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Strategic action fields of digital transformation

An exploration of the strategic action fields of Swiss SMEs and large enterprises

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Abstract

Purpose – The purpose of this paper is to capture the collective understanding of digital transformation (DT) across Swiss businesses and establish a reference framework based on the strategic action field (SAF) theory.
Design/methodology/approach – A number of Swiss associations provided their databases for an online survey. The large sample includes 2,590 participants from 1,854 organisations and delivered over 4,200 descriptions of DT, categorised into seven SAFs. A cross tabulation of SAF combinations by firm size identified 127 possible SAF combinations which constitute the common understanding of DT.
Findings – The data set allowed the identification of SAFs and the conceptualisation of DT based on a shared understanding. Drivers of digital transformation are: process engineering, new technologies and digital business development, supported by digital leadership and culture, the cloud and data, customer centricity and digital marketing.
Research limitations/implications – For practitioners, the study provides the SAFs that should be considered for DT strategies. For academic scholars, a unique data set has allowed the study of DT by analysing action field combinations, revealing a nuanced constellation of SAFs. Limitations are the focus on Swiss organisations and a convenience sample for collecting the analysed data.
Originality/value – For the first time, the shared understanding of DT in Swiss businesses – based on SAFs – has allowed a conceptualisation of DT in order to provide guidance to businesses managers and employees.

Keywords Business strategy, Digital transformation, Digitalization, Digital strategy, Digital business development, Strategic action fields

Paper type Research paper

1. Introduction

Organisations across industries are responding to the emerging opportunities and challenges presented by the digital age (Berman, 2012; Cascio and Montealegre, 2016; Rogers, 2016). It is the responsibility of the management of commercial and government organisations to not only understand and embrace the potential of digital technology, but also to transform their organisations in the process of integrating digital technologies (Andersson *et al.*, 2018; Andriole, 2017; Berman and Marshall, 2014; Day-Yang *et al.*, 2011; Gimpel *et al.*, 2018; Heavin and Power, 2018; Horlacher and Hess, 2016; Loonam *et al.*, 2018; Matt *et al.*, 2015; McKeown and Philip, 2003; Moreno *et al.*, 2015; Reddy and Reinartz, 2017). While the digital transformation (DT) of businesses affects both large and small businesses, small- and medium-sized enterprises (SMEs) are of particular interest in this respect due to their important role in the economy (Bharadwaj *et al.*, 2013), representing over 99 per cent of enterprises in Switzerland (BFS, 2017) and the European Union (European Commission, 2018).

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However, DT is too often addressed in a general manner for businesses, the economy and society and can thus remain too abstract for business managers and employees. At the same time, the DT of businesses is being realised by the decision of managers to strategically adopt and integrate specific digital technologies with the concomitant changes in business processes and working practices. Therefore, from an internal business perspective, the central actors in the DT of business activities are the managers and employees making decisions about the adoption of new technologies and changes in the way work is carried out and organised. From an external business perspective, it is the DT of stakeholders such as suppliers, competitors and customers. DT is thus simultaneously an organisational specific internal process and an external shared endeavour of DT of the broader business system. This multi-faceted nature of DT is recognised in Vial's (2019) general definition of DT as described below.

This paper conceptualises the DT of businesses by drawing on and adapting the strategic action field (SAF) theory of Fligstein and McAdam (2011, 2012) to a business focus. The DT of business organisations is conceptualised as the participation of the business in one or more SAF, each related to different understandings of the DT process. It can be argued that it is the managers and employees – also collectively in their functional teams – who represent a business organisation in a given DT SAF. Each SAF represents different parallel and potentially related digital adoption processes and changes in working practices that are simultaneously being implemented across many businesses. Adopting an SAF perspective emphasises the potential for multiple, highly related and interconnected DT processes and the importance of business actors, managers and employees, achieving shared understandings of DT processes within and across businesses to realise their full potential.

Achieving such a shared understanding in support of business transformation is reliant on strategic leadership to create and exploit dynamic capabilities and organisational learning needed to sense and seize opportunities and threats. This enables organisations to innovate and renew their products and business models (Naldi *et al.*, 2014; Vera and Crossan, 2004), a key dimension of DT (Vial, 2019). A central point of transformational leadership is the stimulation of knowledge sharing and innovation behaviour, which requires the involvement of both managers and employees (Bednall *et al.*, 2018). Hence, SAFs represent critical spaces for developing the shared understanding that managers and employees require for DT.

The data for this study were collected using an online survey with Swiss managers at both large enterprises and SMEs. Participants were invited by e-mail and responses were received during April and May 2017. In total, the realised sample includes 2,590 participating managers and employees from 1,854 organisations. The distribution of respondents by business organisations' sizes based on the number of employees reflected the national Swiss large enterprise and SME distribution.

The analysis of the data on concrete DT measures undertaken in the respondents' businesses, using the theory of SAFs, allowed the development of an understanding of the degree to which the DT of Swiss businesses is associated with participation in one or more DT SAFs. The analysis also allows the comparison of the engagement of large enterprises and SMEs as actors within and across the identified SAFs, an indicator of the complexity and completeness of DT initiatives which different types of businesses are undertaking. Finally, the analysis allows insights into the degree to which large enterprises and SMEs are participating in outward or internally oriented SAFs.

The analysis of the participation of Swiss businesses within and across the identified SAFs provides managers with a solid basis for assessing their understanding of the different strategic DT options available to them for responding to the challenges of the digital age. In drawing on the seven identified SAFs, which are the collective understanding of respondents from large enterprises and SMEs in Switzerland about DT, managers can also assess the completeness of their understanding about and the scope of DT strategies, and therefore make more informed decisions about their defined strategic actions.

2. Digital transformation

DT is a multidimensional phenomenon driven by technology that impacts society, politics and the economy (Vial, 2019). It is often referred to as the fourth industrial revolution (Lasi *et al.*, 2014) and, therefore, it is no longer a question if DT will affect business organisations, but how to take advantage of it (Hess *et al.*, 2016; Kuusisto, 2017; Van der Zande, 2018). DT is, however, challenging, especially for SMEs, because it integrates people, systems and objects in a complex and sophisticated way (Bauernhansl 2014; Dröseln *et al.*, 2017; Smolinski *et al.*, 2017).

Conceptually, DT is now increasingly more clearly defined and delimited from related concepts of digitisation and digitalisation (Gebayew *et al.*, 2018; Maltaverne, 2017; Vial, 2019; Warner and Wäger, 2019), having initially been defined and used loosely in relation to such related terms and concepts (Bounfour, 2016; Hebbert, 2017; Unruh and Kiron, 2017). Vial (2019, p. 118) recently reviewed 282 works to develop a general definition of DT, applicable at different levels of analysis, as "a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies". Reflecting Maltaverne's (2017) observation that DT is a holistic approach that affects a business overall, drives innovation and takes advantage of digital opportunities. This is different to the narrower concepts of digitisation (which refers to the conversion from analogue to digital data) and digitalisation (which includes the utilisation of digital technology to drive process improvements) (Maltaverne, 2017). At the organisational level of analysis, Vial (2019) understands DT as a process where combinations of digital technologies (information, computing, communication and connectivity technologies) create and reinforce disruptions in society and industry, triggering the need for strategic responses from organisations to use digital technologies to alter their value creation paths to remain competitive. To effectively create these new value creation paths, organisations must implement structural changes and overcome organisational barriers hindering the change needed to achieve intended positive outcomes. At the same time, there is a potential for undesirable outcomes of this process.

While DT is now more clearly understood conceptually, managers continue to lack the knowledge and know-how with regard to the development and implementation of digital strategies (Bughin and Van Zeebroeck, 2017; Hebbert, 2017; Hess *et al.*, 2016; Römer *et al.*, 2017). This lack of a digital strategy has been identified as one of the main reasons why only a small number of organisations have been able to implement DT plans (Bughin and Van Zeebroeck, 2017; Hess *et al.*, 2016; Hyvönen, 2018; Ismail *et al.*, 2017; Matt *et al.*, 2015). Views on how this should be addressed differ: Bharadwaj *et al.* (2013) argue that a fusion of organisational strategy and information systems strategy is needed, while other scholars emphasise the need for a dedicated DT strategy (Hess *et al.*, 2016; Matt *et al.*, 2015; McDonald, 2012; Ross *et al.*, 2017; Singh and Hess, 2017). It is agreed that DT requires more than just a chapter in an overarching corporate strategy. This strategic nature of DT has significant implications for both managerial action (Loonam *et al.*, 2018; Vial, 2019) and in terms of (dynamic) capability development (Warner and Wäger, 2019; Vial, 2019).

From a managerial action perspective, both leadership and the roles and skills of employees change due to DT (Vial, 2019) to reflect the changing nature of managerial action required from DT. Loonam *et al.* (2018) argue that these managerial actions can be thought of in terms of strategy (business model) centric actions seeking to reinvent industries, substitute products or services and creating new digital businesses; customer centric actions that emphasise customer experience, customer engagement and online communities, and blend online and offline customer experiences; organisation centric actions to develop a digital culture, understand success factors and focus on the organisation not just technology in delivering change; and technology-centric actions focused on systems, insights from data analytics and seamless technology integration over platforms. Leading employees through transformational leadership is the most effective means to stimulate knowledge sharing and

innovation behaviour (Bednall *et al.*, 2018) required to realise DT. Therefore, leadership in the digital age is an especially important area of managerial action.

Warner and Wäger (2019) emphasise the need for businesses to develop dynamic capabilities for DT, and Vial (2019) identifies the contribution of dynamic capabilities and the building of dynamic capabilities as two key streams of future DT research. Dynamic capabilities allow organisations to create, extend and modify their resource base to remain competitive (Helfat *et al.*, 2007), which is essential given the need to integrate digital technologies and take advantage of these digital technologies to alter value creation paths to remain competitive (Vial, 2019). A business requires ordinary capabilities to complete tasks and dynamic capabilities to innovate and adapt in pursuit of value creating endeavours (Teece, 2014); this applies equally to the DT of businesses. Warner and Wäger (2019, p. 327) argue that DT is "contingent on the strategic renewal of an organisation's (1) business model, (2) collaborative approach, and eventually the (3) culture". Leadership fostering dynamic capabilities with the goal to renew products and business models is an important component of the DT processes seeking to increase the performance of businesses in the digital age (Naldi *et al.*, 2014).

3. Lack of practical guidance for businesses and managers

Unfortunately, research insights and practical guidance for businesses in the field of DT are still limited (Mette and Gsell, 2017). While commercial providers, including consulting businesses, have published a series of whitepapers and frameworks, only a handful of DT models and frameworks have emerged from academic research. Most of them are digital maturity models which assess the digital readiness and progress of an organisation in the digital age. Such maturity models are provided by Anderson and William (2018), Berghaus *et al.* (2017), De Carolis *et al.* (2017), Gill and Vanboskirk (2016), Gunsberg *et al.* (2018), Isaev *et al.* (2018) and Schumacher *et al.* (2016). On the other hand, frameworks with articulated dimensions or action fields are provided by Kane *et al.* (2016), Newman (2017) and Westerman *et al.* (2011). However, many of these frameworks lack empirical validation (Bumann and Peter, 2019).

In Switzerland, empirical evidence about the relevance of, and opportunities around, DT was provided by Credit Suisse (2016), Deloitte (2016), FHS (2017), HWZ (2016), KPMG (2016), PwC (2016), Switzerland Global Enterprise (2017), UBS (2017), Universität St Gallen (2017) and ZHAW (2016). However, they primarily focus on the digital maturity of organisations and/or their opportunities and threats, rather than the evaluation of strategic initiatives and projects that might help to define SAFs in order to guide managers and employees. Additionally, Becker *et al.* (2009) confirm that, although digital frameworks and models have been developed in recent years, the procedures and methods that support the frameworks and models have been only vaguely documented.

The DT of Swiss society and economic activity arguably represents a large-scale collective effort to adopt new technologies, transform the way that work is carried out and economic functions, similarly to preceding collective processes of computerisation, electrification, etc. This paper adopts the theory of SAFs as an explanation of these transformation processes that focuses on actors and their social skills for achieving collective action that is required for such a comprehensive transformation of a socio-technical system (Fligstein and McAdam, 2011, 2012).

4. Digital transformation as collective action

Conceptualising the DT of businesses as a collective endeavour, to integrate digital technologies and transform the way business is carried out, draws attention to the need for actors to both directly and indirectly collaborate around shared understandings of DT internally and externally to their business organisations.

The theory of SAFs has increasingly been adopted to understand business phenomena, especially where incumbent and challenger firms have sought to exercise power in the legitimisation of a specific business practice (Wassermann *et al.*, 2015; Laamanen and

Skålén, 2015). Seo (2017) highlighted the opportunity in adopting the theory of SAFs for studying the DT of businesses. The approach emphasises the presence of identifiable SAFs, the nature of the actors in the SAF, managers and/or employees of a given business, and the nature of the SAF itself as captured by shared understandings of the actors of its purpose. While governance units can be important to understanding an SAF, the focus of this paper does not address this element of an SAF.

Institutional entrepreneurs are critical actors in an SAF for realising shared understandings and subsequent legitimation of change processes (Fligstein and McAdam, 2011, 2012). In the process, institutional entrepreneurs successfully established shared understandings for a given area of activity and collaboration, such as DT. Fligstein and McAdam (2011, p. 3) define an SAF as:

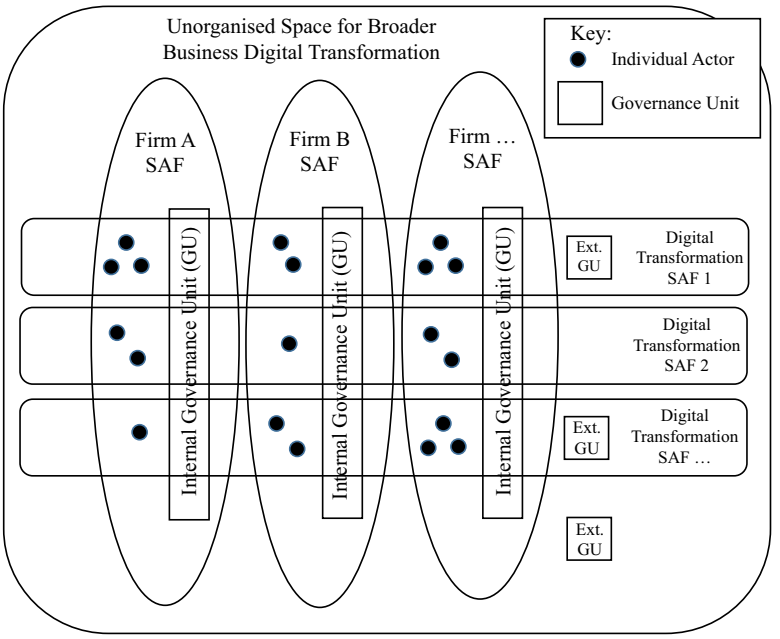
> […] a meso-level social order where actors (who can be individual or collective) interact with knowledge of one another under a set of common understandings about the purposes of the field, the relationships in the field (including who has power and why), and the field's rules.

The use of social skills by institutional entrepreneurs to shape shared understandings in an SAF is called "strategic action" (Fligstein and McAdam, 2011, 2012). The consequence of successful strategic action is a stable social world where actors have a shared understanding of the nature and purpose of such a given domain of activities. Strategic action is necessary as both individual and collective actors in an SAF have unique interpretive frames through which they make sense of what other actors are doing. Critically collective action by the actors in a field is only possible if there is sufficient consensus about the nature of any transformation of the field.

SAFs are argued to be the general building blocks of economic and political life, civil society and the state, but do not have fixed and clearly defined boundaries. The specific characteristics of an SAF may change according to the situation and issues at stake; they are nested in a broader environment of multiple SAFs that can be more or less proximate, overlapping and have different degrees of recurrent interactions (Fligstein and McAdam, 2011, 2012). As a result, SAFs are mutually dependent and changes in one SAF can affect other SAFs.

Business organisations can also be conceptualised as a set of highly related and nested SAFs in which managers and employees share understandings about the purpose of their units in the business and the overall strategy of the business in order to create value. The strength of Vial's (2019) definition of DT is that it applies equally to business processes, teams, departments, strategic business units, the business, its industry and broader economic and social systems. For the purposes of this paper, the business is conceptualised as a single organisational SAF (see Figure 1), and key managers and employees are argued to be the institutional entrepreneurs that are instrumental in resisting, enabling and championing DT in this SAF. Swiss SMEs and large enterprises are also likely to pursue DT to different degrees of intensity and scope. The greater the scope, the more likely the business will be embedded in multiple and diverse external SAFs through their managers and employees; and the greater the intensity, the more likely these managers and employees will also champion DT through strategic action.

As the broader environment is unlikely to be conducive to supporting managers and employees in achieving collective action for realising the DT of Swiss businesses across organisations, the SAF theory suggests that it could reasonably be expected that those SAFs which are more proximate to businesses should emerge around specific dimensions of DT. These are conceptualised as SAFs that overlap with the organisation's specific SAF, creating an interdependency and potential for recurrent interaction between the actors engaged in a given area of DT. This could result in divergent and diverse pressures on individual actors in terms of compliance with internal and external field rules, including for managers and employees and their efforts to undertake strategic actions related to a given DT SAF.



Source: Drawing on Fligstein and McAdam (2011, 2012)

Figure 1.
A strategic action field (SAF) conceptualisation of Swiss business digital transformation

5. Research design

The empirical context for this paper was a DT study of Swiss businesses in 2017 through an online survey of managers and employees. The subsequent data were then analysed using both qualitative and quantitative methods.

5.1 Focal context

In 2016, the Swiss Government adopted the "Digital Switzerland" strategy (Der Bundesrat, 2016) with the shared goal that Switzerland shall benefit from DT and increase its wealth. The government shall create a framework for businesses around innovation so they can dynamically develop and grow. A distinction can be made between SMEs and large enterprises, since the potential and application of DT for these businesses may differ. This supports the collaborative effort framing of this paper.

According to the Swiss Federal Statistical Office (BFS, 2016) data on corporate structure (STATENT), Switzerland has 578,537 businesses with 4,367,967 employees. According to STATENT, 68 per cent of 4.37m Swiss employees work in SMEs and 32 per cent in large enterprises. SMEs accounted for 99.7 per cent of all businesses in Switzerland (BFS, 2017), making the Swiss economy highly dependent on these businesses, reflecting the larger EU economy (European Commission, 2018). Swiss SMEs are defined as organisations with fewer than 250 employees, independent of their legal form or financial size (KMU Portal, 2017), with a further distinction made between micro (less than 10 employees), small (10–49 employees) and medium-sized SMEs (50–249 employees).

5.2 Data and sample

Data for the study were obtained via an online survey during April and May 2017, distributed via an e-mail invitation to managers and employees of Swiss businesses,

reflecting the argument that it is the managers and employees of organisations that represent their businesses in an SAF. E-mail addresses were identified using a number of databases, including those of the Swiss SME association KMU Next[1], the Swiss branch of the global standards association GS1[2] and subscribers of the largest Swiss trade magazine (Schweizerische Gewerbezeitung[3]). The questionnaire included 56 questions, including demographic data, definitions of DT and DT projects and tools[4].

The survey resulted in a realised sample of 2,590 participating managers and employees from 1,854 organisations (including 1,593 participants from 1,143 SMEs). While it is a convenience sample, the data collected as part of this study closely correspond to the STATENT data set (BFS, 2016): a comparison of the realised sample and STATENT (sample/STATENT) shows that micro enterprises (26 per cent/26 per cent) are represented in equal proportion, small enterprises (20 per cent/22 per cent) are slightly under-represented in the realised sample, while medium enterprises (16 per cent/20 per cent) are under-represented by four percentage points and large enterprises (38 per cent/32 per cent) are over-represented by six percentage points. The sample is, therefore, closely aligned to the STATENT data set of the Swiss Federal Statistical Office (BFS, 2016).

5.3 Analytical approach

The analysis in this paper focuses on managers and employees of Swiss businesses' understandings of DT in keeping with the argument that SAFs are socially constructed (Fligstein and McAdam, 2011, 2012), seeking to understand the degree to which Swiss SMEs' and large enterprises' managers and employees have a shared understanding of DT. Due to the nature of the data collected, this paper proceeds by focusing on the degree to which there is evidence for a set of common understandings about the nature of DT, suggesting nested, overlapping and related SAFs and the degree to which the actors that share these understandings are similar or different. The data do not allow the analysis of the preceding exercising of social skills by institutional entrepreneurs in the emergence of these shared understandings.

The analysis was completed in two steps: first, an inductive thematic analysis of the written descriptions of DT by survey respondents was completed, followed by a categorisation of respondents into 1 of 127 possible combinations of the seven DT dimensions identified in the first step. It is these 127 DT dimension combinations that represent distinct SAFs in this paper. Finally, the frequency of the SAFs is analysed independently and in relation to firm size.

Inductive coding procedure. The 2,590 survey participants provided 4,286 descriptions of DT and associated projects and activities. This data set was analysed in a three-step process to inductively identify seven highly shared dimensions of DT. First, the code landscape technique (Saldaña, 2016) was used to establish the most frequent words or phrases in the descriptions of DT, establishing the most important themes (Krippendorf, 1980). In order to improve the analysis, "filler" words and phrases were removed. This allowed an initial eight codes (Saldaña, 2016) for the main dimensions of DT to be identified (see Table I). This analysis can be carried out using qualitative data analysis software, including Atlas.ti (2019), and a content analysis tool, WordStat (Provalis Research, 2019). In a second step, each respondents' understanding of DT was coded (Saldaña, 2016) for the presence of each of the initial eight DT dimensions. This task was completed manually in Excel, with the full description included in Column 1 and a column for each of the eight codes representing the dimensions of DT, coded as a binary variable (0/1). The coding process revealed that two dimensions (digital leadership and culture and employees and modes of working) were highly aligned in content and should be recoded (Saldaña, 2016) under digital leadership and culture (see Table I). This method of analysis represented a quantification of the qualitative data (Hannah and Lautsch, 2011), contributing to the strengthening of the analysis (Sutton, 1997), allowing to more clearly identify and establish the relevant significance of individual SAFs (see Table II) and the nested nature of the SAFs (see Figure 2).

Step 1: initial inductive primary code generation		Step 2: manual coding of digital transformation desc.		Step 3: final coding for SAF analysis	
Codes	FREQ (%)	Codes	FREQ (%)	Codes	FREQ (%)
1. Customer Centricity	–	1. Customer Centricity	10.2	1. Customer Centricity	10.86
2. Strategies and Business Models	–	2. Digital Enterprise	15.6	2. Digital Business Development	16.65
3a. Digital Leadership and Culture	–	3. Digital Leadership and Culture	8.6	3. Digital Leadership and Culture	9.09
3b. Employees and Modes of Working	–	–	–	–	–
4. Process Automation	–	4. Process Automation	25.4	4. Process Engineering	26.93
5. Digital Marketing	–	5. Digital Marketing	6.4	5. Digital Marketing	6.81
6. IT, Industry 4.0 and internet of Things	–	6. IT, Industry 4.0 and Internet of Things	19.6	6. New Technologies	20.82
7. Smart Data	–	7. Smart Data	8.3	7. Cloud and Data	8.84
–	–	8. Other / Not Possible to Code	5.8	–	–
Total	na	Total instances coded: 4'275	100	Total instances coded: 4'025	100

Note: The frequencies in this table are for all instances where a code was applied to a respondents' understanding of digital transformation, individually and with other codes, and are comparable to the sum for each SAF across all combinations of SAFs in Table II and Figure 2

Table I. Overview of codebook development

In the third and final step, the complete coding of the responses was systematically reviewed by the research team, adding further investigator triangulation (Archibald, 2016) to strengthen the credibility of the analysis. This contributed to a refinement of the code labels used in the subsequent SAF analysis (see Table I, Step 3), allowing them to more closely reflect the respondents' understandings.

Categorisation analysis. The second analytical phase used the statistical analysis software (SPSS, 2019) to analyse the frequency with which different combinations of the seven focal DT dimensions were identified in the respondents' description of DT; each combination representing the SAF membership for a respondent.

In order to complete this analysis, a new variable needed to be created by recoding the separate binary variables for each DT dimension into a single new variable, representing one of the 127 possible unique combinations of the seven codes for the DT dimensions. It is these combinations that represent unique SAFs and each of the 127 values was labelled according to the DT dimensions an SAF included, e.g. SAF 1, SAF 2, …, SAF 1 and 2, …, SAF 1,3,5, …, etc. However, only 97 of the possible 127 SAFs were present in the data, meaning that 30 of the possible SAFs were not identified in the respondent descriptions of DT. This also means that every SAF with more than one dimension of DT is also a combination (overlap or nesting) of one of the seven primary SAFs defined by a single DT dimension, enabling the SAF constellation in Figure 2 to be created.

In the final step, the new SAF variable was combined with the variable firm size (large, medium, small and micro) to generate a ranked cross tabulation in SPSS. This analysis allowed the frequency of the seven primary SAFs (single DT dimension) and their most important overlaps (multidimensional SAFs) to be identified. The results in Figure 2 and Table II represent 80 per cent of respondents' descriptions of DT and the 19 most frequent DT SAFs. Finally, the inclusion of the firm sizes allowed the degree of heterogeneity of the SAF actors to be understood (see Table II). The analysis of the remaining 20 per cent of respondents and 78 SAFs was excluded from this paper as the additional explanatory value is limited and would require a substantially larger analysis.

Strategic action field combinations	Firm size Micro	Small	Medium	Large	Total
Hirschman–Herfindahl index SAFs for 80% of responses	0.1420	0.1084	0.0884	0.0700	0.0888
Hirschman–Herfindahl index SAFs for 91% of responses	0.1198	0.1094	0.0950	0.0736	0.0926
SAF 4: Process Engineering					
Number of respondents	156	120	76	164	516
% within SAF coding	30.2	23.3	14.7	31.8	100.0
% within firm size categories	25.8	24.9	19.4	17.2	21.2
% of all responses	6.4	4.9	3.1	6.8	21.2
SAF 6: New Technologies					
Number of respondents	85	51	49	88	273
% within SAF coding	31.1	18.7	17.9	32.2	100.0
% within firm size categories	14.1	10.6	12.5	9.2	11.2
% of all responses	3.5	2.1	2.0	3.6	11.2
SAF 2: Digital Business Development					
Number of respondents	46	37	47	86	216
% within SAF coding	21.3	17.1	21.8	39.8	100.0
% within firm size categories	7.6	7.7	12.0	9.0	8.9
% of all responses	1.9	1.5	1.9	3.5	8.9
SAFs 4 and 6: Process Engineering and New Technologies					
Number of respondents	32	23	19	41	115
% within SAF coding	27.8	20.0	16.5	35.7	100.0
% within firm size categories	5.3	4.8	4.9	4.3	4.7
% of all responses	1.3	0.9	0.8	1.7	4.7
SAFs 2 and 6: Digital Business Development and New Technologies					
Number of respondents	21	18	12	46	97
% within SAF coding	21.6	18.6	12.4	47.4	100.0
% within firm size categories	3.5	3.7	3.1	4.8	4.0
% of all responses	0.9	0.7	0.5	1.9	4.0
SAF 3: Digital Leadership and Culture					
Number of respondents	27	17	16	26	86
% within SAF coding	31.4	19.8	18.6	30.2	100.0
% within firm size categories	4.5	3.5	4.1	2.7	3.5
% of all responses	1.1	0.7	0.7	1.1	3.5
SAF 7: Cloud and Data					
Number of respondents	17	14	12	28	71
% within SAF coding	23.9	19.7	16.9	39.4	100.0
% within firm size categories	2.8	2.9	3.1	2.9	2.9
% of all responses	0.7	0.6	0.5	1.2	2.9
SAFs 1 and 4: Customer Centricity and Process Engineering					
Number of respondents	9	8	12	41	70
% within SAF coding	12.9	11.4	17.1	58.6	100.0
% within firm size categories	1.5	1.7	3.1	4.3	2.9
% of all responses	0.4	0.3	0.5	1.7	2.9
SAF 5: Digital Marketing					
Number of respondents	24	15	3	16	58
% within SAF coding	41.4	25.9	5.2	27.6	100.0
% within firm size categories	4.0	3.1	0.8	1.7	2.4
% of all responses	1.0	0.6	0.1	0.7	2.4
SAFs 4 and 7: Process Engineering and Cloud and Data					
Number of respondents	10	12	5	28	55

Table II.
Ranked cross tabulation of strategic action field combinations and firm size

(*continued*)

Strategic action field combinations	Micro	Small	Firm size Medium	Large	Total
% within SAF coding	18.2	21.8	9.1	50.9	100.0
% within firm size categories	1.7	2.5	1.3	2.9	2.3
% of all responses	0.4	0.5	0.2	1.2	2.3
SAFs 2 and 4: Digital Business Development and Process Engineering					
Number of respondents	11	10	3	29	53
% within SAF coding	20.8	18.9	5.7	54.7	100.0
% within firm size categories	1.8	2.1	0.8	3.0	2.2
% of all responses	0.5	0.4	0.1	1.2	2.2
SAFs 1 and 2: Customer Centricity and Digital Business Development					
Number of respondents	9	9	6	28	52
% within SAF coding	17.3	17.3	11.5	53.8	100.0
% within firm size categories	1.5	1.9	1.5	2.9	2.1
% of all responses	0.4	0.4	0.2	1.2	2.1
SAFs 3 and 6: Digital Leadership and Culture and New Technologies					
Number of respondents	13	10	8	21	52
% within SAF coding	25.0	19.2	15.4	40.4	100.0
% within firm size categories	2.2	2.1	2.0	2.2	2.1
% of all responses	0.5	0.4	0.3	0.9	2.1
SAF 1: Customer Centricity					
Number of respondents	12	6	4	24	46
% within SAF coding	26.1	13.0	8.7	52.2	100.0
% within firm size categories	2.0	1.2	1.0	2.5	1.9
% of all responses	0.5	0.2	0.2	1.0	1.9
SAFs 1 and 6: Customer Centricity and New Technologies					
Number of respondents	11	8	1	24	44
% within SAF coding	25.0	18.2	2.3	54.5	100.0
% within firm size categories	1.8	1.7	0.3	2.5	1.8
% of all responses	0.5	0.3	0.0	1.0	1.8
SAFs 3 and 4: Digital Leadership and Culture and Process Engineering					
Number of respondents	10	11	13	8	42
% within SAF coding	23.8	26.2	31.0	19.0	100.0
% within firm size categories	1.7	2.3	3.3	0.8	1.7
% of all responses	0.4	0.5	0.5	0.3	1.7
SAFs 4 and 5: Process Engineering and Digital Marketing					
Number of respondents	14	8	5	13	40
% within SAF coding	35.0	20.0	12.5	32.5	100.0
% within firm size categories	2.3	1.7	1.3	1.4	1.6
% of all responses	0.6	0.3	0.2	0.5	1.6
SAFs 6 and 7: New Technologies and Cloud and Data					
Number of respondents	10	7	4	12	34
% within SAF coding	30.3	21.2	12.1	36.4	100.0
% within firm size categories	1.7	1.5	1.0	1.3	1.4
% of all responses	0.4	0.3	0.2	0.5	1.4
SAFs 2 and 3: Digital Business Development, and Digital Leadership and Culture					
Number of respondents	4	5	6	18	33
% within SAF coding	12.1	15.2	18.2	54.5	100.0
% within firm size categories	0.7	1.0	1.5	1.9	1.4
% of all responses	0.2	0.2	0.2	0.7	1.4

Notes: Includes 80 per cent of respondents and the 19 most frequent SAF combinations; other SAF combinations are not included due to significantly lower relevance. This table represents the SAFs included in Figure 2

Table II.

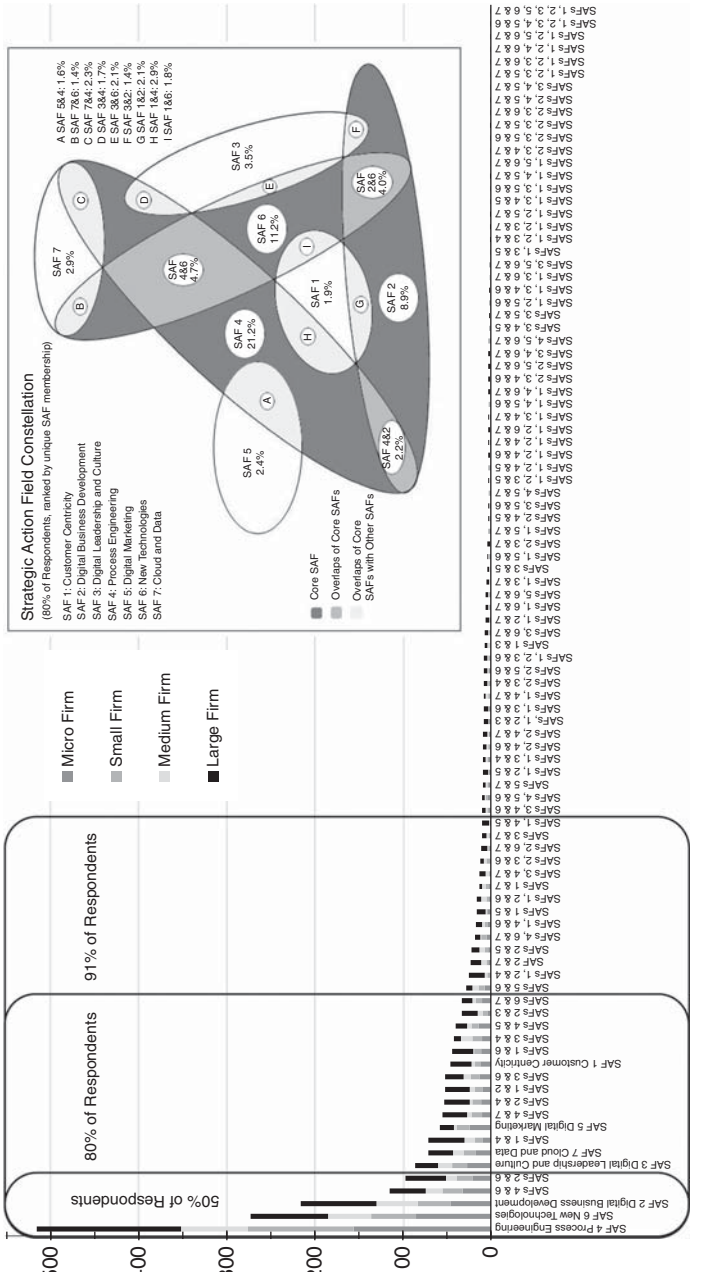


Figure 2.
Primary strategic action field (SAF) constellation and membership by firm size

6. The action fields of digital transformation

There are three elements to the findings and analysis presented here, identified from the shared understandings of respondent managers and employees at Swiss businesses: the identification and description of the SAFs of DT; the nature (in terms of firms size) of the actors (multiply) embedded in diverse SAFs; and the nature of the SAFs in terms of the degree to which they are primarily externally or internally focused from the perspective of the business organisation.

6.1 Seven primary strategic action fields for digital transformation of Swiss businesses

This paper identifies seven primary DT SAFs, partially overlapping and related, based on the shared understandings of Swiss managers and employees at both SMEs and large enterprises (see Figure 2). These are all featured by one of the seven dimensions of DT being central to how they are, respectively, understood.

The first action field, Customer Centricity (SAF 1), is featured by a shared understanding of DT as improving the experience of customers through a constant customer orientation, a positive customer experience as well as personalised products and services, defined as an external perspective. Swiss organisations in this SAF can be expected to invest into the analysis of customer data and optimise their offerings accordingly. Great importance is also placed towards the communication and interaction with customers.

The second action field, Digital Business Development (SAF 2), is concerned with new business models as part of DT in light of emerging technologies, digital platforms and to increase customer value. It has both internal and external dimensions. The adoption of a clear digital strategy is an integral part of the shared understandings. In addition to the benefits of new technologies, the development of innovative business ideas and a new market positioning through the aid of digital platforms are high priorities in Swiss organisations. Survey participants are aware that the digital orientation of a business model must be considered comprehensively in order to exploit the full potential of DT.

The third action field, Digital Leadership and Culture (SAF 3), an internal perspective, emphasises the adaptation of contemporary management principles, namely change management and the implementation of new leadership methods, the digital and mobile workplace and new organisational forms to collaborate. The project descriptions contain statements about the need for reactive (as a starting point from digital disruptions) vs proactive (as a digital leader) management efforts for change. It is worthwhile noting that employees expect organisations to change and to introduce new forms of digital work, but they themselves must also be prepared for new technologies and new working arrangements.

The fourth action field, Process Engineering (SAF 4), also an internal perspective, focuses on process management, (re)engineering and workflow improvements, resulting in automation and the digitisation of processes. As a result, businesses should be both more effective and efficient. Processes should become more standardised and faster, and sub-processes/tasks shall be connected without media breaks in order, among other reasons, to create a paperless office and optimise the value chain. The digital, paperless office will enable employees to collaborate independent of time and place, to access data and information, and the organisation to create more transparency. In conjunction with agile methods (survey participants regard agility as a key benefit of process engineering), this should increase productivity and innovation.

The fifth action field, Digital Marketing (SAF 5), links internal and external perspectives in a feedback loop, emphasising the provision of an integrated marketing approach where digital and analogue channels are coordinated. The availability and analysis of customer, product and sales data and the measurability of marketing and sales activities through digital platforms, tools and channels create a system in which market activities can be continuously monitored and optimised. Digital marketing (which also covers sales and customer service)

includes aspects such as (mobile) online platforms, e-commerce, communication channels (e.g. social media, online communities and search engine marketing), marketing automation and video marketing.

The sixth action field, New Technologies (SAF 6), with internal and external dimensions, has a shared understanding around new technologies that help to create opportunities internally (for instance, for process improvements through robotics and apps) and externally (for instance, for value creation and new business opportunities through Internet of Things applications). The relevance of technologies differs by industry and is dependent on employees to realise their potential. The main focus is enterprise resource planning solutions for improving collaboration and communication with teams and customers. There is an awareness that the introduction of new technologies alone is not enough, but that employees must be introduced to the new solutions so that the potential of new technologies can be exploited successfully and sustainably.

Finally, the seventh action field is Cloud and Data (SAF 7), with internal and external elements, which emphasises smart data and new insights based on modern IT infrastructure. At its core is the integrated and connected database (mainly enabled through the cloud), which uses analytics to cultivate new knowledge in order to make strategic decisions and support operations. Survey respondents believe that the development of new business models, optimised processes as well as digital marketing require smart data and new insights. At the same time, the need for a flexible technology infrastructure that is accessible from anywhere is high: investments in the cloud and web-based solutions to leverage data are high on the priority list of organisations. Therefore, this SAF is highly related to a number of the other primary SAFs.

These seven SAFs are defined by a single DT dimension, with a further 90 SAFs being identified were between two and six of the primary SAFs overlap, each with unique businesses' managers or employees (the respondents) as actors. The identified 97 SAFs can be analysed in three constellations: a core constellation of five SAFs representing 50 per cent of respondents, an extended primary SAF constellation including 80 per cent of respondents, and finally a large number of overlapping SAFs with very small numbers of member businesses (see Figure 2).

6.2 Core strategic action field constellation

SAFs Process Engineering (SAF 4), New Technologies (SAF 6) and Digital Business Development (SAF 2) and the SAFs combining Process Engineering and New Technologies (SAF 4 and 6) and Digital Business Development and New Technologies (SAF 2 and 6) represent the shared understandings of DT of 50 per cent of respondents in this study. Together with the SAFs Digital Business Development and Process Engineering (SAF 2 and 4), 52.2 per cent of respondents share an understanding of DT that includes at least one of these three DT dimensions. This excludes the overlapping of these five core SAFs with the remaining four SAFs with a single DT dimension, as discussed below in the broader SAF constellation. Most respondents (21.2 per cent) share an understanding of DT as primarily an issue of Process Engineering, which has an internal focus. The second most shared understanding of DT is that it is about New Technologies (11.2 per cent of respondents), and the third that it is about Digital Business Development (8.9 per cent of respondents), both of which have internal and external elements. These three SAFs overlap due to respondents (actors) that link the SAFs, or are members of more than one SAF. The internally oriented Process Engineering (SAF 4) is thus, likely, linked to the internal dimensions of New Technologies (SAF 6) and Digital Business Development (SAF 2) by respondents, while there are elements of the external foci of New Technologies (SAF 6) and Digital Business Development (SAF 2) that would seem to be linked in the perception of some respondents. While some organisations focus on specific SAFs as part of their DT (e.g. most dominantly

Process Engineering and New Technologies), others combine relevant SAFs which point to a more holistic approach, leveraging the benefits of individual SAFs especially in combination with Digital Business Development. This provides evidence that organisations embrace DT with both internal and external viewpoints, connecting market opportunities and threats with optimised internal, IT-driven processes.

Interestingly, across SAF 4 (Process Engineering) and SAF 6 (New Technologies) and their overlap, the equally most frequent business types are micro and large enterprises, while large enterprises are the dominant business type in SAF 2 (Digital Business Development) and its overlap with SAF 6 (New Technologies). Finally, SAF 2 and 4 (Digital Business Development and Process Engineering) have large enterprises as the majority of actors that share this understanding of combination of DT dimensions (see Table II). This suggests that large businesses are more likely to have managers or employees that have an understanding of DT as digital business development, while the actors in SAFs 4 (Process Engineering) and SAF 6 (New Technologies) would seem to represent the full range of businesses in terms of size.

6.3 Broader primary strategic action field constellation

DT as Digital Marketing (SAF 5) is an understanding shared by 2.4 per cent of respondents, a further 1.6 per cent of respondents link Digital Marketing and Process Engineering in their shared understandings. This association may suggest that some respondents expect Process Engineering to be needed for realising the external elements of Digital Marketing, but not all. Interestingly, while micro and small businesses predominantly share an understanding of only Digital Marketing (SAF 5), the link to Process Engineering (SAF 4) is equally shared by micro and large businesses (35 per cent/32.5 per cent). An understanding of DT as Cloud and Data (SAF 7) is shared by 2.9 per cent of respondents, while 1.4 per cent additionally link this understanding to the New Technologies (SAF 6), and 2.3 per cent create a link to Process Engineering (SAF 4). Given the nature of cloud and data solutions, the link between SAF 6 (New Technologies) and SAF 7 (Cloud and Data) is understandable, while internal understandings are likely to explain the overlap of SAF 4 (Process Engineering) and SAF 7 (Cloud and Data). Respondents from large enterprises are more likely to only identify Cloud and Data, or additionally create the link to Process Engineering. Linking Cloud and Data with New Technologies can be seen equally for both micro and large enterprises. Linking Digital Marketing and Process Engineering provides evidence for strategies optimising market and customer interactions through process optimisation and automation, while linking New Technologies with Cloud and Data provided evidence for the need of flexible, data-driven IT infrastructure platforms in order to leverage investments into New Technologies benefiting both internal processes and customers.

The SAFs Customer Centricity (SAF 1; externally focused) and Digital Leadership and Culture (SAF 3; internally focused) overlap with all three main SAFs, but not each other. Both these SAFs and their overlaps represent 8.7 per cent of respondents, with at least half of these respondents also identifying one of the three primary SAFs 4, 6 and 2. Digital Leadership and Culture (3.5 per cent) is identified independently more than Customer Centricity (1.9 per cent). Respondents most frequently understand Digital Leadership and Culture (SAF 3) and Customer Centricity (SAF 1) as linked to Process Engineering (SAF 3: 1.7 per cent/SAF 1: 2.9 per cent), Digital Business Development (1.4 per cent/2.1 per cent) and New Technologies (2.1 per cent/1.8 per cent). In terms of internal and external orientations of the SAFs and their overlaps, the only inconsistency would seem to be with the overlap of SAF 4 and SAF 1, but it suggests that Customer Centricity is dependent in the perception of some respondents on a degree of Process Engineering, if the external focus of the former is to be realised. There is evidence that Customer Centricity, and Leadership and Culture are important enablers to

succeed with investments into Process Engineering, New Technologies and Digital Business Development. However, following the literature, these two SAFs should show a stronger link in business practice than what the analysis has revealed.

Micro and large enterprises constitute 61.6 per cent of the membership of SAF 3 independently. Interestingly, 81 per cent of respondents linking digital leadership and culture (SAF 3) to Process Engineering (SAF 4) are from SMEs. Respondents (40.4 per cent) linking Digital Leadership and Culture (SAF 3) and New Technologies (SAF 6) are more likely to be from large enterprises, while large enterprises (54.5 per cent) are also more likely to share an understanding of a link between Digital Leadership and Culture (SAF 3) and Digital Business Development (SAF 2).

Finally, the respondents sharing an understanding of DT only in terms of Customer Centricity (SAF 1) were more likely to be from large (52.2 per cent) or micro (26.1 per cent) enterprises. Large enterprises were more likely to link Customer Centricity to Process Engineering (SAF 4: 58.6 per cent), Digital Business Development (SAF 2: 53.8 per cent) and New Technologies (SAF 6: 54.5 per cent). Respondents from micro enterprises (25.0 per cent) also seem to link Customer Centricity (SAF 1) and New Technologies (SAF 6).

6.4 Other strategic action field relationships

The remaining respondents (20 per cent) hold an understanding of DT that predominantly combined the membership of SAFs with three or more DT dimensions. Due to the lower frequency of reporting, the remainder of this paper does not address the remaining 78 SAFs. Instead, the discussion focused on the observed business types associated with the seven primary SAFs and their overlaps as depicted in Figure 2. This represents 19 SAFs from the shared understandings of DT for 80 per cent of respondents in this study.

7. Discussion

SAFs play an important role in building a common understanding and enabling collaboration within the context of that shared view (Fligstein and McAdam, 2011, 2012). For business managers and employees, such a consensus is important to align an organisation's effort to transform a business in the digital age with the broader DT of the economy. The findings for this paper suggest that there are seven highly related SAFs for the DT in Swiss businesses (see Figure 3), which represent shared understandings of the DT process and align with extant literature on DT (Vial, 2019).

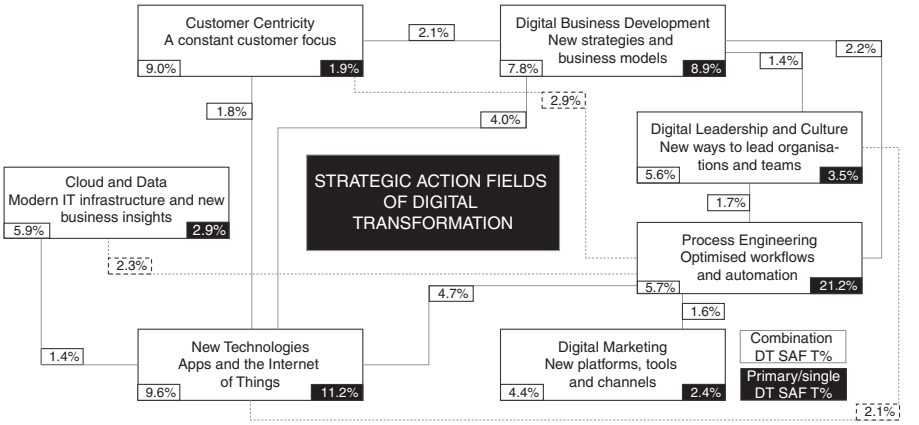


Figure 3.
Strategic action fields of digital transformation

The differences in actors, large enterprises and SMEs, across fields and field overlaps, reflect the multiple embeddedness of businesses across SAFs. It, however, remains unclear who the institutional entrepreneurs are in the Swiss DT processes; using their social skills to undertake strategic action to achieve shared understandings on the purpose of a given SAF. Indeed, it has not been addressed how these shared understandings have been achieved.

The possibility for a business to be multiply embedded across diverse SAFs (Fligstein and McAdam, 2011, 2012) creates the potential for a business to digitally transform in different ways and at different speeds. Figure 2 suggests the main field overlaps leading to such multiple embeddedness, but interestingly, the largest number of respondents seems to participate in a single SAF and its understanding of the DT of their firm and the Swiss economy. This raises the need to better understand how managers and employees come to internalise a given understanding of DT and membership of a given SAF as a result. The degree to which overlaps in the seven SAF are being driven by either internal and/or external foci in the understandings of managers and employees has been suggested as a possible explanation for why the seven fields overlap.

This research has also shown that single understandings and a diverse range of combinations of SAF overlaps do exist, with no dominant confirmed understanding of DT. In addition, while a number of identified similarities in various SAF combinations exist between micro and large enterprises, there is no clear explanation for the observed membership of firms of different sizes across SAFs.

While the primary SAFs Process Engineering, New Technologies and Digital Business Development confirm the shared view about DT among scholars in most aspects (e.g. Loonam *et al.*, 2018; Vial, 2019; Warner and Wäger, 2019), the missing overlap between SAFs Customer Centricity as well as Leadership and Culture (and to other SAF, e.g. Digital Business Development) identifies a gap between the elaborated important link between these SAFs (e.g. Bednall *et al.*, 2018; Loonam *et al.*, 2018; Naldi *et al.*, 2014; Vera and Crossan, 2004) and business practice in Switzerland among the surveyed participants.

This highlights the importance for further research, as well as the potential and need for educational programmes, and generic or industry best practice frameworks for managers and employees. The data from Swiss businesses allowed a unique view into the setup and configuration of SAFs.

8. Conclusion and implications

The identification of these SAFs provides an opportunity for organisations to master the various dimensions and topics associated with DT. A distinction can be made between two perspectives, external and internal. The external perspective covers the market and organisational value creation. This includes the action fields of customer centricity, the utilisation of data and the cloud, and identification and implementation of new technologies, linked to digital business development. The internal perspective also includes the use of new technologies, data and the cloud, but emphasises digital leadership and process engineering. Finally, the action field of digital marketing provides the bridge between organisational value creation and the market, providing a feedback loop into the organisation.

With regard to future research areas, further investigations are necessary in order to identify and describe a possible connection between the relevance of projects surrounding DT, innovation capabilities and the financial success of organisations, in addition to those mentioned beforehand. Finally, further research shall determine to what degree the identified action fields are applied in a holistic strategic initiative as opposed to individual, stand-alone activities in businesses. Overall, strategy and DT go hand-in-hand, as many of the topics covered by DT nowadays seem to be those of modern management topics and strategy.

Notes

1. www.kmunext.ch
2. www.gs1.ch
3. www.gewerbezeitung.ch
4. Note: the data analysed in this paper have also been investigated in a research report issued by the FHNW School of Business (Peter, 2017).

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