The Impact of Digitalization on the Speed of Internationalization of Lean Global Startups

Michael Neubert

> **"***Digital is worth its weight when all parts of the choir***"**
> *sing their respective parts in harmony to achieve a*
> *higher purpose and make a unique impact.*

Pearl Zhu
Author of *Digital Maturity*

Lean global startups need to internationalize early and fast. The digitalization of new foreign market development helps them to more efficiently identify new market opportunities in global markets. With this approach, they are saving resources while developing the most attractive markets. This article examines how lean global startups develop new foreign markets more rapidly due to digitalization. Thus, the aim is to understand the impact of digitalization on speed of internationalization of lean global startups. The study addresses a gap in the scholarly literature and a practical need to evaluate new foreign markets and business opportunities more quickly and more regularly and to understand what helps lean global startups react more quickly to opportunities and threats with respect to changing market attractiveness. Furthermore, it outlines why and how digitalization is important throughout the internationalization process. The research followed a multiple case-study design using different sources of evidence, including 73 interviews with senior managers of lean global startups. The findings reveal that digitalization allows lean global startups to increase decision-making efficiency and to optimize strategies and processes for evaluating international markets. The findings suggest that lean global startups can benefit from the use of digital technologies by applying a more efficient foreign market development process with regular reviews and a reduced workflow, by faster mediation between local market realities and strategic goals, by analyzing all foreign markets instead of just a sample of them, and by optimizing decision-making processes including the ability to make long-term, strategic decisions due to better market information.

Introduction

Digitalization describes the integration of digital technologies into any aspect of daily life that can be digitized (Gray & Rumpe, 2015; Khan, 2016). However, Gartner (2018) defines digitalization with a more business-oriented focus: "Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business." Digitalization is based on the availability of large amounts of external and internal (and often cloud-based) data (Gray & Rumpe, 2015) from different sources, and data mining and machine learning techniques to use it for decision-related purposes, such as the identification of a business opportunity or predictions of future market and client behaviour (Witten et al., 2016).

Depending on their business model, firms with digitalized market development processes can acquire clients from foreign markets without investing in a local production or sales force using, for example, their website traffic to identify market opportunities or online marketing tools to acquire a global client portfolio while remaining in their home market (Coviello et al., 2017). The use of digital technologies allows for a higher speed of internationalization because they help firms learn more quickly about new markets and to develop local networks (McKinsey, 2016), resulting in faster local product adaption and client interaction (Autio & Zander, 2016; Coviello et al., 2017).

As new international ventures that create new market niches using innovative technologies and new business models (Rasmussen & Tanev, 2015; Tanev, 2017),

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it may be particularly helpful for lean global startups to use digitalized technologies to collect and analyze data about international markets and client feedback to speed up decision-making processes, because they depend on iterative, incremental product development cycles. The impact of digitalization is especially high in foreign markets, because a lean global startup needs to create knowledge, for example, about client needs, and it needs to develop client networks to operate successfully. The speed of creating this intellectual and social capital determines the speed of internationalization (Vahlne & Johanson, 2017). Digitalization in the sense of predictive analytics using, for example, artificial intelligence algorithms helps lean global startups to predict the future attractiveness of foreign markets. Better predictions will increase the efficiency and quality of market selection decisions and the opportunity to participate in future market growth. Because lean global startups often are pioneers and global market leaders in small, global market niches (Neubert, 2017a; Tanev, 2017), early and fast internationalization is necessary to be competitive. Pricing is one example. Lean global startups need to understand their own costs, as well as market prices and their products' value, to select correct prices and pricing models (Neubert, 2016a; 2017b).

The purpose of this study is to show that the use of digital technologies in market development processes increases the speed of internationalization in lean global startups. The rationale is to close a gap in the literature (Coviello et al., 2017; Vahlne & Johanson, 2017) to better understand the impact of the use of digital technologies in market development processes on the speed of internationalization. The article reports the modelling of a process for evaluating and selecting international markets and outlines why and how digitalization is important throughout the whole process. It aims to expand the study of international management by including a deeper and broader range of the use of digital technologies in international market development using the example of lean global startups.

Calls for research on the impact of digitalization on internationalization by Coviello, Kano, and Liesch (2017), Manyika and colleagues (2016), and Vahlne and Johanson (2017) provided impetus for this study. Merkert, Mueller, and Hubl (2015) also stress the need for further research about the usefulness of digitalization for decision-making purposes. Their findings suggest that the advantages of machine learning in decision-support systems are higher effectiveness and reduction of manual work. Digitalization is instrumental in facilitating earlier and faster internationalization through digit-

alized knowledge, network creation, and decision-making processes (Coviello et al., 2017). Therefore, it should be addressed through qualitative research methods, for example, multiple case studies (Vahlne & Johanson, 2017) to explore and better understand the perceptions of lean global startups about digitalization of foreign market development.

The article is structured as follows. First, the literature on the lean global startup model, international market development processes, and the digitalization of international market development is reviewed. Then, the research methodology, including the sampling strategy, is described. Next, the findings about the impact of digitalization on foreign market development activities of lean global startups are presented. Finally, the article concludes with a list of key findings and recommendations.

Literature Review and Theoretical Framework

The theoretical framework of this study is based on a review of the literature regarding lean global startups (Neubert, 2017a; Tanev, 2017) and the digitalization of development processes for international markets.

The lean global startup model

In 2015, Rasmussen and Tanev introduced the lean global startup as a new type of firm. A lean global startup can be considered a new international venture that creates a new market niche using innovative technology and a new business model (Tanev, 2017). A lean global startup implements a business plan in incremental and iterative product cycles (Tanev, 2017), developing modest, viable products that are tested in the most attractive markets (Neubert, 2017a). Because of the immediate client and market feedback in this process, products and services can be quickly adapted to their needs (Tanev, 2017). Lean global startups often start their global operations through up-stream activities, such as the developing and patenting a medical application, before engaging in downstream activities, such as sales, pricing, and export (Neubert, 2017b).

International market development processes

According to the Uppsala internationalization process model, firms use an establishment chain to develop to new foreign markets (Vahlne & Johanson, 2017). As shown in Figure 1, an establishment chain in form of a market development process can be described as a series of four steps: i) market evaluation and selection phase; ii) market preparation; iii) market entry; and iv)

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Figure 1. Example of an international market development process (Adapted from Neubert, 2017a)

market growth and development (Neubert, 2011, 2013). In the first step, firms collect and analyze data to understand the current and future attractiveness of a foreign market (Neubert, 2013). In the following steps, firms might use data analytics to prepare for decisions about market entry strategies, market entry modes (Ahi et al., 2017), distributors or joint venture partners, marketing campaigns, or market opportunities. Given that markets change rapidly, this market evaluation and selection process needs to be repeated regularly for every market and might lead to different outcomes, such as a market exit (Sapouna et al., 2018; Neubert, 2011) or a new product launch. Structured market development processes should increase the efficiency and the speed of internationalization for firms of different size, industry, and market, as studied in Europe (Neubert, 2016b), Africa, Asia, and Latin America (Neubert & van der Krogt, 2017).

Due to the large amount of existing data and a steady stream of new data due to a fast-changing and complex environment, the basic assumption of the current study is that the preparation of decisions and decision-making processes in international market development would benefit from digitalization, thereby reducing the evaluation and selection workflow from three tasks (Neubert, 2011) to just one task and increasing the limited number of analyzed countries (Neubert, 2013) to the whole population. The digitalization of the entire market development process might increase the speed and quality of decision-making processes, if users (e.g., finance managers, international marketers, or business developers) understand the benefits and limitations of digitalization. The faster and better a firm understands a market and is able to develop local networks, the higher the speed of internationalization (Neubert, 2016b).

Digitalization of international market development
Digitalization describes the integration of digital technologies into any aspect of daily life that can be digitized (Gray & Rumpe, 2015; Khan, 2016). However, Gartner (2018) defines digitalization with a more business-oriented focus: "Digitalization is the use of digital

technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business." Digitalization is based on the availability of large amounts of external and internal, often cloud-based data (Gray & Rumpe, 2015) from different sources, and data mining and machine learning techniques to use it for decision-related purposes, such as the identification of a business opportunity or predictions of future market and client behaviour (Witten et al., 2016).

One important development of digitalization is the creation of online platforms and exchanges involving economic (e.g., Alibaba and Amazon) and social (e.g., LinkedIn) transactions (Coviello et al., 2017) to efficiently identify sales opportunities in new foreign markets. These platforms and exchanges offer tools and information (e.g., logistical support, export insurance, export documentation, and financing) to execute these sales opportunities.

Digitalization also increases the effectiveness of decision-support processes and reduces the amount of associated manual work (Merkert et al., 2015). Traditional data-driven and fact-based decision-making processes increase the productivity and profitability of companies by 4–7% compared to their competitors (Bohanec et al., 2017; Müller et al., 2018). Companies using prescriptive, analytics-based, machine-learning algorithms have been shown to increase their revenues by more than 15% on average (Kawas et al., 2013).

Knowledge about foreign markets increases international performance (Stoian et al., 2017). Digitalization creates social data (market networks) and intellectual data (market knowledge) about foreign markets earlier and faster than other methods, while also improving firms' attractiveness, decision processes, and capabilities of decision makers (Clark et al., 2018). Although decisions are often based on historical data or on experiences from other markets, a new market entry is a long-term investment in the future attractiveness of an untested foreign country (Neubert, 2017a). If a firm

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decides to enter a new foreign market in a given year, the decision is often based on historical market data (e.g., from two or more years earlier), but the effects of the decision (e.g., significant new clients and sales revenues) will take place approximately two years later. Therefore, predictive algorithms should be used to assess future markets' attractiveness. Although predictive algorithms cannot eliminate uncertainty, they can improve allocation of resources and prioritization of projects. International managers must manage digitalization carefully by mediating between local market realities and corporate goals and understanding the limits and benefits of digitalization (Ransbotham et al., 2015). Early warning systems that once would have taken years to create now can be rapidly developed and optimized from real-world data. To assess the usefulness of prediction models, we must evaluate them not on their ability to recapitulate historical trends, but instead on their accuracy in predicting future events.

Theoretical framework and research questions
Drawing on the review of the literature, the theoretical framework developed for this study (Figure 2) is based on the notion that digitalization – through the application of a market intelligence and analysis software – will improve learning (Neubert, 2016a) and networking abilities (Neubert, 2016b) of lean global startups, which, in turn, will lead to more efficient decision-making processes, which will ultimately increase the speed of internationalization.

The purpose of this study has brought up the following three research questions:

1. What are the perceptions of lean global startups about the digitalization of foreign market development activities?

2. What are the perceptions of lean global startups regarding the expected impact of digitalization on the speed of internationalization? ?

3. What are the perceptions of lean global startups about the factors that determine the use and the selection of software products to support digitalization?

Research Methodology

This study uses a multiple case-study research design to answer the exploratory research questions (Yin, 2015). In contrast to an experimental design or a survey, a multiple case-study method offers greater flexibility, allows an in-depth analysis of a complex research problem (Yin, 2015) within a highly-contextualized environment, and allows for a comparison between different cases. This research design helps answer the research questions because it allows the use of the replication logic as a possibility to obtain external and internal validities as well as to analyze pattern-matching properties between theories and cases (Yin, 2015).

This study used different sources of evidence to derive robust conclusions and to achieve construct validity. Therefore, we applied the triangulation concept to the data collection phase to guarantee that different sources of evidence were used to collect data from each case. The primary source for data collection comprised qualitative, semi-structured, individual interviews with 73 senior managers of lean global startups. Other sources of evidence were firm and product flyers and brochures, corporate website, internal documents provided by the subject matter experts, and other secondary data. The data were collected in October and November 2017. The reliability criteria were met by using the same questionnaire, the same study protocol,
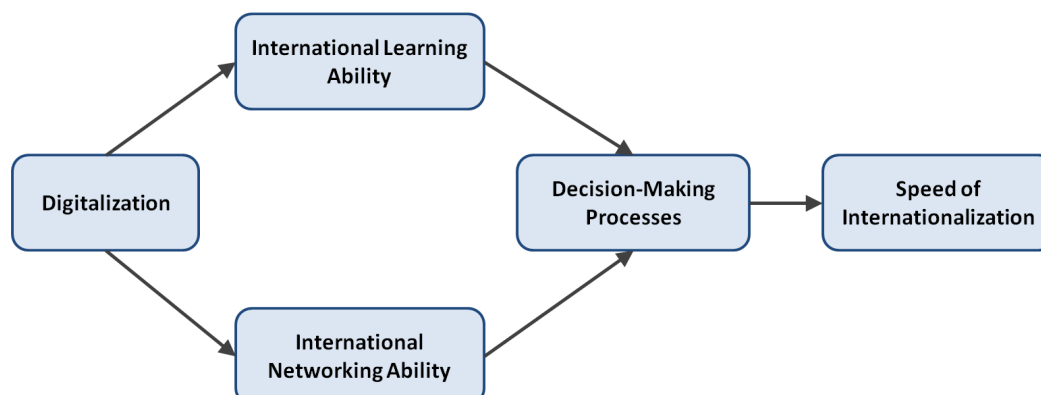
Figure 2. Theoretical framework showing how digitalization may impact the speed of internationalization

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and the same data structure in the data collection phase. The duration of the interviews was, on average, 30 minutes. There were 73 interviews although some interviewees did not answer all questions; therefore, some results are based on fewer than 73 responses.

The data analysis followed a logical sequence starting with an individual analysis of each interview, followed by a cross comparison of the results to identify differences and similarities between the answers provided by the different firms, and finally a theoretical and literal replication using a pattern-matching approach. The main goal of this approach is to increase the possibility to transfer and generalize the findings to other contexts.

This study uses a purposive case-selection strategy. After drawing a random sample from a database of 1,475 lean global startups, typical cases from the sample were selected. According to Yin (2015), this sampling strategy produces a statistically representative sample. Data saturation was achieved with 73 interviews (81% response rate). This relatively high sample size allows for a better triangulation of data and helps to strengthen the results of the whole study (Yin, 2015). The case studies in this research project are classified as lean global startups in the sense of new international ventures that create a new market niche using innovative technology and a new business model (Tanev, 2017). They are high-technology firms mainly from the IT, medical technology, and biotechnology industries. They have developed patented technologies, including prototypes of products, before starting with marketing and sales activities. The lean global startups in this sample are focused on a small global market niche using a pioneer strategy and a lean internationalization process (Neubert, 2011, 2013) to internationalize early and fast (Neubert, 2015).

Digitalization of Foreign Market Development Activities

The findings of this multiple case study are presented to answer the first research question: What are the perceptions of lean global startups about the digitalization of foreign market development activities?

Only six of the lean global startups (8%) use digitalized international market development processes with country market data and predictive analytics in the form of market studies to evaluate the attractiveness of foreign markets. Most of the other lean global startups remark that they acquire and collect market data only occasion-

ally and for a single purpose, for example, during a market entry project. Such data is therefore not entered into their enterprise resource planning systems, nor is it updated regularly. Another six (8%) lean global startups are currently planning to digitalize their international market development processes. According to the lean global startups, the limited use of big data and predictive analytics in strategic decision making can be explained by the incipient stage of the use of business intelligence due to a relatively limited theoretical knowledge and missing practical experience. Our data confirm this statement. Only 20 (27.4%) of the lean global startups consider their theoretical knowledge and only 14 (19.2%) rate their practical experience as high or very high (Table 1). However, 86% of the SMEs indicate interest in the topic of digitalization and willingness to explore its benefits and applications for their organization.

The lean global startups indicate that macroeconomic data are mostly available, but that there are very limited sector-specific data available in industry and services sectors. This statement is very important, because digitalization, and especially big data and predictive analytics, depend on the availability and the quality of data. On the one hand, the lean global startups argue that digitalization is therefore still in a premature stage and is therefore difficult to use to support business objectives. On the other hand, lean global startups admit that they do not have a complete overview of the existing physical and digital data in their organization and on the market. One lean global startup mentioned that "we don't have the knowledge and experience to identify and to prepare our existing data". Finally, the majority of the lean global startups mention that this challenge is further complicated by a lack of data analysis and interpretation capacity in their organization.

The applications of big data and predictive analytics with the highest economic benefit are according to lean

Table 1. Knowledge (theoretical) and experience (practical) in digitalization reported by senior managers of lean global startups

| | Rating and Response Frequency | | | |
	None	Low	High	Very High
Knowledge	25 (34.2%)	28 (38.4%)	12 (16.4%)	8 (11%)
Experience	44 (60.3%)	15 (20.5%)	10 (13.7%)	4 (5.5%)

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global startup perceptions "lead generation", "client acquisition", and "client development" in the sense of the identification of cross-, re-, and up-selling potentials in existing client portfolios in global markets (Figure 3). "Sales channel optimization" follows next and describes, according to lean global startups, the selection of the appropriate market entry mode, for example (in)direct export, licensing, or a wholly-owned subsidiary. This includes the acquisition and development of licensees, distribution, and joint venture partners in steps 2 to 4 (= more efficient network creation), and the evaluation and selection of new foreign markets in step 1 (see Figure 1) based on a more efficient creation of market knowledge.

Lean global startups expect a high economic benefit of digitalization because, currently, decisions about international market development activities are often based on gut feeling, business experience, a lack of available data and without a clear understanding of the future market attractiveness. They assume that digitalization will support them in creating knowledge and domestic networks faster and with higher quality, thus reducing client acquisition costs by increasing the efficiency of marketing and acquisition activities (e.g., higher conversion and client retention rates as well as higher cross-selling, reselling, and up-selling ratios). Lean global startups expect that this will reduce the time to enter a new foreign market and therefore increase the speed of internationalization. Lean global startups understand digitalization as an improved usage of internal and external data to analyze their current situation and to predict the future attractiveness of foreign markets. This helps them analyze future market developments, make faster and better-informed decisions, allocate resources more efficiently to different markets, and react more quickly to market changes.

Lean global startups perceive the additional economic benefit of digitalization for strategic and support processes like strategic planning, controlling, marketing channel selection, or pricing as less of a priority – but still important. This judgement is mainly based on the fact that strategic and support processes already use data analytics to prepare decisions (e.g., market research).

The main finding of the first research question – What are the perceptions of lean global startups about the digitalization of foreign market development activities? – is that only very few lean global startups have theoretical knowledge about digitalization and practical experience with digitized international market development processes. However, they expect high economic benefits, especially in their international networking ability, for example, with lead generation, client acquisition, and client development, where they currently use no digitized processes.
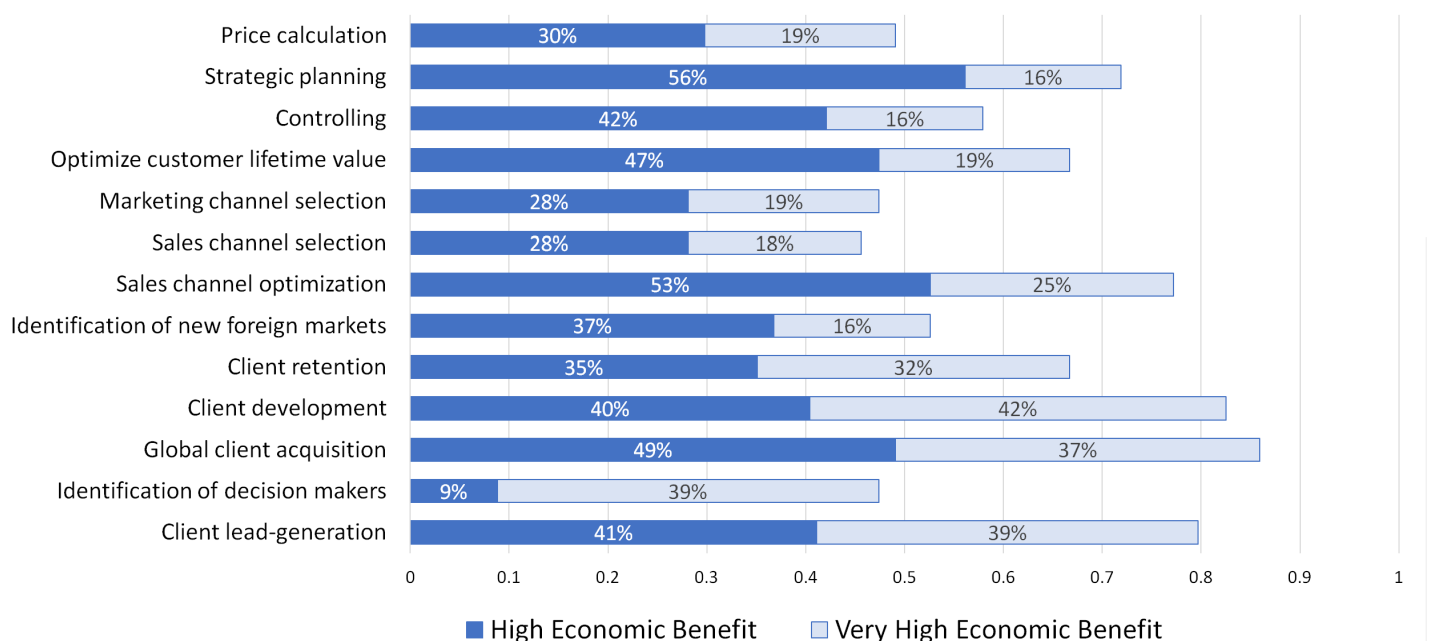
Figure 3. Applications of big data and predictive analytics with the highest economic benefit

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Expected Impact of Digitalization on Speed of Internationalization

In this section, the findings of this multiple case study are presented to answer the second research question: What are the perceptions of lean global startups regarding the expected impact of digitalization on the speed of internationalization?

The findings provide detailed insights into the perceived impact of digitalization in terms of big data and predictive analytics on sales performance in foreign markets. One lean global startup sees "the main impact in the acquisition of potential clients" due to a decreasing efficiency of sales processes. As another lean global startup states: "We need too many leads to acquire a new client" and "our client acquisition costs are increasing". Lean global startups indicate that pre-

dictive data can assist mainly in the acquisition of new clients and in the estimation and the identification of new opportunities in global markets. To a lesser extent, it can also assist in retaining clients, predicting prices, and in competitive and risk analysis (Table 2).

The lean global startups expect a strong impact on productivity, profitability, and sales revenues of international operations (Table 3). Among them, 64.7% expect a 6% or greater in productivity, especially in "the acquisition of new clients", as one senior manager remarks; 66.7% expect a 6% or greater increase in profitability; and 68.6% expect a 6% or greater increase in sales revenues. The expected impact on cost reductions is substantially lower. Only 41.2% expect 6% or greater cost reductions, 43.1% expect between 1–5%, and 15.7% do not expect any impact on cost reductions.

Table 2. Applications of big data and predictive analytics, as reported by senior managers of lean global startups

Applications	Rating and Response Frequency			
	Not important	Less Important	Important	Very Important
Acquisition of new clients	5 (8.1%)	6 (9.7%)	22 (35.5%)	29 (46.8%)
Estimation of client potential	3 (4.8%)	8 (12.9%)	24 (38.7%)	27 (43.5%)
Client retention	6 (9.7%)	16 (25.8%)	23 (37.1%)	17 (27.4%)
Market opportunities	4 (6.5%)	8 (12.9%)	32 (51.6%)	18 (29%)
Foreign market attractiveness	6 (9.7%)	18 (29%)	25 (40.3%)	13 (21%)
Pricing	4 (6.5%)	15 (24.2%)	25 (40.3%)	18 (29%)
Competitive analysis	3 (4.8%)	18 (29%)	28 (45.2%)	13 (21%)
Risk analysis	4 (6.5%)	20 (32.3%)	29 (46.8%)	9 (14.5%)

Table 3. Expected impact of digitalization on internationalization, as reported by senior managers of lean global startups

Impact Area	Rating and Response Frequency			
	No impact (0%)	Improvement (1–5%)	Improvement (6–10%)	Great Improvement (> 10%)
Productivity	5 (9.8%)	13 (25.5%)	22 (43.1%)	11 (21.6%)
Profitability	2 (3.9%)	15 (29.4%)	21 (41.2%)	13 (25.5%)
Revenues	2 (3.9%)	14 (27.5%)	23 (45.1%)	12 (23.5%)
Cost reductions	8 (15.7%)	22 (43.1%)	18 (35.3%)	3 (5.9%)

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Next, we wanted to understand which lean global startups expected the greatest positive impact. Therefore, we divided the firms into four clusters depending on the level of digitalization in their international market development activities (Table 4).

The four clusters show that only six (8%) lean global startups currently digitalize their international market development activities. The majority of the lean global startups is interested (42%) or is planning (30%) to digitalize their international market activities. Only 14 (19%) of all lean global startups are not interested in digitalizing their international market development activities, because they do not see any concrete benefits or use cases.

When analyzing the results from Table 3 (here: impact area productivity) based on the clusters of Table 4, we see that the lean global startups in Cluster 4 typically do not expect significant impact from digitalization (Table 5). The highest impact is expected by those lean global startups planning to digitalize (Cluster 2), followed by the lean global startups of currently digitalizing (Cluster 1) and interested in digitalizing (Cluster 3). This enthusiasm, with expectations higher than actual results, often is caused by digitalization projects still in the implementation and optimization phase, which do not exploit the full potential of international digitalization yet. Further analysis of the data shows that lean global startups in Cluster 1 have the greatest experience and knowledge about international digitalization, followed by Clusters 2, 3, and 4, thereby confirming an expected positive correlation between knowledge, experience, and application.

The main finding of the second research question "What are the perceptions of lean global startups regarding the expected impact of digitalization on the speed of internationalization?" is that lean global startups expect

a significant impact of digitalization on productivity, profitability, and sales revenues, especially through a higher efficiency of all international learning and networking activities in foreign and domestic markets due to the application of big data and predictive analytics.

Use and Selection of Software to Support Digitalization

In this section, the findings of this multiple case study are presented to answer the third research: What are the perceptions of lean global startups about the factors that determine the use and the selection of software products to support digitalization?

When considering the use of a business intelligence service in terms of big data and predictive analytics in international market development, the lean global startups are inhibited by a diverse set of assumptions. Lean global startups are concerned about a lack of support in configuration and training (39%), data protection (33%), and an unclear selection, processing (41%), and evaluation of data (i.e., a "black-box effect") (44%). In particular, the black-box effect prevents many lean global startups from investing in digitalization, as justified by one lean global startup in the following way: "How can I trust the results of the software if I don't understand the underlying algorithms?". "It is a real dilemma?", asks another. On the one hand, lean global startups have difficulties in trusting the software. On the other hand, they are barely able to make important decisions due to "missing basic information", as several lean global startups indicate.

The main benefit, expected by 82% of the lean global startups, is a higher efficiency in their international learning and networking activities. One lean global startup states: "We need permanent and current market feedback to adapt as early and as fast as possible to

Table 4. Clusterings of case firms depending on the level of digitalization of international market development activities

Cluster	Number of Firms	Level of Digitalization
1	6 (8%)	Currently digitalizing
2	22 (30%)	Planning to digitalize
3	31 (42%)	Interested in digitalizing
4	14 (19%)	Not interested in digitalizing

Table 5. Expected impact of digitalization on productivity of internationalization

	Rating and Response Frequency			
Cluster No.	No Impact (0%)	Improvement (1–5%)	Improvement (6–10%)	Great Improvement (>10%)
1	0 (0%)	1 (25%)	2 (50%)	1 (25%)
2	0 (0%)	2 (10.5%)	10 (52.6%)	7 (36.9%)
3	3 (14.3%)	9 (42.9%)	7 (33.3%)	2 (9.5%)
4	2 (28.6%)	1 (14.3%)	3 (42.8%)	1 (14.3%)

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changing markets and client needs". This includes big data and predictive analytics for long-term investment planning as well as "alerts" for short-term, tactical management to react to market opportunities or crises.

To select a business intelligence platform to support internationalization, the lean global startups will mainly consider a solution that responds to the expected problems mentioned above. Thus, 72% of the lean global startups would choose based on the price-performance ratio, meaning a price that reflects the perceived value. The second important requirement, mentioned by 66% of the lean global startups, is the ability to integrate into existing enterprise resource planning (ERP) applications, such as customer relationship management (CRM) systems. Lean global startups will also consider regular updates with current data and improved usability (58%), efficient set-up and testing procedures (53%), and references from existing clients (51%). Fewer lean global startups are concerned about the size and reputation of the provider (21%), the quality of the client service (38%), and additional services as professional training and consulting services (43%).

In combination with the findings that address our first research question – What are the perceptions of lean global startups about the digitalization of foreign market development activities? – the main challenge for providers of digitalization services is to overcome potential deficits in theoretical knowledge and practical experience of users and to transparently demonstrate the benefits and the added value of the application.

The main finding of the third research question – What are the views of lean global startups about the factors that determine the use and the selection of software products to support digitalization? – is that lean global startups need digitalized international market development processes to increase the efficiency of their business model. Transparency about benefits, data collection and analysis, the ability to integrate into the existing ERP systems, and an attractive price-performance ratio are the main decision criteria of potential users.

Conclusions

The key findings of this survey are:

• Most lean global startups have limited theoretical knowledge about digitalization and lack practical experience with digitalized international market development processes.

• Most lean global startups expect significant economic benefits in their international networking ability – for example, in lead generation, client acquisition, and client development – where they currently do not use digitized processes.

• Lean global startups expect a significant impact of digitalization on productivity, profitability, and sales revenues, especially through a higher efficiency of all international networking and learning activities due to the application of big data and predictive analytics.

• Lean global startups select software to support digitalization based on transparency about benefits, data collection and analysis, the ability to integrate in the existing ERP systems, and an attractive price-performance ratio.

• The main objections to selecting and using a software tool to support digitalization include lack of support in configuration and training; data protection; and unclear selection, processing, and evaluation of data (i.e., the "black-box" effect).

The findings show that lean global startups expect a significant impact of digitalization on internationalization. This result confirms the findings of other studies (Bohanec et al., 2017; Kawas et al., 2013; Müller et al., 2018). Digitalization allows lean global startups to create knowledge and networks at a faster rate, which increases the efficiency of decision-making processes, which ultimately increases the speed of internationalization. In detail, digitalization increases the speed of internationalization using internal and external data to predict future market development, allowing lean global startups to act on several levels:

• applying a structured and disciplined internationalization process with regular reviews and a reduced workflow (one instead of three market evaluation steps)

• mediating between local market realities and strategic goals

• analyzing permanently all foreign markets instead of just a sample of them

• optimizing decision-making processes and the ability to make long-term, strategic decisions due to better market information

The findings of this study are relevant for scholars, researchers, managers, and policy makers who support

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activities that promote digitalization, to better understand the impact of digitalization on internationalization speed in lean global startups, to increase the efficiency of decision-making processes, and to optimize international market evaluation strategies, processes, training, and (financial) support projects.

While offering new ideas for future research, a multiple case study research design has several limitations in scope and size. Future scholarly work should include quantitative assessments of the perceptions of lean global startups with qualitative and quantitative data to provide greater clarification of the statistical significance of the study's variables, replicate it with other case-study firms belonging to different countries or industries and at different stages of development, and going from expectations to actual tests of the factors of this study.

About the Author

Michael Neubert is a Professor at the International School of Management in Paris, France, where he obtained his PhD and is now also Chair of the Strategic Management Committee. He teaches international business, intercultural communication, doing business in foreign markets, and international finance. His research interests concern the internationalization of high-tech startups. Michael is a member of the Academy of International Business, and he is a partner of a private equity firm that invests in high-tech startups and supports them in the development of new foreign markets. Michael is also the CEO of C2NM (www.c2nm.com), a Swiss consulting firm specializing in the field of international and intercultural management.

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