

# Mapping Business Transformation in Digital Landscape: A Prescriptive Maturity Model for Small Enterprises

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**Abstract.** Developing versatile modern ICT is an insurmountable challenge to many small and medium enterprises (SMEs). Resources, such as skills, money, time (Jones, Macpherson, Thorpe & Ghecham, 2007) [1] and knowledge (Holsapple & Joshi, 2000) [2], are scarce (Atherton, 2003) [3]. This makes the selection and decision of any development project a key business issue. The most important questions for SMEs are i) where to start and ii) what to change. While there are hundreds of descriptive maturity models for organizational development (Becker, Knackerstedt & Pöppelbuß, 2009 [4]; Röglinger, Pöppelbuß & Becker, 2012 [5]), these offer little support for organizational decision-making. We developed a prescriptive maturity model that maps a subjective snapshot of the maturity of a business, and identifies the most promising objects for next development steps. This *Business Transformation Map* has three interrelated maturity dimensions: business, technology, and social, that span across past, present and future. We used the model in several test cases, and our results show that the model makes business dimensions visible in a way that makes sense to SMEs. The interviewed SME companies state that depicting company maturity levels in this manner brings clarity to overall business growth options, and it helps transforming this understanding into concrete development steps.

**Keywords:** Small Enterprises, Information Systems Development, Digitalization, Work Informatics

## 1 Introduction

Modern business development is complicated, and creating a fruitful development plan requires deep understanding of the possibilities of modern ICT. Development actions regarding digitalization are mandatory, but resources, such as skills, money, time (Jones et al., 2007) and knowledge (Holsapple & Joshi, 2000), are scarce (Atherton, 2003), limiting the number and content of development actions. This makes the selection and decision of any development project a critical issue affecting all aspects of the small and medium enterprise (SME).

Regardless of scarce resources, companies must strive for a planned digital shift, the use of digital tools and solutions. A successful digital shift allows businesses to run, organize and operate business processes by digital tools. The benefits of this include for instance enabling lower production and labour costs, and creating added value to products and services (Nguyen, Newby & Macaulay 2015).

*“Effective process mechanisms involve (a) a comprehensive analysis of the decision problem and the alternative solutions, (b) the use of tailored IT decision making frameworks, (c) strategic experimentation through piloting and “green fields”, (d) the involvement of multiple stakeholder constituencies, and (e) mutual understanding, conflict resolution and collaboration among stakeholders.”* (Ribbers, Peterson & Parker 2002)

Business Process Maturity and the models that depict different maturity levels are for the most part narrow in the sense that they focus on a single aspect of business and typically depict a linear sequence of maturity levels. Hundreds of maturity models have been suggested, and new models are constantly being developed. (De Bruin, Freeze, Kaulkarni & Rosemann, 2005; Becker, Knackstedt & Pöppelbuß, 2009; Röglinger, Pöppelbuß & Becker, 2012). We claim that organizations, even SMEs, are too complex to be thoroughly understood through a single maturity model or even a set of models. Instead maturity models can and should be used to view a small section of a single organization in the chosen timeframe. Moreover, most of the current models are descriptive in nature. Thus they offer little help, when it comes to deciding what business development activities to do next. More prescriptive models are needed.

The social (people) factors of companies are key to recognizing essential elements of work systems. Technical and economical considerations are traditionally the basis of business development, but the social aspect is crucial (Kumar, van Dissel & Bielli 1998). Individuals working in companies make use of their prior experience, interact with customers and partners, and seek support from peers. Social aspect of work does not only come out by participating in collaborative work but is seen also by sharing information and knowledge between individuals at work. The social aspect is

increasingly taken into account in modern maturity models (Schumacher, Erol & Sihn 2016; Igartua, Retegi & Ganzarain 2018). The novel study by Tuomisto, Kaukola & Koskenvoima (2015) suggest that individual work role discussion starts with individual's ideas of one's future work role and actions: desired, imagined, wanted.

Hence we suggest that in order to understand the current state of business, it is important to look into the state of processes, systems and individuals simultaneously. In a developing environment where goals for future are set, it's important to understand not only the current state, but also the past of the company, as it is the past that creates the prerequisites for both current existence as well as future possibilities.

In order to maximize the effectiveness in business transformation organizational structure should be aligned with service orientation and IT-governance (Chatzoglou, Diamantidis, Vraimaki, Vranakis & Kourtidis, 2011). To understand better the orientation we look further into the concept of business process re-engineering and business process orientation (BPO) discussed well in Zhang & Cao (2002). We believe that increased BPO gives a relevant insight on our understanding of business maturity. We utilize the critical success factors (CSF) from a study (Skrinjar & Trkman, 2013) which discovered 5 CSFs and 27 critical practices. These seem to have an important effect on improving the business process orientation maturity.

The concept of business process has been widely discussed in academics. There are several different kinds of processes that provide value for organization and Bergman & Klefsjö (2010) have generalized the concept well by stating that process is a network of actions to create value for customers. For our purpose this concept is a bit too broad and hence we claim that business action networks should be separated into three action categories. The categories are business actions (e.g. manufacturing of goods or providing services), technology (i.e. the tools, systems and IT used) and social interaction (e.g. customer collaboration, creation and utilization of knowledge capital and both internal and external communication).

## **2 Different Aspects Of Current Maturity Models**

### **2.1 Business Maturity Models**

Mapping the developmental stage of businesses is a complicated matter. This is why business maturity models usually focus on a single aspect of business maturity. In growing markets, organizations are constantly looking for competitive advantages against their rivals. This has lead to giving more and more focus on the business processes in the organizations (Van Looy, 2010). It is critical for the organizations to determine their business process maturity. Determining process maturity helps businesses in stability, improving and sustainability. Maturity models help organizations see their current maturity level, as well as strengths and weaknesses of their business processes. (Albliwi, Antony, Arshed, 2014) Maturity models usually

include a chain of levels or stages that demonstrate a desired path from current state to maturity. (Pöppelbuß, Röglinger & Becker, 2012.)

Business maturity models have also been a target of criticism. Since the Software Engineering Institute launched Capability Maturity Model (CMM) in 1993, hundreds of maturity models have been introduced by researchers and practitioners. Maturity models have been considered as “step-by-step recipes” which lack the empirical foundation and simplify reality. (Pöppelbuß & Röglinger, 2011) CMM is not focusing on the factors that influence the evolution. Also in regard the suggested improvements, many users rely in the CMM levels to lead in somewhat predefined goals. (Albliwi, Antony, Arshed, 2014.)

## **2.2 Technological Maturity Models**

Technology Acceptance Model (TAM) was originally a psychological theory, but has since become a leading information system theory that models how users come to accept and use a technology. Acceptance is a key factor in a technological maturity model. TAM studies how easy to use and how useful the technology is for the user and what kind of relationship there is between the system variables and the potential system usage. Technology users who are more confident in their own abilities are more likely to succeed and more willing to accept new technologies than users with doubts. Additionally, when considering the technological maturity of a business, it is important to pay attention to the different information systems and environments, as well as usability and acceptance factors (Marangunić & Granić, 2015). Thus the maturity of technological systems is mirrored in their users.

New information systems are usually costly and a long term investment for companies. Still, IS implementation projects have a relatively low success rate (Legris et al., 2003). There are several factors that are affecting the success rate and that can be measured. TAM and a newer modification of it are scrutinizing these key factors. For the better maturity state and at the same time technological success and acceptance rate, it has been suggested that TAM could be integrated into a broader maturity model that includes social and organisational factors (Legris et al., 2003).

## **2.3 Business Culture Maturity Models**

Many maturity models have human and social factors in their evaluation criteria. These models recognize people as key value creators and argue that human and social capital affect business performance. Human capital refers to knowledge, abilities and skills of individuals working in organizations, and social capital is defined as each individual's assets located in networks of relationships from which these assets can be accessed and utilized in purposive actions. (Jansen et al., 2011; Hernández-Carrión et al., 2017.)

However, most models focus on recognizing structural and technical factors rather than behavioural and cultural factors including communication, informed decision-making facilitating, organizational culture establishing and change management (Bititci et al., 2015).

Knowledge management maturity models (KMMMs) consider knowledge within organizations. The human factors include tacit and implicit knowledge, which are types of knowledge that rise from experience and are shared between people and groups within organizations (Fabio, 2014). KMMMs include people, social or human factors, which are the foundation to these maturity models (Khabitian, 2010). A rather new maturity model is the Community Maturity Model (CoMM) that can be seen as a sub-model of KMMMs. It was developed on the acknowledgement that very few maturity models are related to community assessment and do not take into account many characteristics of communities; common values, sense of identity, history, among others (Boughzala, 2014).

#### **2.4 Critique Towards Current Maturity Models**

Current maturity models tend to be formal, descriptive and normative. They have been criticized for not enabling future decision-making as they do not prescribe or present actions to perform for overcoming or addressing the identified weaknesses. (Boughzala 2013) In real-life business development cases one often has to decide between different development options, as it is seldom possible to change everything at once. Also, there is a call for maturity models of a more prescriptive nature in academia (Tarhan, Turetken & Reijers 2016, Pöppelbuß, J., & Röglinger, M. 2011).

Additionally, there is a lack of SME oriented maturity models. Existing maturity models oftentimes focus on larger organisations. In SMEs, functions are often not that segregated and organisational structures are more concentrated, and so many maturity models apply poorly. (Igartua et al. 2018.) For tools and models to be useful in SMEs, they need to make sense and create understanding among the stakeholders, ie. company decision-makers. Sensemaking reduces confusion and creates coherence. It affects human behaviour and supports development related decision-making. (Hoorn, van der & Whitty, 2017). Hence there is a clear need for a simple prescriptive maturity model.

### **3 A Prescriptive Maturity Model: Business Transformation Map**

Descriptive maturity models give a good overview on the historical development of a company, but they offer little guidance here and now. Organizational maturity can vary a lot between maturity models focusing on different organizational aspects. There is not always a clear step to take for reaching the next maturity level. Hence, the need for a unifying prescriptive model that helps to decide where to start and what to do next is crucial, even though such a model might not give a clear roadmap far

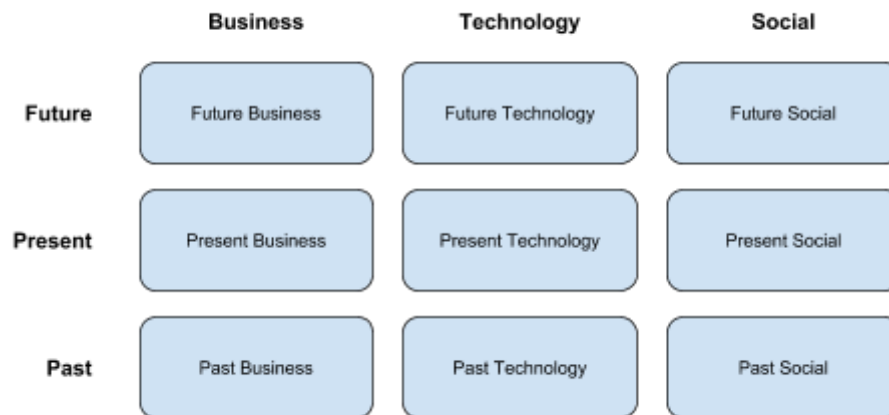
into the future. Such a model should help the SME towards upper maturity levels as a continuous development process.

### 3.1 Requirements Of A Prescriptive Maturity Model

A prescriptive business maturity model needs to, by definition, provide actionable plans for developing the business in question. In order to be an effective and valuable tool, it should offer new insights about the company, and take into account all relevant categories of information in the selected field of study.

The main dimensions that need to be mapped are business (or trade), technology and social, as described in chapter 2. For a complete picture, it has also proven fruitful to touch on past, present and future, in order to understand why the present is as it is (not to change things that work in a certain way due to valid reasons) and where the company representatives wish to go (Tuomisto, Kaukola, Koskenvoima, 2016).

It is important for the model to resemble reality enough to provide guidance, but it is not necessary to aim for a truly objective view or even a description that is accurate for all purposes. The main point is that the picture is true enough for the actionable conclusions to be valid.



**Figure 1.** Business Transformation Map Nine-Field

### 3.2 Nine-field Columns - Three Dimensions Of Analysis

The columns in our model map (Image 1) consist of the different dimensions of organizational analysis: business, technology and social. Business here means things related to managerial systems, processes and decisions, trade and finance. Technology means things related to ICT landscape, systems and more generalized tools. Topics

that fall under Social dimension include social interactions and socio-political hierarchy, organizational knowledge, tacit knowledge, roles and responsibilities, etc.

### **3.3 Nine-field Rows - Three Temporal Viewpoints**

The three dimensions are analysed from three temporal viewpoints. Many traditional maturity models map the expected evolutionary stages of a business in a temporal axis, but the Business Transformation Map is a snapshot in time, and tries to offer a tool to gather information about past, present and future, as understood in the current moment.

The current situation is perhaps the most interesting part to consider when it comes to actionable information. However, knowing the future plans and worries of an organization also give guidance on organizational change. More often than not, planned changes are reactions to current problems. The plans, and especially how the company representatives feel about the plans, can give important insight into why things are happening, and provide opportunities to fine-tune plans.

Knowing the past is also important when making organizational changes. The current state of affairs is a result of previous actions, and if one doesn't understand why things are done the way they are, it is highly risk to change things. Also, going over the past gives more detailed and personal insight into the causal links in the organizational model's development.

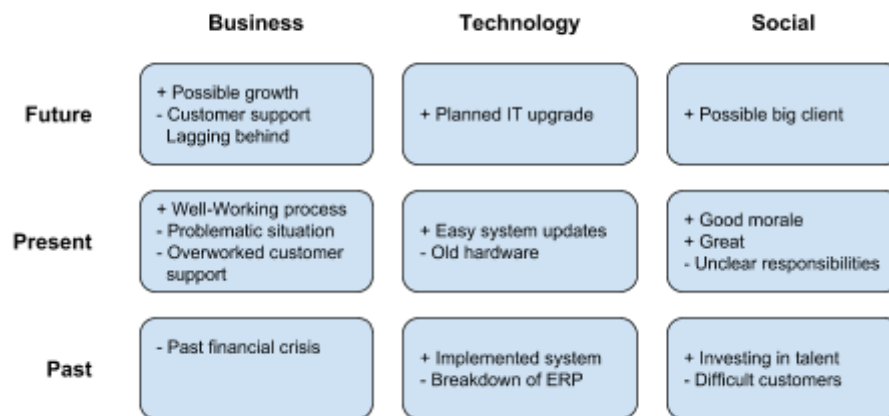
### **3.4 Using The Model**

The model is meant to be used in conjunction with, and not as a replacement for, an analytical discussion. This is done between an information systems specialist and an organizational representative, or between members of the organization in question. The main point is to open up a dialogue, and loosely follow the structure laid out, circling back to empty fields or things that seem unbalanced, in order to fill in a purposeful picture of the organization's situation. We suggest that the discussion begins with representatives' future work and goals, as they are often the reason for initiating development (Tuomisto, Kaukola and Koskenvoima 2016). Proceeding from future goals to current and past events emphasizes the narrative way and prescriptiveness of the model.

The model acts as support for discussion and a note-taking tool. The discussed issues are listed on the relevant columns with a plus (positive issue) or a minus (negative issue) sign. Future row issues correspond to opportunities and threats, hopeful plans and possible worries. The Present row issues correspond to current strengths and weaknesses, or things that are easy and things that take extra effort, things that work and things that don't. Finally, the Past row issues correspond to past crises and successes.

The model does not suggest structured interviews. If it is difficult to figure out where to start, one can go over the nine empty boxes starting from past or present. Discussion can progress organically, and come back to topics that have been skimmed over quickly. All fields should be filled to some extent, after the analysis is over.

Figure 2 presents an example of our Business Transformation Map. This fictional organization is planning for rapid growth with a future IT upgrade, but customer support is lagging behind. The nine-field content would seem to support the planned upgrade, but it could be that the social side of customer support needs some development as well. Perhaps the work roles need to be defined more clearly, or they need more sophisticated tools for tracking responsibilities to make customer relations feel less difficult, and to handle the growing number of customers. This situation would merit a deeper probe into the social aspects of customer support, using more specialized tools.



**Figure 2.** Examples of Business Transformation Map issues

The three dimensions of Business Transformation Map are interrelated and help to guide discussion along fruitful lines. The function of separating the three dimensions into separate columns is to force discussion to take into account different viewpoints that might otherwise get bypassed. For example, the first thought in this case might be that an organization’s current CRM system is not working well, but when prompted to consider the same situation from a social point of view, it is possible that the responsibilities of customer support personnel are not clearly defined, either. Similar correlations occur between Business and Technology, as well as Business and Social, and causal relations are naturally present on the temporal axis.

It is normal for some issues to belong to more than just one column. In these cases one can select the column most suited for the situation or, if two columns feel equally “right”, mark the issue on both.



After filling in the model, participants (developers and SME representatives) decide on the next steps together, attempting to find an actionable issue or issues that would produce most benefit to the organization. Often issues cluster around one dimension or a single topic mirrored across all dimensions, signaling fruitful soil for IS development.

### **3.5 Relationship Between Action Columns**

The cells in the model are a collection of relevant items in the business environment and hence create a sort of landscape on how the particular business functions. This landscape view on business does not cover the subtle nuances of actions. Thus it's important to discuss shortly how the different cells connect.

Based on our understanding we claim the following:

1. Business cells are tied to Technology by means of process management
2. Technological cells are tied to Social by means of knowledge management
3. Social cells are connected to Business by means of people management, e.g. socio-political, humanistic approach.

The three dimensions all relate to each other, thus creating a cylindrical landscape instead of a flat plane. This correlates with the general view of work informatics, where all parts of a work system are strongly interconnected (Heimo, Kimppa & Nurminen 2014).

## **4 Experiences and Results**

### **4.1 Usefulness of the Business Transformation Map**

A prescriptive maturity model is useful when it leads to actionable development plans. Compared to descriptive maturity models that often give a clear-cut definition of evolutionary stages, here maturity is linked to the number of positive issues in business, technology and social dimensions, and the ratio of positive and negative issues in each category. Every participant in our cases was able to produce an actionable set of issues into the map.

The number of positive and negative issues is indicative of business maturity. It does not give (or even aim to give) a complete picture. More important is to consider each issue carefully; a few far-reaching and particularly important positive issues can oftentimes trump multiple small problems. The produced picture does, however, point out the relative maturity of different aspects of the company, yet it reveals the main areas that would benefit from development actions. Linking the maturity to the existence of many positive issues (success in the past, well-working present and a future with positive expectations) and a relatively low amount of negative issues (i.e. problems) helps to select viable development actions.

Different issues might not be comparable with each other, and some issues are closer to business core functions than other. The count of positive and negative issues can give indication on which area to focus on - the next viable development target - though this is not always a definite rule.

## 4.2 Case Examples

Next we present three case examples to illustrate how the Business Transformation Map works, and what potential benefits using it incurs. The case examples are real cases with real organizations. The cases illustrate the possible use of the model in prescribing actionable steps of business digitalization, and give examples on how the model is meant to be used. These examples are not meant to give a complete picture on the strengths and weaknesses of the model, nor prove the validity of the model. Further research is required to empirically validate the model.

**Case A: Social Marketing Firm.** This case is a social marketing firm, who contacted us to find out about, and possibly implement a prototype of, social media big data tools. They were considering hiring programmers and wanted some consultation. The project was started with a 2-hour interview with the main stakeholders using the Business Transformation Map. See Table 1 below.

First, the future plans of utilizing big data were discussed. After going over the different dimensions of A's organization, it was clear that this wish was not due to lack of tools, but a response to not being able to properly articulate their marketing decisions and the benefits of their value-based work processes to their clients.

*Results.* Organization A ended up ordering an adaptive quality model resembling the PDCA management method (Deming 1950) that explained and codified their work processes, helping them communicate the benefits and their dedication to quality to their customers. No programmers were hired, but a review of available social media marketing tools was conducted.

*Thoughts.* Many issues are mirrored between columns: uncoordinated work, business uncertainty and difficulties in articulating benefits to clients seemed to all communicate the same problem on different columns, impacting the organization as a whole.

Although the number of positive social issues was low, they were highly valued and focused on by the company. In general, it is important to note that the issues are not equal, and their context needs to be taken into account. This might be expressed better by using multiple plus signs in front of "bigger" positive issues, but the number would also be wholly arbitrary and need interpretation.

The Business Transformation Map successfully mapped the organization's situation, prompting the organization's representatives to say they understood their work better.

It also resulted in changing course from big data plans to solidifying the quality processes and overcoming the hurdles in communication.

**Table 1.** Case A Business Transformation Map

	Business	Technology	Social
Future	<ul style="list-style-type: none"> <li>+ Experience of content matter</li> <li>+ Culture of learning</li> <li>+ Adaptability</li> <li>+ Growth of sales?</li> <li>- Small number of customers</li> <li>- Limited time resources</li> </ul>	<ul style="list-style-type: none"> <li>+ Big Data plans</li> <li>+ Automation plans</li> <li>+ Process development plans</li> <li>- Fast developing tech</li> <li>- eMarketing experience</li> </ul>	<ul style="list-style-type: none"> <li>+ Plans to participate more deeply in customer operations</li> <li>+ Caring of clients</li> <li>- <i>Difficult to explain the benefits of company values</i></li> <li>- Changes in communications culture can be fast</li> </ul>
Present	<ul style="list-style-type: none"> <li>+ Stable customer base</li> <li>+ Genuineness</li> <li>+ <i>Quality content (pictures and text)</i></li> <li>+ <i>Reputation of quality</i></li> <li>- <i>Uncertainty; focus on right things?</i></li> <li>- <i>Lack of productization</i></li> <li>- Lack of sales</li> <li>- <i>Undocumented processes</i></li> </ul>	<ul style="list-style-type: none"> <li>+ Controlled platform (no maintenance or responsibility of hacks)</li> <li>+ Good tools</li> <li>- <i>Uncoordinated work</i></li> <li>- Technological know-how</li> </ul>	<ul style="list-style-type: none"> <li>+ <i>“Deep” customer relations, trust</i></li> <li>+ Close-knit internal team</li> <li>+ <i>Wish for transparency</i></li> <li>- Lack of marketing</li> <li>- Under-utilized contacts</li> <li>- <i>Articulating gained benefits to clients</i></li> </ul>
Past	<ul style="list-style-type: none"> <li>+ Online marketing</li> <li>+ Experience in PR and communications</li> <li>+ Teaching experience</li> <li>+ Long experience in food industry</li> <li>- Slow growth and size of business</li> <li>- Lack of direction</li> </ul>	<ul style="list-style-type: none"> <li>+ Blogging business</li> <li>- Big crisis with hacked Joomla sites (led to change of platform)</li> </ul>	<ul style="list-style-type: none"> <li>+ a large pool of contacts from many fields</li> <li>- terminated clients</li> </ul>

**Case B: Construction and renovation consulting firm.** This case describes a construction and renovation consultant firm which specializes in old and traditional buildings. The firm is ran by an entrepreneur and for this reason the entrepreneur seeks value from external relationships and networks. Based on prior projects with higher education and business development workshops, the firm wanted to better utilize customers' knowledge and to include customers in the decision-making process together with other construction and renovation stakeholders. This is done in order to add transparency to end-to-end construction processes, which has been requested by customer.

The project started with Business Transformation Map based interview with the entrepreneur. The Map narrowed the project scope to mapping out digital platform solutions for enabling transparent decision-making between all stakeholders. This platform thinking was seen as something totally new to the business field and the entrepreneur was willing to investigate possibilities further. See Table 2 below.

*Results.* All stakeholders and requirements for transparent decision-making were identified. Different digital solutions for enabling efficient decision-making were compared against set business criteria and one solution with automated decision-support functionalities was selected for the firm. The solution provider was contacted and co-operation negotiations were started during the project.

*Thoughts.* We identified key factors and issues with the Business Transformation Map analysis tool. The firm's willingness to create new methods and ways of working for the entire business field indicated that bold solution proposals could be made. The lack of the entrepreneur's skills in IT resulted in seeking outsourced digital solutions and strategic alliances which is also linked with acknowledging the entrepreneur's role as an solo entrepreneur.

The Business Transformation Map analysis brought insight not only to the entrepreneur, but for the whole project team. The unified model simultaneously visualised the business needs and showed affecting factors. It also led to a change in project scope and topic.

**Table 2.** Case B Business Transformation Map

	Business	Technology	Social
Future	<ul style="list-style-type: none"> <li>+ Business growth through increased visibility on market</li> <li>+ Growth through reputation; quality, customer value, long-term commitment</li> </ul>	<ul style="list-style-type: none"> <li>+ Through the use of digital tools the end users are enabled to make decisions, opinions and choices</li> <li>+ Modern market leader who brings digital tools to the field</li> <li>+ Automated decision-making via digital tools will bring new service to business field</li> </ul>	<ul style="list-style-type: none"> <li>+ End user and customer engagement in decision-making in a new way through the use of digital use</li> <li>+ Stakeholders are transparently in cooperation (including end customers)</li> </ul>
Present	<ul style="list-style-type: none"> <li>+ Aims to high-quality and high customer appreciation</li> <li>+ The new service brand has started to build customer traction</li> <li>+ Long time in business with the now to be built new brand</li> <li>+ Active in cooperation with business development entities; is experienced with higher education cooperation</li> <li>- No prior experience of brand building</li> <li>- No prior knowledge of process description building</li> </ul>	<ul style="list-style-type: none"> <li>+ Website for the company exists</li> <li>+ The technological development plans have been established through previous projects with higher education institute cooperation</li> <li>- New brand with digital technologies to enable decision-making or for communication is not currently online or solutions selected</li> <li>- The need to select digital tools and software is current</li> <li>- No technical experience</li> </ul>	<ul style="list-style-type: none"> <li>+ Actively networked both within the business and with different business development entities (higher education institute cooperation, business accelerators etc.)</li> <li>+ Active seeker of information, wants to build networks</li> <li>- As a sole entrepreneur finds solo entrepreneurship as a must and thinks many times to be alone</li> </ul>
Past	<ul style="list-style-type: none"> <li>+ Long time in business</li> <li>- Solo entrepreneur (only one person in the company)</li> </ul>	<ul style="list-style-type: none"> <li>- No prior experience of using digital tools in business</li> <li>+ Tools in use MS Outlook, MS Office</li> </ul>	<ul style="list-style-type: none"> <li>+ The service relevant and business field knowledge accrued over many years -&gt; high level of content knowledge</li> <li>+ Networks have been developed over many years and some are deep in nature</li> </ul>

**Case C: Cleaning products manufacturing company.** Case C company is mature over 40 year-old company which is currently owned by an international conglomerate. The company contacted us for a preliminary analysis and improvement proposal of their current processes concerning employee production reporting which is currently handled through mainly in pen and paper style where employees use personal notebooks to keep track of their production. Although using manual reporting with pen and paper, the company is also mature in IT use on other business sections. Currently they use two separate enterprise resource planning (ERP) systems with which they handle warehouse, orders, manufacture and most of the reporting. The information system landscape of two ERPs contains the old ERP being legacy system from prior to acquisition by the international conglomerate and the new ERP is used and supported by the new owner. The new owner is leaving the decision on which ERP system to use on manufacturing for the local company but wants reporting on the company used system. See Table 3 below.

The discussion with case company C started with Business Transformation Map analysis tool interview. Although the target of the company was clear (to reduce the amount of paper-based reporting and duplicate reporting work performed by manufacturing employees and factory floor manager), the Business Transformation Map presented the need in a more vast scale. The aim of the project was set to finding ways of improving work methodologies and creating efficient working environment, which would also decrease the number of printed work cards and personal notebooks.

*Results.* The project resulted in suggesting a large-scale module implementation to their existing-ERP system that is used by the new owner. With this module the company would be able to handle employee reporting through systems interfaces which could be added to each workstation. The module would also support future development towards for example IoT (internet of things) which would connect each manufacturing equipment to the ERP system. The Business Transformation Map provided the company with information with which it could present their business and information technology need to the new owner.

*Thoughts.* This case shows that the Business Transformation Map Nine-Field is scalable also to larger SME companies employing more than 50 persons and it presents business factors and landscape of a larger company equally comparing to smaller company sizes. The nine-field can also present more complex business environments which are international and represent multiple corporate entities. The nine-field view of this case company includes, takes into account and connects entities from individual manufacturing employees to larger international company requirements.

The Business Transformation Map also presents a snapshot-like view that captures factors regarding internal and external relations and the maturity of the company,

which are factors needed to take into account in development projects by the consultant.

**Table 3.** Case C Business Transformation Map

	Business	Technology	Social
Future	<ul style="list-style-type: none"> <li>+ Increase in manufacture through relieved work force from manual reporting</li> <li>+ Effective and comprehensive reporting</li> <li>+ Good level transparency and corporate requirement response</li> </ul>	<ul style="list-style-type: none"> <li>+ Unified and conglomerate compatible IT infrastructure</li> <li>+ Efficient work methodologies</li> <li>+ Manufacturing traceability fully operated with digital tools</li> <li>+ Automated reporting in vast use</li> </ul>	<ul style="list-style-type: none"> <li>+ Engaged employees from all levels in digital development / work</li> <li>+ Efficient and sustainable work environment through digitalization</li> </ul>
Present	<ul style="list-style-type: none"> <li>+ Established business with a long history</li> <li>+ Defined products</li> <li>+ International market share with customers from 20+ countries</li> <li>+ Own Ltd company although main ownership shifted to an international conglomerate</li> <li>- Employee hourly reporting done by pen and paper</li> </ul>	<ul style="list-style-type: none"> <li>+ Uses currently two separate ERP systems</li> <li>+ One ERP in efficient use (willing to use more)</li> <li>+ Vast IT and ICT knowledge in company management</li> <li>- Other ERP system is business crucial but in non-full use</li> <li>- No traceability via digital tools</li> <li>- Employee reporting adds additional work to process as done to system after recorded via pen and paper</li> <li>- Building access control system outdated</li> </ul>	<ul style="list-style-type: none"> <li>+ Roles and responsibilities clear with the company management</li> <li>+ Employees are a valued asset whom are wanted to give insight to business process development</li> <li>+ Employees are wanted to make part of digitalization project</li> <li>+ Seeks and wants to continue cooperation with local companies, such as the factory access control system service provider</li> </ul>
Past	<ul style="list-style-type: none"> <li>+ History as a family company before acquired by the international conglomerate</li> <li>- The base for salary is by piece rated which doesn't correspond to current way of working and base for salary</li> </ul>	<ul style="list-style-type: none"> <li>+ Old ERP has been in greater use in past</li> <li>+ New ERP introduced by conglomerate company</li> <li>+ IT experience on high level from previous work</li> </ul>	<ul style="list-style-type: none"> <li>+ Good long term relationships between employees and management</li> </ul>

### **4.3 Findings**

These three cases were the most fruitful among our 13 test cases, in that the use of Business Transformation Map clearly resulted in new actionable understanding that guided the following development projects' content. There were no cases where the model didn't result in actionable information, though in some cases it only validated the already prescribed development plans.

It might be that the simple use of plus and minus signs is not descriptive enough. Many issues are not equal in scope or value, and it might be necessary to denote this with, for example, multiple plus or minus signs. However, the decision of such an 'impact factor' would be totally arbitrary, and might not lead to better prescriptions. As it is impossible to completely normalize the issues, it is in any case recommended to use the number of issues as a guideline and not as a rule, when deciding on a course of action.

## **5 Conclusion**

SMEs need simple prescriptive tools for identifying fruitful targets for business development. We presented the Business Transformation Map as a possible solution for the initial analysis preceding the decision of actual business development projects, and described three small company cases.

Our findings suggest that our model is a viable tool that helps in the arduous process of selecting actionable development steps in the work system for a business to take. It is simple enough for SMEs to utilize, though they still might require someone with experience of business development projects to discuss the situation with them. It is descriptive enough to provide a current snapshot of the business for identifying areas ripe for development, and seems non-restrictive enough to fit the needs of an organization in any field.

Further study is required on several fronts: Is the model clear enough for people who are less experienced with business development? Is it descriptive enough to prescribe an actionable development course in all, or at least most, situations? How exactly does the model compare to alternative tools for initial analysis? The tool can hopefully be developed further after such questions are answered.

The next step for developing the model is to test the long-term results of business development projects where the Business Transformation Map was used. A prescriptive maturity model is only as good as the results of its use. The end-result should be a better work system, meaning better productivity and wellbeing. The proposed model shows promise, but a more extensive study is required to prove the validity of the Business Transformation Map.



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