Status quo of Digital Accessibility in Multinational Enterprises – an Exploratory Study

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Abstract— **Digital accessibility (DA) for disabled people is a hot topic, mandatory under UN and EU dispositions. Literature shows a research gap regarding relevant factors that influence the enforcement of DA in Multinationals (MNEs) (RQ1) in order to structure the problem. An exploratory study analysed the current status of DA in MNEs. Findings were consolidated by comparing them with experiences reported by FCEA conference of experts, confirming a notable deficiency in current literature regarding DA status-quo (RQ2). A normative approach, grounded in legal, legitimate, and ethical standards to steer corporate governance in matters of DA was proposed following Soft Systems Methodology.**

Keywords-Digital Accessibility in Multinational Enterprises; Exploratory study under Soft Systems Methodology (SSM); Normative approach to steer corporate governance.

I. INTRODUCTION

Digital accessibility (DA) refers to the extent to which digital products, resources, and services are available for people with disabilities [1][2][3]. Article 1 of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) states that 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others' [4]. Even though everyone benefits from barrier-free digital products, digital barriers mainly affect people with auditory, cognitive, physical, speech, and visual disabilities [5].

According to the World Wide Web Consortium (W3C), software, websites and mobile applications should be Perceivable, Operable, Understandable, and Robust (POUR) to be accessible for this target groups [6][7]. Technical criteria for accessible, digital content are provided within the Web Content Accessibility Guidelines (WCAG) [7]. After ratifying the UNCRPD [8], the European Union (EU) has performed a lot of activities regarding digital accessibility [9]. The Directive (EU) 2016/2102 obliges all member states of the EU, to incorporate the accessibility of the websites and mobile applications of their public sector bodies within their national legal systems. These new legislative changes have created a growing market for accessible digital products and services for public bodies, which may be an opportunity or a risk for market participants, depending on their ability to design their products and services accessible [10]. Due to the entry into force of Directive (EU) 2019/882 ('European Accessibility Act' (EAA)) and the resulting national legislative changes, digital products that are seen as important by the EU, have to be designed in a way that they are usable by people with disabilities [11]. Therefore, companies that manufacture such physical products and services, will also have to face increasing accessibility requirements, specifically the WCAG [7], within the next years.

However, not only companies that are obliged by law should act with accessibility in mind: the role of business enterprises has changed during the last decades and the concept of Corporate Social Responsibility (CSR) has become increasingly important [12]. While in the past, the goal of corporations has been solely profit maximization, nowadays companies are expected to have a positive impact on society and to consider social and environmental impacts in their business decisions [13]. Furthermore, by acting with CSR in mind, companies can benefit on many different areas [14]. As one aspect of CSR, DA can bring a lot of advantages, for example by driving innovation or by enhancing company's brand [15].

As described in [1] literature-based findings shows a research gap on how companies may draw on social, political & legal, organisational, and technical framework conditions in designing accessible digital products and services. Furthermore, there is also a gap in how well prepared multinational enterprises (MNEs) are, to fulfil the new DA requirements for their products and services. To close this gap, this paper presents an exploratory study about the status quo of the new digital accessibility requirements in MNEs and discusses possible solutions to increase the maturity of digital accessibility within these companies, to address the following research questions:

RQ1: What are the relevant factors that influence the enforcement of digital accessibility in MNEs?

RQ2: How well prepared are MNE to meet new digital accessibility requirements on their digital products and services?

The remaining of this paper is organized as follows. Section II describes the methodology and the exploratory case study. Section III contains the analysis of the findings. Section IV discusses these findings based on an expert conference about the German transposition of the EAA and concludes.

II. METHODOLOGY

Soft Systems Methodology (SSM) is a learning approach for tackling complex, real-world problems, positioned in organizational contexts where the problem itself is not clearly defined. The methodology emphasizes understanding the problem situation from various viewpoints without imposing a predefined structure, which is crucial during the initial stages of SSM (i.e., Stages 1 & 2). SSM is made up of seven stages, as shown in Fig. 1 [16][17].

A preliminary literature review was performed to perceive the unstructured problem situation and it showed a gap regarding the status of DA in MNEs [1]. To investigate this status, an exploratory case study within MNEs was carried out and presented in this paper. Semi-structured interviews with experts [18] were conducted between 22/11/2023 and 31/01/2024, previously harmonized by the Ethics Council at ISCTE-IUL. Appendix I includes the interview questionnaire, guided by the work of Qu and Dumay [19]. The aim was to gather as many perceptions of the research questions as possible from a diverse group of people. This helped in capturing a wide range of insights and understanding the complexity of the situation.

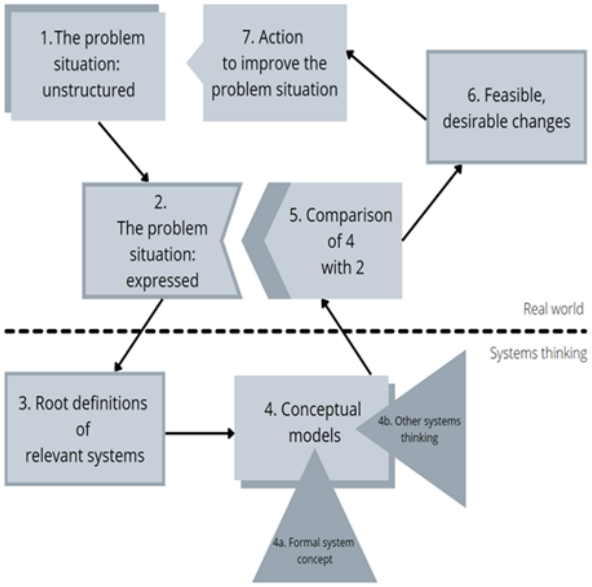

Figure 1. The seven stages model of SSM. Adapted from [16].

To address *RQ2*, the participants were asked to estimate the relevance of digital accessibility within their company, based on a Likert scale [20], which contains grades from 'very irrelevant' to 'very relevant' and the maturity of digital accessibility within their company by using the scale according to Herget (Appendix I). Maturity levels offer a good basis for systematically identifying strategies to improve the current situation and provide a basis for discussion and reflection within a company, as the attested maturity levels always correspond to the personal interpretations of the stakeholders interviewed [21]. Subsequently, a conference about the German transposition of the EAA [22], was used to discuss the findings of the exploratory study enabling to address *RQ1* pursuing a bottom up approach.

After the interviews, the data analysis was performed. In the first step, all transcriptions of the interview data and conference contributions were loaded into MAXQDA Analytics Pro [23] and text quotations, which might contain relevant data for this research were identified. After this initial analysis, relevant text quotations were identified, referenced either by in-vivo codification (codes consists of the words used by the informants) or marked up as 'new Code', using the expressions of the interviewees whenever it was possible [24][25]. In a next step, codes that overlap with other codes were highlighted and merged.

To address RQ1 and to attempt to structure the problem situation for Stage 2 of SSM, a sketch was created out of the findings provided by the discussion of the interview data based on the conference contributions. According to [26], Rich Pictures are preferable for the expression of relationships to the linear writing and support the holistic thinking about a situation [27]. The sketch was drawn by using Insight Maker, a free and open-source simulation and modelling application [28].

Concise statements that capture the essence of systems that appear relevant to the problem situation start emerging from the discussion of the findings. These are the root definitions (SSM Stage 3) that serve as the foundation for developing conceptual models, which are not intended to be direct representations of reality but rather will serve as intellectual tools to facilitate discussion and debate about the problem situation and potential improvements, in future. The process is iterative, with learning and adaptation occurring as new insights emerge [26][29].

III. DIGITAL ACCESSIBILITY IN MULTINATIONAL ENTERPRISES - AN EXPLORATORY CASE STUDY

The upcoming section is structured to align with the initial research questions posed in the study. It will include (a) Interview Questions: A detailed list of the questions asked to the stakeholders; (b) Stakeholder Responses: A comprehensive summary of the answers provided by the surveyed stakeholders; and (c) Preliminary Analysis: An initial interpretation and examination of the responses in relation to the research questions.

A. Selection of experts to interview in multinational enterprises

The research involved engaging with stakeholders from various enterprises listed among the 500 largest MNEs in the world, as ranked by [30]. Three individuals, including CEOs, managers, and inclusion officers from three different MNEs, agreed to participate in the interviews. The study aimed to understand whether the current state of digital accessibility (DA) in MNEs differs across sectors.

To assess the impact of new legal requirements on DA, employees from two distinct sectors were interviewed. On one hand, Technology Industry [31] is frequently impacted by new DA criteria due to the nature of its operations. The study explored the assumption that technology-related companies might have an easier time incorporating technological changes, such as DA, into their processes. On the other hand, Pharmaceutical Industry [31] is only partially affected by new DA regulations, but this sector is significantly influenced by other legal frameworks [32]. This could offer a contrasting viewpoint on how DA is implemented and perceived.

The selection of managers and inclusion officers as interviewees was intentional to gain insights from different levels of the corporate hierarchy. This approach also sought to understand the corporate structures and contexts better, particularly focusing on technological and knowledge exchanges within companies [33]. The findings from these interviews are expected to contribute to a more nuanced understanding of DA's integration into MNEs' operations.

B. Findings from interviews carried out in the exploratory case study

The first part of the interviews concerned gathering information about RQ2, i.e., How well prepared are MNE to meet new DA requirements on their digital products and services? The topics addressed were grouped into four categories, as follows.

1) Relevance and maturity of digital accessibility (DA)

The participants were asked to rate the relevance of digital accessibility within their company [20][21].

All participants within the pharmaceutical industry emphasized the relevance, i.e., the degree to which DA is applicable, and assessed it as 'neither irrelevant nor relevant'. The level of maturity of DA [34] is found to range between 'not existent', i.e., no consciousness present and 'initial', i.e., first engagement with the way of a certain behavior and activity has been made. However, DA is found as being important, i.e., of significant value. Interview partner 2 (IP02) describes it like this:

'*Nothing has happened in our company yet, but it is important to us. But we haven't dealt with it enough.*' (IP02).

In contrast, participants from the technology industry rated DA as 'relevant' and its level of maturity as close before 'managed', i.e., specifications, guidelines, sanction systems, process descriptions are almost in place, measures are close to be taken according to predefined patterns, and the company's own good practices are tending to be in place, providing the benchmark for action. IP03 indicates the situation in his company as follows:

'*@@ MNE gamma ## is currently making a huge move, i.e., a big shift towards digitalization and accessibility and I think digitalization is very, very important.*' (IP03).

The disparity in the perceived applicability (all interviewees) and value (IP02) of DA within the pharmaceutical industry, as indicated by the interviewees, does indeed raise concerns. It suggests a need for more in-depth research to understand the barriers and opportunities for DA in this sector. While IT providers are seen as more advanced in recognizing the relevance and achieving maturity in DA, there seems to be some ambiguity about whether their focus is on DA specifically or on digitalization as a whole. Clarifying this distinction is crucial for developing targeted strategies that enhance DA without conflating it with broader digital transformation efforts (IP03).

2) Knowledge of DA regulations

Since MNEs are affected by new legal requirements regarding digital accessibility, e.g., [11], the participants were asked about their knowledge of legal requirements for DA that apply to their company, as well as about corresponding internal guidelines within their company. All interviewees from the pharmaceutical industry stated, that they were not aware of any legal requirements about DA and that no DA policies had been established in their companies. The preconditions apparently differ in the technology industry. In particular, IP03 stated that he was actively involved in the development of international standards (IP03):

'Yes, [..]. I know the EU guidelines, I know pretty much everything about the American market. In part, I am familiar with the Japanese market, [..]. The interesting thing is [..] the central standard for us is EN 301549, which I have been working on since 2012 and which is now entering the next round.' (IP03).

IP03 also stresses the importance of internal policies and monitoring DA activities by a central unit:

'Since 2018 we have also anchored this in the so-called inclusion agreement stating that all IT services for @@ MNE gamma ## should be accessible. No, have to [be digital accessible]. So, this requirement is directly included in the inclusion agreement. It is also one of our main drivers that a large part of the internal software solutions come across the table here in the Competence centre. This means that internal IT programmes are first checked for accessibility and only then they are released.' (IP03).

A suggestion to include stakeholders from civil society in the discussion on DA appears to be insightful. It would provide a more comprehensive understanding of how legal requirements are perceived by those directly affected versus their potential to create business opportunities for IT providers.

Additionally, exploring the internal policies that diverge from legal requirements, which have been scarcely mentioned, could reveal valuable insights into the internal drivers and barriers to DA implementation. This broader approach to stakeholder engagement could help balance the perspectives between regulatory compliance and the practical, lived experience of DA among end-users.

3) Possible degree of DA within different departments

IP03 also stressed out the need for his MNE to decide, which degree of digital accessibility in which working environment made sense or even would be possible:

'Internally, we have the problem that we run a lot of digital solutions that cannot actually fulfil within the scope of accessibility criteria. So, we have 360,000 employees, of which well over half work in the production area. We maintain a lot of IT in the area of production control and when I'm in the rolling mill and in production control, then I no longer have to worry so much about accessibility. This means that one of our main problems at the moment is: when and to what extent does software have to be accessible? Where is it 'worth it' and where should you keep your hands off?' (IP03).

This is about developing requirements to express DA business policy (IP03) regarding when, to what extent, if it worths it and for whom, i.e., which disabilities [5].

4) Action taken to increase DA, implementation and effectiveness

Afterwards, the participants were asked about the existing actions to increase digital accessibility in their companies. As one example in the pharmaceutical industry was given by interview partner 1 (IP01) is the accessibility of the intranet according to the WCAG [7] in their company. The participant from the technology industry (IP03) reported on a wide range of actions to anchor digital accessibility within his company:

'I always say our strategic approach is Accessibility by Design. Construction would be building-related to quote an example, we have about 15,000 document templates in the company. We started with this and said these 15,000 document templates, let it be PowerPoint, let it be oh... all kinds of stuff. They are at first built so that they are accessible a priori. This means that if people use this, then they can first use a basic level of accessibility. So, the same applies [..].

We use so-called user interface libraries and style guides for how our user interfaces look. It is very important that we simply work together to ensure that these things work as they should.' (IP03).

The feedback from the interviewees suggests that the current actions implemented for DA in the pharmaceutics are not fully effective. For instance, IP01's observation indicates the need for physical checks for intranet and application accessibility. The mention of 'Accessibility by Design' in document templates is also noted as being too ambiguous. Furthermore, while the development of user interface libraries is a positive step (IP03), it lacks specific guidelines for different disabilities. Finally, the absence of a clear measure of effectiveness in these initiatives is a critical oversight.

To address these shortcomings, it is recommended that regular follow-ups are executed, detailed guidelines for each type of disability are established, clear effectiveness metrics of DA actions are introduced. The second part of the interviews concerned gathering information about RQ1, i.e., *What are the relevant factors that influence the enforcement of digital accessibility in MNEs?* The topics addressed were grouped into two categories (a) & (b), as follows.

a) Status quo of digital accessibility

Participants were asked to describe the status-quo of DA within their respective MNE, guided by specific keywords. The findings are depicted and summarised in Fig. 3, a sketch about the *status quo* of DA in all analysed MNEs. For instance, IP03 describes the stakeholder involvement in his company like this:

'The topic of accessibility has actually been promoted at @@ MNE gamma ## by the representative office for disabled employees [..] So, in management, I'm more familiar with diversity and inclusion, and you have to make sure that you're working under this umbrella. The topic of accessibility has been strongly addressed in the IT department; [..] it has not yet been addressed in the area of procurement and it has only been addressed to a limited extent in the area of tender development.' (IP03).

Overall, while there is some level of awareness and targeted implementation of DA, specially in the IT department, a holistic strategy is essential for achieving full maturity in DA practices, e.g., stakeholder involvement. IP03 points out the disparity in DA efforts, underscoring the potential for enhanced and more evenly distributed initiatives throughout the organization.

b) Factors influencing the maturity of digital accessibility

Finally, the interviewees were asked to name further important factors from their perspective that would be capable of influencing the maturity of digital accessibility [34] within their companies. The following factors were mentioned. Interview partner 1 (IP01) summarizes this for MNE alpha as follows:

'*It [the pharmaceutical industry] is very strongly regulated. And I think, that this strong regulations in other business areas sometimes prevent the implementation of digital accessibility or even digitalisation.'* (IP01).

The maturity of DA [34] is indeed shaped by multiple factors, with the regulatory environment being a significant one. As per the insights from Interview Partner 1 (IP01), the pharmaceutical industry's dense legal framework can sometimes serve as a barrier, fostering a risk-averse mindset that emphasizes compliance over innovation. This cautious approach prioritizes the identification and prevention of potential DA issues. However, IP01 also implies that while compliance is necessary, it should not stifle progress.

For DA to truly advance, it must be supported by flexible and proactive strategies that allow for innovation within the bounds of regulation.

IV. Discussion and conclusions

The exploratory study on DA in MNEs acknowledges the increasing significance of DA for both public sector organizations and private businesses. As a result, MNEs are now confronted with evolving legal and social mandates related to DA. The study reveals that there is a notable deficiency in current literature regarding the actual state of DA in MNEs. To bridge this gap, the study was designed to examine how MNEs currently align with some DA requirements and to structure the identified challenges associated with DA implementation. This research is pivotal in shaping a comprehensive understanding of DA's integration into MNE operations and guiding future improvements.

A. Cross-checking the results of the exploratory study

The German transposition of the European Accessibility Act (EAA) provides a valuable reference point for cross-checking the results of the exploratory study on DA with practical insights from companies actively working towards implementing DA in their processes.

The discussion at the conference, as reported by [22], aimed to consolidate the findings of the exploratory study by comparing them with the experiences of companies that are navigating the requirements of the EAA, as follows:

1) Digital accessibility as an overall-process

All presenters confirmed the message that DA was an interdepartmental task. This is also regulated in international process norms regarding digital accessibility, as conference participant 1 (CP01) stressed out:

'The implementation of the processes described in 'DIN EN 17161 Design for all' must take place at all organisational levels in the company in order to be anchored sustainable and independently of individuals and organisational units.' (CP01).

CP02 mentions the importance of a systemic approach to implementing digital accessibility into company-wide processes:

'What is also another challenge is the structuring, to bring digital accessibility in the software development process. So, everyone who works in large corporations knows how complex the processes are and there is not just one person who decides 'now we'll make it barrier-free', but rather we need a system to get it down to the bottom to pass it on to the operational level and that is a huge challenge.' (CP02).

Conference participant 3 (CP03) highlights, that to increase the positive customer experience, digital accessibility must be implemented along the complete supply chain:

'We're not just talking about making these channels barrier-free, but actually the entire process from searching and buying through to delivery, [..]. So it's about [making all the processes and the entire chain] here accessible.' (CP03).

The review emphasizes a systemic and holistic approach to DA in MNEs (CP01), highlighting the importance of integrating DA into both intra-firm (CP02) and inter-firm processes (CP03). It identifies Organisational Structuring, Supply Chain Management, and Information Technology as key areas for DA readiness as Root Definitions (RDs).

The review also points out that Customer Service and Stakeholder Theories are crucial for understanding the customer's role in DA, aligning with the trend of customer engagement as a business priority as RDs. Overall, the review suggests that MNEs should adopt a strategic, inclusive, and customer-centric approach to DA, which is supported by contemporary business practices and theories [35].

2) Organisational anchoring of DA in multinational enterprises

It is also noteworthy that all of the presenting companies maintain a central office to monitor and control digital accessibility activities (CP01):

'The strategic management level with the company management, inclusion officers and ideally a Chief Accessibility Officer ICT, the so-called CAO, is significantly responsible for assigning roles, responsibilities and authorisations, in addition to the development and communication of visions, policies and goals.' (CP01).

CP04 *explains* their corporate concept for accessibility in their branch as follows:

'We at @@ MNE eta ## are organised into six divisions [..] and all [..]report on their activities to a central accessibility and human-centred design team [..].' (CP04).

CP04 also identifies four key areas for the company-wide cultural integration of digital accessibility:

'We are concentrating on four areas here, i.e., standardisation and regulation. Then there is external relations and internal promotion, which is also very important. And then, in principle, the whole thing is included in the sustainability area, which also includes inclusion, accessibility, diversity and so on.' (CP04).

Fig. 2 illustrates these four key domains of digital accessibility from the perspective of the MNE CP04.

Figure 2. Four key focus areas of accessibility of a MNE in the industrial sector. Adapted from [22].

The study identifies the role of the CAO (CP01) in strategic management, sustainability practices, and Society 5.0 principles as potential RDs for research framework. Society 5.0 is a concept that envisions integrating technology to solve societal issues and promote development [36]. Additionally, the design of IT systems that leverage external knowledge is crucial, highlighting the importance of Absorptive Capacity - the ability of an organization to utilize external knowledge. These components are suggested as RDs to evaluate DA maturity in MNEs and to inform strategy development.

3) International and harmonised standards as a key for the enforcement of DA

Several speakers (e.g., CP03) highlighted the need for internationally harmonized criteria for digital accessibility (CP03):

'For us, it is important that there are standardised requirements in the EU. It makes no sense that there are different markets within the EU, that there are different criteria for different countries, including for me as a person with a disability. My disability doesn't change when I move from one country to another.' (CP03).

If a company or product is affected by several rules, they must be compatible, as explained by CP04:

'*On the one hand, of course, we have the regulation, which in Germany actually primarily comprises the Interstate Broadcasting Treaty. Then, there is the content side, we have the linear broadcast providers, there are the network service providers, then to name also the platforms, the producers and the users. And that is not quite so easy to implement, in particular, if some groups are excluded from the regulatory side, while the device side then gets the regulation, because without content, this television cannot display anything'* (CP04).

Also the understanding and interpretation of the legal regulations (CP03) is seen as a requirement. Harmonizing and standardizing regulatory frameworks across the EU (CP03 & CP04) is complex due to the involvement of many stakeholders from various countries. To address this, developing organizational capabilities in absorptive capacity is essential. These capabilities are key to ensuring consistent interpretation and application of knowledge, both internally and from external sources. Stakeholders within the organization, civil society, and mechanisms of standardization and regulation are crucial. They serve as potential RDs and play a significant role in the maturity of DA.

4) Actions taken to increase digital accessibility

Actions taken by the MNEs of the conference participants, to increase DA were introduced. As already mentioned within the interviews, E-learning programs seem to be an appropriated action to increase knowledge of DA, as confirmed by CP04:

We have e-learning programmes that were already introduced in 2018 in Japan for all colleagues. These [programmes] are also being improved every year [..].' (CP04).

CP04 also highlighted the importance of close networking between internal and external stakeholders to alight DA from as many perspectives as possible:

'Then we set up an Accessibility Champions Network, where of course, individual colleagues are not obliged to participate, but we now have a large group who are connected to this network either because they are personally affected or because of product development issues and so on. We exchange ideas and then we also work together with the disability organisations for product tests and much more.' (CP04).

The conference proceedings underscore the gaps in DA practices revealed by the case study, suggesting a more in-depth physical examination is necessary. They stress the value of creating networks that include all stakeholders to address these issues effectively (CP04). Findings reinforce the necessity for precise DA requirements and acknowledge the significance of Absorptive Capacity, e.g., in product development. This supports the premise that DA considerations should be integral to the design process from the outset.

i) Preliminary graphical sketch of the DA *status quo*

The interviews have yielded a comprehensive view of DA in MNEs, identifying key factors that affect DA enforcement. A preliminary sketch, Fig. 3, visualizes these factors and their interrelations. Next steps involve refining this sketch into a 'rich picture' for clarity and synthesizing the insights to present a detailed and nuanced understanding of DA's current implementation, pinpointing both strengths and enhancement areas.

B. Outcomes of the study

1) Research question RQ2

To address Research Question 2 (RQ2), which examines the readiness of MNEs to meet new digital accessibility standards, it was observed that companies in technology

sectors and those offering digital products and services are more advanced in integrating digital accessibility into their processes. This observation is consistent across all participants and presenters, who acknowledged the significance of digital accessibility from their perspectives. However, there is often ambiguity in responses regarding whether the relevance and maturity discussed pertain to Digital Accessibility (DA) or to digitalization in general, which underscores the concept of 'DA by design'.

It is essential for both external and internal stakeholders to be systematically engaged to establish comprehensive social requirements that supplement legal mandates. The scarcity of robust examples of implemented actions suggests a lack of effective guidance, potentially due to inadequate involvement of associations, insufficient absorption of external knowledge, and limited internal engagement. Furthermore, business policies need to articulate specific disabilities to be addressed, which will focus research and development efforts on enhancing digital accessibility.

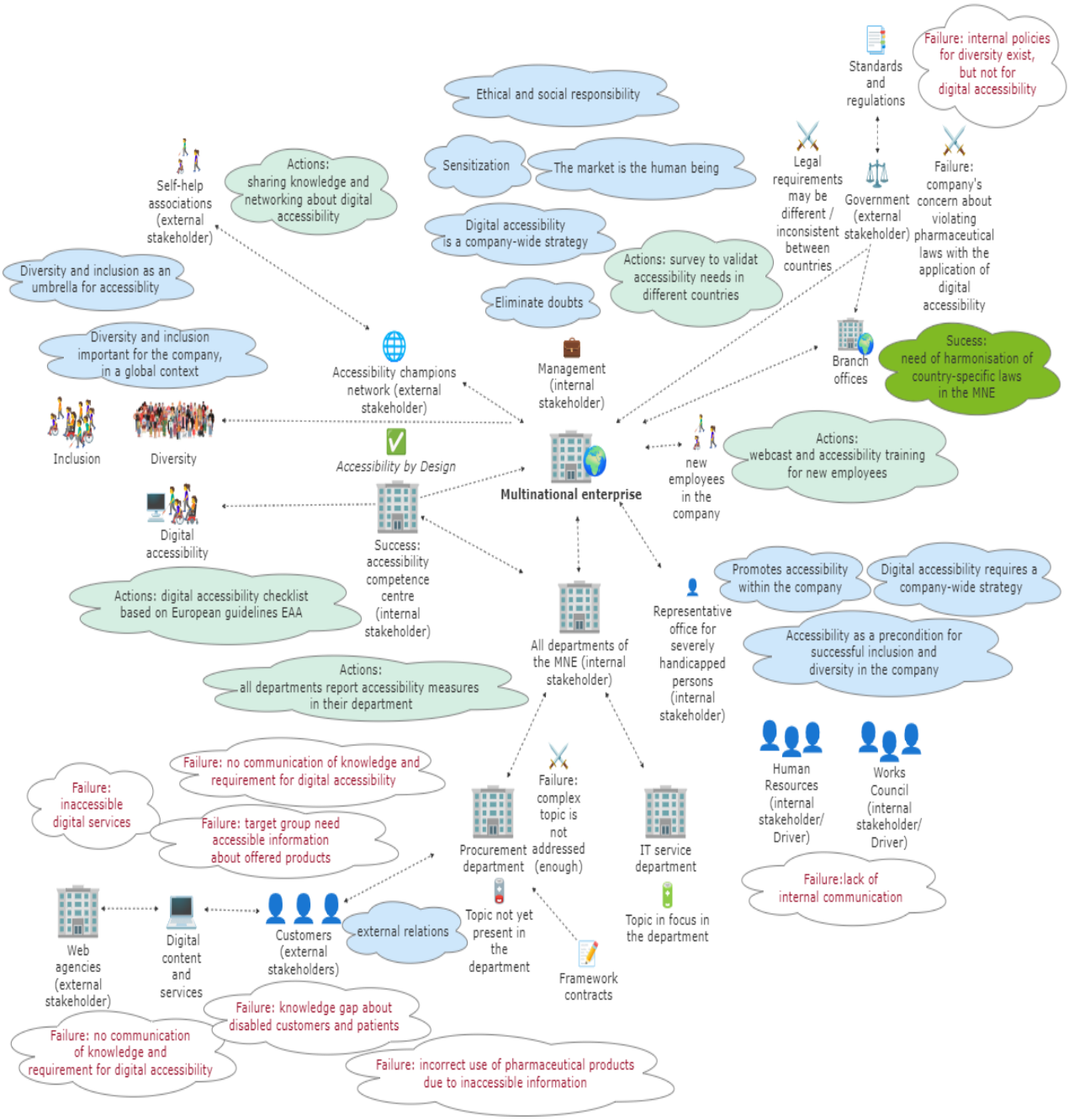

Figure 3. The first comprehensive ongoing holistic sketch of the status quo of DA for MNEs, synthesized from interviews and perspectives presented at the EAA conference [22].

2) Research question RQ1

To address the first research question on the factors affecting the implementation of Digital Accessibility (DA) in Multinational Enterprises (MNEs), we identified a notable gap. This gap, evident from Fig. 3, the discussion exercise, and the analysis of findings related to RQ2, points to the absence of an initial guiding framework to structure the problem-situation. We propose a normative approach, grounded in established legal, legitimate, and ethical standards [37][38], to steer corporate governance in matters of DA. Such an approach would gain legitimacy through compliance with legal and regulatory mandates that foster diversity and inclusion, echoing the contemporary concerns of Society 5.0 and the United Nations SDGs. Therefore, it would be subject to the principles of ethics and social responsibility, ensuring that corporate decisions align with these broader societal values. To establish a consequent systematic and holistic strategic management process that is embedded within the company's structure, the following principles should be adhered to:

- Respect *ethics and corporate social responsibility*; ensuring that all company activities align with ethical standards and contribute positively to society.
- Integrate relevant *externalities from stakeholders*, including (a) civil society knowledge from associations, networks of individuals, experts, etc., (b) technical knowledge encompassing technology and IT advancements, (c) legal regulatory compliance, e.g., EAA, (d) governmental policies that may impact the company's operations, (e) advocacy and lobbying efforts that align with the company's interests, (f) standardization and harmonization to ensure consistency and quality.
- Promote the *transference, assimilation, and application of knowledge* within the company's processes through absorptive capacity.
- Develop *organizational capabilities that structure the organization* by (a) encouraging customer engagement and fostering a customer-centric approach and, (b) focusing on DA by design, ensuring external/internal requirements alignment.

C. Further work

As we advanced in structuring the research problem, it became evident that various knowledge domains needed to be incorporated into the formulation of the root definitions for a conceptual framework for MNEs to implement digital accessibility within their company-wide processes, which is the third stage of Soft Systems Methodology (SSM). It is suggested that an intermediate literature review is pursued to help a more robust structuring of questions to support a more credible exploratory study to definitely establish the root definitions. In qualitative research, the number of interviewees is not fixed and can indeed vary widely. The key is to reach a point of data saturation, where additional interviews do not yield new insights or themes. Some researchers suggest that around 20 interviews may be a good starting point for a robust study, but this number is flexible and depends on the research objectives and richness of data collected to capture a diverse range of perspectives and to provide a deep understanding of the phenomenon.

D. Expected future contributions

Firstly, theoretical development of a validated conceptual model that is well-aligned with the principles of Soft Systems Methodology (SSM). A solid foundation for stages 4a and 4b of SSM will result from incorporating propositions, relationships, dimensions, and measures, and representing these graphically. This model will serve as a critical research tool for assessing the current state of digital accessibility within MNEs. Therefore, the research also offers practical benefits to MNEs striving to improve their DA practices.

NOTE

The first version of this article was published in the EurOMA 2024 conference proceedings and will only be made available to conference participants. The proceedings will not be indexed, so there are no conflicts with the publication in this IARIA Journal [39].

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APPENDIX I

A. Exploratory study: Digital Accessibility in MNEs

- From your personal perspective, how would you rate the relevance of digital accessibility in your company?
  - Very relevant
  - Rather relevant
  - Neither relevant or irrelevant
  - Rather irrelevant
  - Very irrelevant
- How would you rate the maturity level of digital accessibility within your company?
  - Level 0: Non-existent - i.e., no consciousness present
  - Level 1: Initial - i.e., first engagement with the way of a certain behavior and activity has been made. Analyses, process descriptions, policies are evaluated for their suitability and initial steps are taken to implement them.

  - Level 2: Managed - i.e., Specifications, guidelines, sanction systems, process descriptions for handling business transactions are in place, measures are taken according to predefined patterns, and the company's own good practices are in place, providing the benchmark for action.
  - Level 3: Defined - i.e., in addition to clearly regulated specifications and business processes, responsibilities and exceptions are fixed, benchmarks and targets have been developed, and continuous improvement in task execution and collaboration is targeted.
  - Level 4: Quantitatively Managed - i.e., the business processes are systematically evaluated and compared with the targets, deviation analyses are carried out, and optimizing measures are taken and checked for their effect. Reporting on deviations and target achievement has been introduced and forms the starting point for continuous optimization.
  - Level 5: Optimizing - i.e., here is a permanent orientation towards best practices within and outside the company, and all business processes are permanently evaluated and optimized.
- If you are aware of legal requirements for digital accessibility, like EU Directive 2019/882 (European Accessibility Act) [11], that affect your company, please name them.
- If you are aware of guidelines (policy: mandatory guidance of action) for digital accessibility within your company, please name them.
- If measures are currently being carried out in your company to increase digital accessibility in your company: How are these implemented in day-to-day business and how is their effectiveness monitored?
- In your opinion, which stakeholders, (environmental) factors, like economic systems, social norms and values, interests/goals or framework conditions, like policies (policy: mandatory guidance of action), influence the implementation of digital accessibility in your company? Key words for this question: drivers, stakeholders, responsibilities, interests/goals, policies, and legal framework. Note to this question: This is an accompanying process to develop a rich picture to better reflect the question in your organization. For demonstration purposes and shows an example of a Rich Picture, with the question of what aspects influence the implementation of guidelines in a hospital, based on [40]. The picture is a simplification of the real world. For this research, the illustration is created by the interviewer using Insight Maker, a free and open-source simulation and modelling application.
- Do you have any other questions or suggestions for this research?

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