

Digital Sovereignty from the Perspective of IT Consultancy in Germany: A Model*

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Abstract

Cyber incidents and geopolitical conflicts underpin how strongly companies are affected by risks to the IT ecosystem. This work contributes to the resolution of proposing a new model for Digital Sovereignty (DS)* from the perspective of IT consultancy. We present the results of expert interviews of IT consultants who have already dealt with the topic of DS. Furthermore, we analyze the current state of the literature regarding DS models. The three most important and new factors are (1) communication within an organization, (2) adapting the service portfolio, and (3) considering usability. The advanced model with weighted factors can be used as a strategic instrument by companies that want to strengthen their DS.

Keywords

Digital Sovereignty, Digital Independence, Business Models, IT-Consulting, Interview study

1. Introduction

Companies have to master changes in software businesses. The debate regarding DS shows that European companies have started to deal with the question of how much their digital actions depend on monopolies and international ties and are at risk [3]. China dominates the chip manufacturing market economy with a close economic relationship with Taiwanese companies such as TSMC. Companies like Google have gained a strong influence by building up an infrastructure ecosystem in European businesses. Consequently, European companies see a strong dependence on these providers [4]. Actions taken by the European Union (EU) in order to gain more DS are the following: regulations, funding programs for European start-ups, and data protection [1, 5]. A study by Klare et al. [2] shows that companies perceive the issue of DS as important, but 63% have not yet implemented measures to achieve DS. IT consultants can make a meaningful contribution here. They advise companies on strategic questions concerning the digital ecosystem and IT systems' design, implementation, deployment, and further development [6]. The political and economic debate on DS shows that there are already models by Herlo et al. [7], Kar and Thapa [8], Friedewald et al. [3], Kagermann et al. [4], Joecks-Laß and Hadwick in Hartmann [9], and Pohle [1]. These models contain mostly political action fields for DS but only few recommendations for companies. This Extended Abstract presents a DS model from

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* We follow the definition that Digital Sovereignty describes a central objective for individuals, companies, and state institutions to exercise their ideas and functions in the digital world in a self-determined and secure manner [1, 2].

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an IT-consultancy perspective that guides companies to increase their level of DS. Two research questions guided our approach:

RQ1: Based on best practices from IT consultants, what factors should companies consider when strengthening their Digital Sovereignty?

RQ2: What is their respective significance?

2. Research Design

Figure 1 shows the process of how the model with DS factors has been developed:

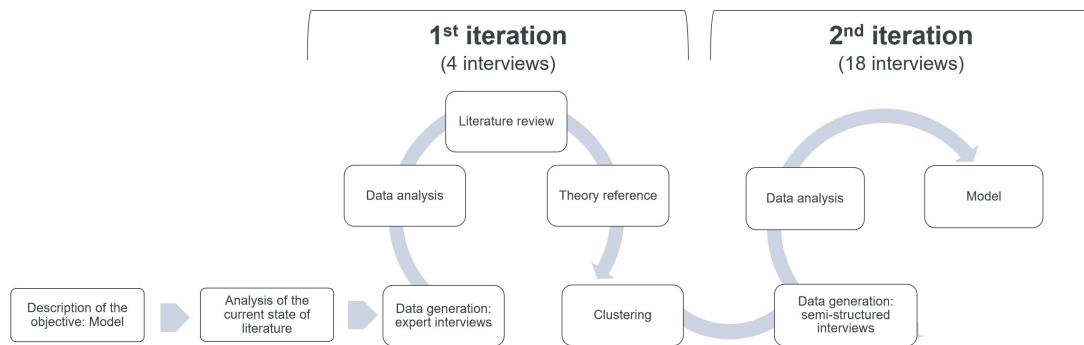


Figure 1: Process of developing the model

This work relates to a qualitative interview study [10]. First, four expert interviews with IT consultants were conducted from 05/2022 to 06/2022 with expertise in Digital Strategy, Digital Battle Management, Cyber Security, and Digital Intelligence. The transcripts were analyzed using a qualitative content analysis according to Mayring [11]. We used MAXQDA as software for coding. Then, in the period from 10/2022 to 12/2022, semi-structured interviews with 18 IT consultants followed. The interview partners were asked to review the first draft of a model, rank the factors using a scale from 0=not at all important to 4=very important, suggest further refinement, and add additional factors. From this, mean values could be determined, and the model could be developed iterative. The shortest interview was 00:34:58h and the most extended was 01:35:09h long. The first author recruited the interviewees. In total, 22 IT consultants from six companies were interviewed. The data was analyzed. Afterwards, the result was compared to other DS models from the literature. In section 3, the final model can be found.

3. Results

Figure 2 depicts the model of Digital Sovereignty with the three dimensions of Cross-Cutting Topics, Internal Company Topics, and External Company Topics as result of iteration 1 and 2.

Results of the data generation and data analysis [iteration 1]: The contents of the interviews with the IT consultants were extracted and assigned to topic areas (consider sustainability,...).

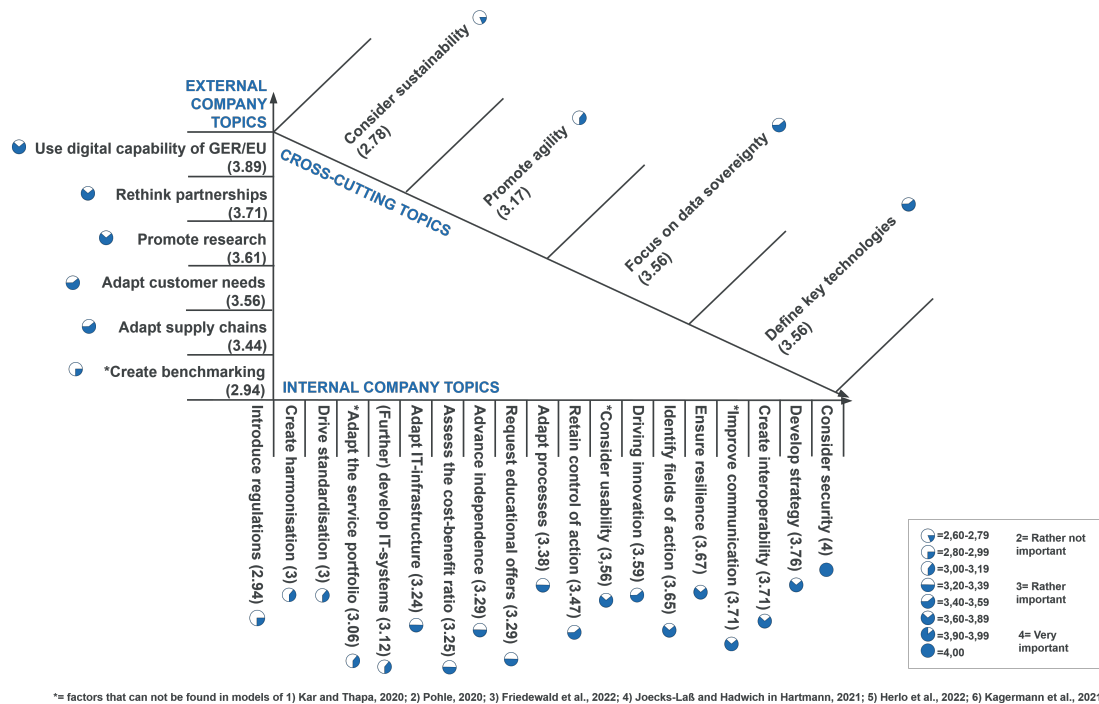


Figure 2: DSMIC (Digital Sovereignty Model from the perspective of IT-Consultancy)

Results of semi-conducted interviews and data analysis [iteration 2]: 18 IT consultants were asked to evaluate the factors. The mean value for each topic was determined from the results, added behind the topic area, and included in the model as pie charts.

Results of the literature review and theory reference: The topic areas from the interviews were compared with models of DS: Herlo et al. [7], Kar and Thapa [8], Friedewald et al. [3], Kagermann et al. [4], Joecks-Laß and Hadwick in Hartmann [9], and Pohle [1]. Those factors that have not yet received attention in other models were marked with a star.

Results from the clustering: Three different clusters were identified: External Company Topics, Internal Company Topics, Cross-Cutting Topics. These were assigned to one axis in the model. The topics generated from the interviews with the IT-consultants (see point 1) were mapped onto one of the clusters and plotted on the respective axes.

4. Conclusion, Limitations, and Outlook

This work enriches the current state of research by an extensive model that weighs factors of DS from the perspective of IT consultancy, empirically supporting already mentioned layers in models for DS and showing new factors. The presented model gives companies an orientation on what to consider if they want to become digitally more sovereign. Other consulting papers have primarily based their research on EU or customer perspective. This paper offers a wider view by describing and visualizing best practices and assessments of IT consultants. The model

was developed in 2023, during the war between Russia and Ukraine. These circumstances may influence the data. It is deliberately limited to the economic debate of DS. Moreover, it takes the perspective of Germany. Other countries have completely different regulations and industrial structures. China and the US have different understandings of DS. Other limitations are method inherent: we can not exclude bias, and a different set of interview partners might lead to different results. The trend is increasing towards measuring trusted partners and relying on consulting expertise to fulfill the regulatory requirements of new guidelines such as the EU NIS 2016/1148. This trend is currently not expected to shift. Our next steps include refinement by looking at the interdependence between the factors and validation in consulting projects.

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