

Operationalizing Collective Digital Transformation^{*}

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Abstract

Given the interconnectedness of the public sector, increased digital transformation (DT) demands increased inter-organizational collaboration. Although previous research has highlighted the relational dimension of DT, there remains a lack of understanding about how public organizations enact collaboration. This study conceptualizes collective DT as a nascent mode of inter-organizational collaboration for DT, by applying the lens of collective action and institutional theory. Using interview data from Swedish municipalities engaged in collaborative efforts, the study frames the construct of collective DT, its key dimensions, and sheds empirical light on its operationalization, offering new insights and proposing future directions for research on inter-municipal collaboration on DT.

Keywords

collective digital transformation, public sector, dimensions, municipalities

1. Introduction

The DT of municipalities and local government offers both unique new opportunities as well as existential threats [1]. In terms of the opportunities, shifting over (part of) the delivery of welfare services to digital channels dramatically decreases the margin cost of services, fueling increased scope and/or decreased cost [2]. In terms of the threats, increased reliance on digital infrastructure for operations invariably introduces challenges with competence, sourcing and exposure to cyber threats [3]. From this perspective, municipalities may find themselves in a “damned if you do, damned if you don’t” kind of situation.

While there has been growing research into public sector DT, the field is still nascent. Recent contributions related to e.g., how DT challenges the internal logic of the public sector [4], leading to new forms of decoupling [5] and reforming the relationship with citizens [6] highlight not only the fundamental impact of DT on the public sector, but also reveal gaps in our understanding of how DT can be successfully enacted.

Previous research on DT has highlighted its relational nature [7], connection to collective social action [8] and its role in the emergence of new organizational identities [1, 9, 10]. Within the public sector, studies have underscored the permeability of organizational boundaries in fostering value creation and the increasing need for inter-municipal collaboration. While research on how municipalities collaborate is growing [11], there remains a gap in understanding of emerging types of collaboration, particularly collective DT. Introduced by Carlsson et al. [9] through a revelatory case study of a municipal digital merger in Sweden (the Ångsvall case), I aim to further refine and strengthen the construct validity of collective DT. I do so by framing this concept and validating its key dimensions empirically. My guiding research question is: *How are the key dimensions of collective DT configured in inter-municipal collaboration?*

I address this question by first extracting five key dimensions from the empirical material collected in the Ångsvall case [9]. These dimensions are then validated through a cross-case analysis of 14 additional inter-municipal collaborations from various regions in Sweden. By

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developing and applying analytic scales for each dimension, I examine how different configurations contribute to, and optimally support, the collaborative enactment of collective DT.

The paper is organized accordingly. After this brief introduction, I review the previous research of DT in the public sector and frame collective DT. This is followed by a presentation of the method of the study. After this, I present the results followed by a discussion where the results are used as a basis for theorizing on the construct of collective DT.

2. Previous research and framing

2.1. Public sector DT as an inter-organizational phenomenon

There is a growing body of research on public sector DT, emphasizing its distinct nature compared to private sector DT. Unlike the private sector's focus on optimizing profit margins, the public sector's primary objective is to serve the public interest. This necessitates a unique approach to DT that prioritizes enhancing the efficiency and effectiveness of public service delivery, thereby creating greater public value and assuring relevance [12]. The research field has made significant strides in exploring a variety of perspectives, including barriers to DT [13], organizational ambidexterity [14], and collaborative efforts [11, 36, 37].

The relational nature of the public sector [15, 32] necessitates a collaborative approach for DT, a phenomenon that has gained ample interest among scholars, as it is increasingly seen as a necessity for digital government success [16, 33]. Hammershmid et al. [17] find evidence that most of the DT collaboration involving public sector actors is internal and horizontal, i.e., happening within the sector among same-level actors, such as state agencies or local governments.

As stated by Elston et al [18], collaboration is commonly understood as a response to complexity, targeting collaborative advantages through actor's complementarity, whereas information system research mainly addresses advantages associated with scale. Hence, different research streams tend to focus on different motives for DT collaboration, while such in practice exist in parallel. In a recent study, Silfversparre and Andersson [10] address the co-existence of these two different motives as municipalities are transitioning from IT-centric to digitally driven. Different motives require different collaborative conditions, although this is rarely paid attention to. A third and much less studied, but potentially critical, motive for DT collaboration in public sector is ethical considerations (i.e., principles that guide actions to ensure they are morally responsible), as shown by Carlsson et al. [9] in a study of a small and a larger municipality pursuing a case of collective DT, with equal welfare, regardless of municipal belonging, as common goal.

Research is increasingly calling for a more thorough understanding of how DT can be enacted in a collaborative setting within the public sector [1, 12, 34]. This is a manifestation of the necessity of increased collaboration, and an indication that the understanding of inter-organizational collaborative mechanisms is still limited, not least in the context of collective DT, an area in which Tana et al [8] calls for empirical research.

2.2. Theoretical framing: Collective DT and its dimensions

Building on the ideas of seeing DT as a form of collective action, as introduced by Tana et al. [8] and integrating the perspectives on DT from Hanelt et al [19], I offer a framing of collective DT as a form of collective action where actors from more than one organization engage in joint operations development through the utilization of digital technologies. Collective action refers to the coordinated pursuit of a shared goal or interest by a group of actors to achieve an outcome that benefits all members, not rarely including elements of utopian thinking, i.e., the imagining of a society that is different from the current one [20, 21]. Hence, in essence, collective action constitutes a mode of collaboration based on certain characteristics and drivers, commonly seen as a reaction to perceived inequalities [22].

Building further on the findings presented by Carlsson et al [9], which draw from a longitudinal case study of inter-municipal collaboration, and the combined insights from institutional theory [23–25] and collective action research [21, 26], I propose that collective DT can be more comprehensively operationalized through the following five key dimensions: capabilities, values, power, scope, and focus. Each dimension ranges between two extreme states on a scale (see Figure 1), where the right-hand side is perceived to be the optimal prerequisites for collective DT. In other words, I see the five dimensions as an entry-point into categorizing collective DT initiatives based on configurations of positions in said dimensions. (see [38] for an expansion on the configurational approach).

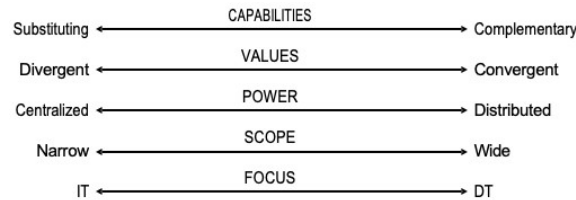


Figure 1: Overview of five dimensions of collective DT (own model).

The first dimension captures the variation in *capabilities*, which I define as collective competencies, routines, and resources that organizations (or in our case groups of organizations) develop to navigate and adapt to institutional pressures, norms, and expectations. Capabilities are not just technical skills or resources; they are also embedded in social structures and institutional logics that shape how organizations interpret and respond to change [23]. Capabilities among the actors engaged in DT collaboration range from substituting to complementary. A collaboration with substituting capabilities displays low variance in capabilities, i.e., all actors share similar capabilities, whereas a collaboration with complementary capabilities display high variance in capabilities. Complementarity is a well-studied aspect of collective action. Ostrom [21] demonstrates that complementarity among participants is key to successful collective action. Diverse contributions allow for more creative solutions and a better distribution of responsibilities while addressing shared challenges. This insight is echoed by Sandler [26] who shows that collective action is more effective when actors contribute complementary inputs to joint products, thereby increasing overall group benefit and reducing incentives to free ride. Additionally, research in organizational ambidexterity [39] has recently identified the value of complementary capabilities in ecosystems surrounding a platform, referring to this as collective ambidexterity. In other words, complementary capabilities are posited as the ideal configuration for collective DT.

The second dimension concerns the *values* of the DT collaboration. I adopt Scott's [24] definition of values as "conceptions of the preferred or the desirable, together with the construction of standards to which existing structures or behaviors can be compared and assessed." (p.64). Values are shared beliefs, norms, and cultural frameworks that guide and legitimize organizational behavior within an organizational context, shaping how organizations interpret their environment and make decisions. They range from divergent to convergent. A collaboration with diverging values displays high variance in values, i.e., all actors display different values, whereas an initiative with converging values displays low variance in values, i.e., a high degree of shared values. Within collective action theory, shared norms and values are consistently identified as critical to cooperation and rule compliance. Ostrom [21] emphasizes the role of shared understandings and trust in facilitating sustainable self-governance. Similarly, Baland and Platteau [27] argue that convergent normative beliefs among participants reduce coordination costs and increase the legitimacy of collective rules. As noted by Tana et al. [8], the notion of collective action presupposes joint norms and values among the actors involved. In other words, convergent values are posited as the ideal configuration for collective DT.

Turning to the third dimension, this captures the distribution of *power*. Inspired by Lawrence and Suddaby and Scott [23, 24], I define power as the ability of actors to impose or negotiate institutional rules, norms, and cognitive frameworks. It's not limited to coercion or authority; it also includes the subtle ways actors shape perceptions of what is legitimate, appropriate, or rational within institutions. In the context of DT collaboration, power ranges centralized to distributed. A collaboration with centralized power displays a governance setup where one of the involved actors is hegemonic and holds all power. If the power is distributed, the initiative has a governance setup where all actors share power with full equity. Collective action theory supports the claim that equitable power distribution enhances cooperation and sustainability. Ostrom [21] includes participatory rule-making as a core design principle, while Baland and Platteau [27] warn that elite dominance undermines trust and compliance. In other words, distributed power is posited as the ideal configuration for collective DT.

The fourth dimension pertains to the *scope* of DT collaboration, which I define, drawing on DiMaggio and Powell [25], as the breadth and range of actions, actors, and domains encompassed within a particular institutional or collaborative effort. Scope ranges from narrow to wide. A narrow collaboration is delimited to central functions such as the IT department(s), whereas a wide initiative infers a full diffusion, involving all actors and processes. As seen in Crusoe et al [5], a reduction in scope is a direct consequence of different forms of decoupling and detrimental to the overarching performance of DT. In other words, wide scope is posited as the ideal configuration for collective DT.

The fifth and final dimension captures the *focus*, i.e., the central priorities, objectives, or themes that guide the actions and attention of actors within an institutional or collaborative setting. In collaboration on DT, the scope ranges from a focus on IT to a focus on DT. A collaboration with an IT focus is a limited engagement in terms of investment and risk, with only minor business development involved. An initiative with a DT focus is directly associated with major business change and engagement in terms of both investment and risk. This is not contradictory to the fact that increased DT requires increased investment in IT. However, as noted by Magnusson et al [28] in their study of DT in the Swedish tax authority, previous notions of IT championship as proposed by e.g. Gregory et al [35] are directly detrimental to actual transformation. In other words, a focus on DT is posited as the ideal configuration for collective DT.

3. Method

This phenomenon-driven [40], qualitative, interpretative [41] study was conducted in 2024. The first step was to identify inter-municipal collaborations suitable for the study. Selection was based on the results of a national survey on inter-municipal collaborations in DT and IT, initiated by the Association of Municipal CIOs in Sweden. The survey revealed a wide range of IT- and DT-collaborations and collaborations forms, including associations, joint political boards, joint ventures (co-owned corporations), and contractual agreements. Many municipalities participated in multiple forms of collaboration simultaneously.

First, based on the survey, I selected 14 ongoing collaborations with representation from all forms, and whose key representatives agreed to participate in the study. Furthermore, I arranged the first round of 60–90-minute focus group or individual interviews, i.e., in total 14 interviews. The interviews often, but not always, involved several actors from different organizations, engaging dedicated and deeply knowledgeable collaboration teams, with both leaders, such as CDO, and operational actors, such as business developers or strategists, included. The interviews were conducted through Microsoft Teams. I took field-notes, which I coded deductively, guided by the five dimensions. These collaborations were then evaluated using the developed scales for the dimensions, ranging from 1 (furthest from the ideal) to 4 (closest to the ideal collective DT configuration). To ensure consistency and validity in the assessment, inter-rater reliability was established through independent evaluations by multiple researchers within the research consortium, followed by calibration sessions to resolve discrepancies and align interpretations.

Second, I selected four collaborations that represented the hypothesized optimal configurations for collective DT to analyze these cases more closely. Furthermore, I conducted a new round of interviews with key individuals from these collaborations to get a better understanding of their actions in relation to the dimensions. I utilized the coded material and proceeded to deductively analyze the distribution of collaborations per dimension, aiming to deepen the analysis through engaging with the quotes in an iterative fashion.

Finally, the findings from both steps were synthesized to develop a more comprehensive understanding of collective DT, its key dimensions, and the distribution of collaboration initiatives along the scales, indicating their fit with the collaborative mode of collective DT.

4. Results

Building on the five dimensions of collective DT outlined above, I start with presenting the evaluated distribution of the 14 collaborations, supplemented with illustrative examples from the four deepened case studies (see Table 1).

Table 1

Distribution of collaboration initiatives

Initiative	Capabilities	Values	Power	Scope	Focus	Average
1	4	3	4	3	3	3.4
2	3	4	4	3	2	3.2
3	2	3	3	4	3	3
4	3	3	4	3	2	3
5	3	3	4	2	2	2.8
6	1	2	3	2	2	2.0
7	2	2	3	3	3	2.6
8	2	2	3	3	2	2.4
9	2	2	3	3	1	2.2
10	2	1	3	3	2	2.2
11	2	2	2	2	2	2
12	2	1	2	3	2	2
13	2	1	1	3	2	1.8
14	1	1	2	2	1	1.4
<i>Average</i>	<i>2.2</i>	<i>2.1</i>	<i>2.9</i>	<i>2.8</i>	<i>2.1</i>	

In terms of *capabilities*, most collaborations were predominantly substituting rather than complementary. In the interviews, there were clear acknowledgements of the benefits of complementarity, and though not generally an explicit strategy, the collaborations often made some use of the varying characteristics of the involved parties on a case-by-case basis. Complementarity can be either a necessity or the only available option such as illustrated in Case 1:

“None of us have the right capabilities and the right resources fully. We need to do it together to attract the right resources and the right capabilities.”

It can also be co-existent with substitution, as in Case 3:

“Either they lean more towards overlapping, having very similar capabilities... Or they have a different strategy: we think that we complement each other. You bring the drone, I bring this. And together, this becomes something different from what we could have managed on our own.”

Further, there is rarely a systematic inventory of capabilities within each municipality prior to the launch of specific initiatives. The central coordinating units often lack a formal mandate to influence or direct the allocation of municipal resources to individual initiatives. Instead, resource allocation is typically driven by availability rather than strategic alignment. Consequently, outcomes vary significantly, as success largely depends on the extent to which the “right” resources are allocated and effectively matched across participating municipalities.

Turning to *values*, most collaborations were considered predominantly divergent rather than convergent. Although several collaborations showed a strong sense of affinity, most displayed a

spread in terms of norms and values, maintaining a distance, e.g., speaking about “us and them” rather than just “we”, among the parties. For organizations with a strong sense of unity and shared values, this was rooted in a common vision, as illustrated by Case 2:

“We cannot let municipal boundaries dictate our development was the foundation. But it was rooted in the willingness to share the same vision. The driving force was, in some way, equality, that if you do it, then you can help each other. At the same time, the cost was always a factor. But also, there was a sense of unity.”

As seen in Case 4, this type of unity is something that requires substantial time to be achieved: *“It was difficult in the beginning, but we are very good at reminding each other. So we have worked on that for many years. Now, it comes very naturally. The organizations themselves also say ‘we’ now, which I didn’t experience a few years ago. Back then, it was ‘us and them,’ but now, even there, there is a ‘we.’ So, it has spread.”*

In case 2, extensive effort has been put on dialogue and bonding among the municipalities, to increase trust, develop shared values and clarify the rules of engagement. Values are being defined at an early stage and iterated continuously, as new people join the group:

“I repeatedly talk about the necessity of equality among the parties, the will to share solutions, collaboration as key, playing soccer and that whole thing. I do so all the time to remind ourselves about the reason why I do this.”

One particular value lies in the common idea of freedom of choice:

“I won’t force anyone to collaborate. Rather, it must be so good and beneficial that it’s the preference. This increases the demands on the team, the processes and also on the solutions that I design. If I fail in building the next Angry Birds that everyone takes to heart, I have to learn from that failure.” (Case 2)

Turning to power, most of the collaborations were characterized by power being distributed among the involved parties, indicating an equitable governance setup. Even though specific actors are more powerful than other, due to the availability of financial and personnel resources, most believe that they participate based on their own conditions and without compromising in terms of autonomy. The cases recurrently illustrate the innate links between power and emotion, such as in Case 3 where fear of a feeling of loss of control is the argument for not collaborating with truly large organizations:

“One does not want to mix with someone very big and strong, for fear of being run over. It does not really become equal.”

For the larger organizations, such as the one represented by Case 2, the distribution of power is somewhat a double-edged sword, where they invariably hold greater access to resources and may need to take greater responsibility for assuring progress:

“We absolutely do not try to be the dominant party, but when something needs to be done, we might have to contribute more resources. That must also be okay. The power aspect is that one must... have free will and not run over anyone. But at the same time, be able to steer forward. Otherwise, nothing will happen.”

Equal power among the municipalities in terms of decision-making is at the heart of the collaboration strategy of Case 2, and there is always the option to opt out of any collaboration initiative:

“When I at the beginning investigated other collaboration efforts in Sweden and analyzed why they sometimes worked out and sometimes not, I found a few examples where the larger parties exercised power over the others. Such power imbalance implicated that parties felt obliged to join specific initiatives even though they didn’t actually want to, which led to dropouts.”

In Case 2 there was strategy of co-ownership and co-responsibility of all common development, as a single party ownership strategy, where one party holds all power and helps the others, comes with caveats:

“I also identified some cases where the larger party [initially] had a more helpful approach. After a while, when the smaller parties expressed wishes to do certain development, the answer was no. So, they just had to accept whatever decisions are made by the helping party”.

Concerning *scope*, the collaborations had predominantly diffused to the business side, i.e., they involve a broad spectrum of actors and processes. Even though there was an uneven distribution of effort across processes and actors, and highly disparate levels of engagement in cross-municipality collaboration between these, most parts of the organizations were involved in DT to some extent. The cases illustrate this clear expansion of scope to involve various parts of the municipal operations. As seen in both Case 3 and 4, the infrastructure for said expansion of scope is handled through the system administration networks, i.e., formal structures where individuals from the IT and business side continuously interact:

"Building permits, for example, there is collaboration between the building permit officers regarding digital transformation, common processes, common e-services, and common system administration networks for the social services' operational systems, where they collaborate on how to set things up and work together." (Case 3).

"Especially on the system administration side, both in care and education, we have had to expand. Two specific projects where we truly collaborated were e-services and automation. Where we made a joint recruitment and added a competence we did not have in an RPA project and an e-service project... and built competence that we spread to more people" (Case 4).

In Case 2, within the scope of the formal collaboration in DT, the central IT team and the collaboration platform they offer, play a crucial role in "making it happen", sometimes merely as a facilitator and sometimes as "doer", with a more or less central role, case by case. Traditionally, there has been a hefty technological focus within central IT, with an explicit strategy not to take a leading role within the domain of business development, but rather be a supporting and facilitating act. However, when central IT "backs off", this tends to affect the progress in negative ways, as the business side often lacks the ability to drive its own DT independently, as an effect of missing DT resources or resources lacking access to the collaborative platform (knowledge, structures, processes). Therefore, today there is a focus on first finding a resource (regardless of organizational belonging), and a shared sponsorship for this person, prior to pursuing any DT initiative:

"Someone needs to wake up in the morning with the right prerequisites to drive change. In cases where I have only provided the technology and such a person is missing, there is a standstill."

Finally, concerning *focus*, in a majority of the collaborations, there is a predominant focus on IT-change rather than DT, i.e., the business side regards DT as something owned by the IT-side. This implies a confined engagement in terms of investment and risk, limiting the extent of business change. Although a movement towards a more transformative focus was evident, digital technology is (still) predominantly used to enhance current ways of working (increasing efficiency) rather than to alter the core of welfare delivery (innovation). A shift in focus to DT is counteracted by existing governance practices, with the equation of IT with a support function, as illustrated by Case 1 below:

"The operations own a lot of the issues, and the technical architecture part [is accepted] more as a support function, we are there to help and support. Previously, it was perhaps even more technology oriented."

5. Discussion

While prior research on DT acknowledges its relational nature [29] and ties to collective social action [8], few studies have examined inter-organizational collaboration on DT within the public sector. Moreover, there is limited empirical research in the information systems field on how different forms of collaboration emerge, their underlying motives, and their key dimensions. Drawing on collective action [21] and institutional theory [23] this study addresses this gap by proposing and validating the key dimensions of collective DT within inter-municipal collaborations in the Swedish public sector. By developing and applying scales for each dimension, I analyze and discuss how configurations of capabilities, values, power, scope, and focus support collective DT in 14 instances of inter-municipal collaboration in Sweden. Through identifying and chiseling out the phenomenon, using inspiration from Alvesson and Sandberg [42] and Fisher et al [40], I have

oscillated between theory, pre-conceptions and data to be able to contribute through what I posit to be a novel framing of collective DT. Previous studies such as Tana et al [8] merely propose the collective as a potentially valuable lens for studying DT, and the notion of DT as an in essence relational activity [20] is still also very much in the early stages of inquiry see e.g. [29]. As argued by Fisher et al [40], phenomenon-based theorizing should aim to contribute to advancing the adjacent or pre-existing theories, whereby part of my contribution is directed to these two streams. Collective DT should not, however, be seen as a stable mode of collaboration that is achieved and then effectuated in a repetitive fashion. Supporting the findings of Lee [30] in his study of the enactment of decentralization, I posit that collective DT in essence constitutes a temporally delineated phenomenon that will change over time, oscillating between collaborative and collective DT, even in the absence of visible structural changes. My description of the substantial variance in configurations among the 14 instances studied should hence be seen as merely a snapshot of the current state, and something that needs to be further studied longitudinally.

The dimension of capabilities revealed that most collaborations relied on substitutive arrangements rather than actively seeking complementarity. Although the benefits of complementarity were widely acknowledged [26] it was typically leveraged informally, rather than forming an explicit strategic goal. This suggests that while complementarity can drive innovation and effectiveness, it remains an underutilized resource in many collaborations [10]. Turning to values, a majority of the collaborations were characterized by divergent rather than convergent value systems. Even in operationally effective collaborations, a shared vision and sense of unity were often lacking [8]. While some collaborations successfully developed collective identities and mutual understanding, this required sustained effort and was far from common. In terms of power, most of the collaborations exhibited a distributed power dynamic, suggesting a governance structure that supports equity and autonomy. Despite inherent differences in resources, most participants perceived themselves as operating on equal terms and without compromising their organizational independence. However, disparities in size and resources continued to influence how responsibilities were shared and decisions made [27]. Concerning scope, it was notably broad, extending beyond IT departments to include a wide range of municipal actors and processes. This indicates a significant shift towards cross-functional engagement in DT, even if the intensity of involvement varied across departments and roles [2, 5]. Finally, the analysis of focus showed that most of the collaborations remained centered on IT change rather than DT, which highlights a cautious approach that prioritizes the use of digital tools to improve existing processes, rather than embracing transformative shifts in service delivery or organizational identity [2, 28].

Collectively, these findings highlight a tension between incremental change and transformative ambition. While there is evident progress in terms of broadening participation and promoting equitable power-sharing, challenges remain in moving from substitutive capabilities and divergent values to a more integrated and visionary approach. Similarly, the strong focus on IT change suggests that many municipalities view DT through a narrow, efficiency-driven lens, rather than as an opportunity to fundamentally reimagine public services. Addressing these challenges will require more deliberate efforts to foster complementarity in capabilities, convergence in values, and a strategic focus that goes beyond incremental improvements. By doing so, collaborations can shift from enhancing existing structures to genuinely transforming how municipalities deliver public value.

6. Conclusions and further research

This study offers novel insights to research and practice alike. Starting with theoretical contributions, to my knowledge, this is one of the first empirical studies that venture into the realm of the collective mode of collaboration for DT in public sector. Previous studies such as Tana et al [8] merely propose the collective as a potentially valuable lens for studying DT, and the notion of DT as an in essence relational activity [7] is still also very much in the early stages of inquiry. By framing the construct of collective DT, I contribute to both the critique concerning the low levels of

construct validity in DT per se, and to the necessity of finding new modes of inter-organizational collaboration for attaining public sector DT [18]. The study also offers an additional take on the relationship between modes of collaboration and motives [11].

In relation to contribution for practice and policy, I highlight the possibility of collective DT as a new mode of collaboration between municipalities. Through approaching potential collaborations via striving for complementary capabilities, convergent values, distributed power, wide scope and a focus on DT rather than IT-change, I believe that municipalities may be better prepared to identify and enact fruitful collaborations concerning DT. In addition to this, I encourage policy makers to investigate where and how current regulation may be detrimental to this new mode of collaboration. Solely from my own experience from Sweden, I am aware of several laws that in their current setup directly counteract collective DT.

Turning to further research, I propose a longitudinal study of a set of inter-municipal collaborations. Collective DT should not be seen as a stable mode of collaboration that is achieved and then effectuated in a repetitive fashion. I posit that collective DT in essence constitutes a temporally delineated phenomenon that will change over time. My description of the substantial variance in configurations among the instances studied should hence be seen as a merely a snapshot of the current state, and something that needs to be further studied longitudinally [30]. This type of study would contribute to an enhanced understanding of the mechanisms that enhance collective DT, as well as provide a basis for further understanding the life cycle of inter-municipal DT arrangements. I also suggest conducting cross-national comparative studies to account for the impact of institutional arrangements on the enactment of collective DT to see different patterns in countries with e.g., a stronger proclivity for collective solutions.

Concerning limitations, the study has three main constraints. First, while this study takes a population level entry-point into collaborations related to IT and DT, I am aware that there may have been collaborations that were missed in the national inventory. I have handled this through refraining from any type of population level generalization and claims and believe that potentially missed collaborations will have little impact on my ability to answer the research question. Second, while the literature increasingly acknowledges the role of the citizens as co-producers [31], I have restricted myself to the inter-organizational level of analysis. I am aware that this sways away from the mainstream interpretation and use of the notion of collective action, where the, in some way, “original” focus has been on the collection of individuals rather than organizations. Third, the choice of going with the phenomenon-driven, qualitative approach to define the construct of collective DT brings certain limitations where alternative methods such as more robust scale development approaches could be seen as a viable option.

Declaration on Generative AI

The author has not employed any Generative AI tools.

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