies who are therefore highly digitalized, obtain better launch results. The right digitalization measures help companies to reach more success with new products. Compared to trading companies, the effect of customer orientation is weaker, whereas the strategic fit is more important in production companies. This can mean that the spectre for digital measures is bigger in production firms; They have to focus also on production, R&D and therefore on a wider spectre of administrative processes. The importance of strategic focus is becoming more important before that background. Trading companies have to care for sales and the direct contact to customers as their first priority, therefore the importance of customer orientation is more important when taking digitalization measures.

Some companies report weaker new product success, than would be expectable with the regression model, success of new product launch still is caused partially by other factors than digitalization. Within the study it became clear that the individual market situation has a strong influence too. As further studies show, it was expected that the market properties influence new product success, as well (Talke and Hultink 2010; Song, Song and di Benedetto 2011; Fraenkel, Haftor and Pashkevich 2016). Therefore, I have compared the results from companies who report a bad market (high competitive pressure, low potential, small size) with those companies who judge their market properties more positive. Surprisingly, results differed very much: Companies with low

market potential, displayed a strong correlation between digitalization and new product success ($n=29$, correlation = .49), whereas companies with higher market attractiveness reported a weak correlation ($n=34$, correlation = .12). This result is surprising, as one would normally conclude that measures would enfold a strong effect in an environment full of opportunities, and a weak effect in a weak environment. Apparently, the message seems to be in opposite: Digitalization helps the more in a difficult environment, whereas it is not needed that much when sales are boosted automatically in a supportive environment. This assumption is supported by a comparison between the mean values of the 2 groups. As expected, companies which see themselves in interesting markets, report a higher success with new products (mean = 5.09), whereas the mean success of the poor-market-group is 4.47. That means, that companies in good markets, are successful anyway, so the effect of digitalization is less strong there. Another aspect in the contrary situation (low investment into digitalization, high success with new products) can be explained by the role of an active sales force that can boost success even without strong investment into digitalization measures. Some companies mentioned that they sell successfully through their sales force, and do not invest into digitalization. This finding is in accordance with studies highlighting the importance of sales force and launch execution (Ernst, Hoyer and Rübsaamen, 2010; Calantone, Di Benedetto and Song, 2011; Fraenkel, Haftor and Pashkevich, 2016.) Also, if market situation allows to have success, for example because demand is imposed by legal rules, digitalization is not needed and has no effect. However, companies that are currently successful and might not need to invest into digital tools and strategies today, could have a negative impact on their new product success. Investment into digitalization can also be meant for other targets than boosting innovation. Even though we suppose that new product development is one of the most important things, and thus digitalization measures would directly be taken in order to boost new product performance, this might not be the case for every company.

The results of this study are limited for the moment because it is limited to one geographic region. Also, it represents only a few numbers of participating firms. However, results seem to guarantee a certain level of robustness as they are confirmed already by another similar study (Salmen 2020a). In order to validate the found links, an additional survey should follow that integrates more participants in order to ground the found relationships on a wider data collection. Also, it is time to ask, which aspects of digitalization create the new product success within the launch phase. Are there typical tools or processes that can be implemented in order to obtain a higher success level? What are the success factors within digitalization, that create new product success? This current work does not yet explain the functioning and reasons for the link in detail. It would be worthwhile to understand, which ingredients of digitalization measures, create new product success. Surely, some tools could be identified that boost new product launch, raise productivity of key administrative processes or decrease costs. Future research would be needed to study this link. A third field for future research would also be desirable: Studying those companies who have high new product success and a high digitalization degree. It was a key finding in the literature review that digitalization is a challenge for many companies, which is linked to high investment into intangibles and a high risk of failure. If taking the wrong measures, or implementing the right tools in the wrong way, the whole investment could be sunk. Until now, not enough has been researched on the question, what do companies better than others who fail, when it comes to their digitalization process? Within this context, the result of this work was a questionnaire design which measures digitalization degree of a company. This

questionnaire could serve as a starting point to develop a valid indicator that would allow to compare companies and show which development potential some companies still have to take fruitful digital measures.

6. Conclusion

Digitalization is a critical issue for companies, especially for SME. If not equipped with a sustainable digitalization strategy, they will be outperformed by competitors. Proved links between overall companies' profitability and their ability to successfully launch new products, reveals already a second field where companies have to be active. Both fields, digitalization, and new product success, are therefore key issues of competitiveness.

The findings of this work can confirm the claimed hypotheses and show a significant link between both aspects of digitalization (customer orientation of digitalization measures, and strategic fit of digitalization measures) and new product performance. Now, it is clear that as well trading companies can take profit from digitalization, as also industrial firms, and raise their product launch success. For industrial firms, the input of strategical measures is higher than for trading companies; Industrial firms have to give more strategical input into their digitalization decisions in order to obtain higher product launch results, as they have more fields and aspects to cover, than trading companies. The right digitalization measures can boost new product success within companies. Further research has to be done to explore the character of the relationship between digitalization and new product success and identify suitable tools, best-practices, and effects behind the general link. The project of the author of this work is to further investigate the link between new product success and digitalization in the German B2B production market. For managers, the study reveals further hints how to use digitalization measures to obtain better new product launch results.

Managerial implications

Companies who use a holistic approach, integrate all affected team members, and take digitalization measures before a general strategic background, chose better digitalization measures, and perform better with implementing their digitalization measures and obtain higher success with new products. The finding is a clear statement for the importance of a strategic-driven management orientation that puts long-term considerations like sustainable competitiveness gains before short-term ad-hoc measures. Second ingredient to create success, is customer orientation. Companies who chose their digitalization measures to obtain value-added for their customers, can take more profit from their digitalization measures. For managers, it is important to engage in digitalizing relevant parts of their company. The right digitalization measures can help to improve new product launch success. Therefore, managers must analyse their business environment to find out which are the best digitalization measures for their individual business case. By doing it, they have two main directives that they should both focus on: First, they should include general strategic considerations and handle their digitalization measures as a part of the general strategy. Second, they can improve

the chance that the digitalization will bring success also by focussing on the customer. Digitalization measures should be used to solve customer problems and improve service. Altogether, if digitalization measures follow the path of these two directions, new product launch success becomes more probable, even more if companies are in challenging market situations.

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Appendix

Measurement scales of constructs

(Respondents were asked to answer the following questions online, using a Lime Survey database, by choosing the most suitable option on a Likert seven-point scale).

Continuum: very unsuccessful – very successful

New product performance (derived from Calantone & di Benedetto (2012), and Cooper and Kleinschmidt (1987))

How successful were these product launches from a general profit/loss view?

Compared to earlier product launches, how successful were these launches related to the profit?

Compared to earlier product launches, how successful were these launches related to the obtained sales numbers?

Compared to earlier product launches, how successful were these launches related to the obtained market share?

Compared to product launches from competitors, how successful were these launches related to the profit?

Compared to product launches from competitors, how successful were these launches related to the obtained sales numbers?

Compared to product launches from competitors, how successful were these launches related to the obtained market share?

In relation to the planning, how successful were these launches?

Continuum: strongly agree to strongly disagree

Strategic fit of digitalization measures

Related to the digitalization strategy of your company: Think of the steps which have been implemented within the last 5 years. How much do you agree to the following statements?

We have a mature digitalization strategy.

The digitalization measures that have been taken, are embedded in an overall strategy.

We handle the digital transformation of our company as a holistic development process.

The salaries feel involved into the transformation process.

The measures that have been taken to digitalize, are linked to a general concept of digitalization.

Our digitalization concept is a part of the overall company's strategy.

We have digitalized most of the processes alongside the value chain.

We have analyzed our processes before deciding on digitalization measures.

The salaries have the impression that the taken digitalization measures make sense.

The digital tools, applications and programs that we use, are in accordance with the digitalization strategy.

Relevant digitalization degree

Related to the digitalization strategy of your company: Think of the steps which have been implemented within the last 5 years. How much do you agree to the following statements?

When we chose a new product, it happened basing on an analysis of the "customer journey "

The customer perspective is starting point of our digitalization strategy.

New products are listed from us as an answer to what we find out about our customer, using digital market research tools (e.g. AI-applications)

The analysis of customers' value-added processes is a starting point of our digitalization efforts.

The analysis of customer needs is a starting point of our digitalization efforts.

Our digitalization strategy is mapped around the question: What is the use for the customer?

Our digitalization measures facilitate processes at the customer.

Our digitalization measures create a value-added in the customer's process chain.

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