UMEÅ UNIVERSITY

School digitalisation in Sweden

Governance and policy translation in a decentralised K-12 education context

Ulrika Gustafsson

Department of Applied Educational Science
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Less is beautiful.

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Abstract

Background: The National Digital Strategy for the School Sector was launched in 2017, aiming to make Swedish K–12 schools the best in the world at utilising digital opportunities by 2023. The implementation of the strategy has involved education stakeholders at different organisational levels, from the national policymaker level to local education offices and schools. This thesis explores the translation of national school digitalisation policy into local actions, focusing on the contextual diversity within the decentralised Swedish K–12 education system.

Design and methods: This research employs a policy trajectory approach, exploring the translation of the national strategy across four organisational levels: the national, municipal political, local education office, and school level. Data were collected through semi-structured interviews (N=61) with national policymakers, school superintendents, ICT coordinators, and other key informants as well as analyses of local policy documents and minutes of education committee meetings (N=223). Thematic analysis was used, focusing on the practical actions taken in school digitalisation processes.

Findings: Two distinct approaches to school digitalisation among Swedish municipalities were found: a general approach, primarily in larger urban municipalities, and a specific approach, more common in smaller rural municipalities. The general approach involves providing extensive resources and leaving the responsibility for policy translation to individual schools and teachers, while the specific approach features detailed local policies and collaborative efforts across all organisational levels. This thesis highlights challenges faced by small and rural municipalities, including limited resources and remoteness from national policy processes. It underscores the importance of ICT coordinators in bridging the gap between national policy and local implementation and provides insights into education governance of school digitalisation. The thesis shows that the national strategy and the #skolDigiplan represented a move towards collaborative governance, aiming for a democratic, negotiated, and co-creational policy process. However, the remoteness experienced by small and rural municipalities suggests a need for more inclusive and supportive national governance structures. The development of network governance among these municipalities highlights their capacity for self-organisation and resilience, but also underscores the challenges of ensuring educational equality in a decentralised system.

Keywords: Context; Education Governance; National Strategy; Policy Translation; School Digitalisation.

Enkel sammanfattning på svenska

Denna doktorsavhandling undersöker skolans digitalisering i Sverige och tolkningen av den nationella digitaliseringsstrategin för skolväsendet (2017-2022) med fokus på styrning av skolan i en decentraliserad utbildningskontext. Fyra empiriska studier ligger till grund för avhandlingen som binder samman skolans organisatoriska nivåer från nationell policynivå till lokal skolpraktik. Särskilt uppmärksammas olika kommunala kontexter och hur detta påverkar digitaliseringsarbetet. Resultaten visar på två huvudsakliga tillvägagångssätt i det lokala arbetet: ett generellt förhållningssätt i större kommuner med stort individuellt ansvar, och ett mer strukturerat specifikt förhållningssätt i mindre kommuner med tydligare samordning. Avhandlingen bidrar med ny kunskap om hur nationella digitaliseringsinitiativ för skolan tar form genom olika organisatoriska nivåer och belyser särskilt små kommuners utmaningar och strategier i digitaliseringsprocessen. Slutsatserna pekar på behovet av en mer inkluderande nationell styrningsstruktur som tar hänsyn till kommuners skilda förutsättningar för att säkerställa likvärdig digitalisering i svensk skola.

Bakgrunden till avhandlingen är den nationella digitaliseringsstrategin för skolväsendet som lanserades 2017. Målet med detta initiativ var att göra svensk grund- och gymnasieskola världsledande i att utnyttja den digitala teknikens möjligheter. Den nationella strategin slog fast att svensk skola ska erbjuda likvärdig tillgång och användning av digital teknik, möjliggöra digital kompetens för alla i skolväsendet, och att den digitala teknikens möjligheter för utbildning ska följas upp och utforskas. Dessa tre förutsättningar var satta att uppnås till år 2023 och innebar att alla organisatoriska nivåer behövde engageras, från nationell policynivå till kommunala huvudmän och skolor. Avhandlingen redogör för arbetet med den nationella strategin inom olika organisatoriska nivåer och lyfter fram kontextens betydelse i svensk skola. Utifrån den decentraliserade strukturen för nationell styrning av skolan, uppmärksammas särskilt kommuners arbete utifrån lokalt ansvar för, och inflytande över, nationell policy. Avhandlingen har designats som en så kallad 'policy trajectory study' som innebär att arbetet med den nationella strategin har studerats i sin rörelse genom olika organisatoriska nivåer. Utgångspunkten i det angreppssättet har varit en modell som beskriver fyra tänkta nivåer: nationell nivå, kommunalpolitisk nivå, lokal förvaltningsnivå och skolnivå.

Fyra empiriska studier utgör tillsammans grunden för avhandlingen, vilka har publicerats som tre forskningsartiklar och ett bokkapitel. Studierna lyfter fram arbetet med skolans digitalisering utifrån olika organisatoriska nivåer och perspektiv, och kan sammanfattas som följer.

Nationell nivå (Artikel I) — Här analyserades arbetet bakom handlingsplanen #skolDigiplan, som togs fram av Sveriges Kommuner och Regioner (SKR) för att stödja digitaliseringsprocessen i alla svenska kommuner. Studien visar att denna plan utvecklades i en inkluderande och transparent process med avsikt att involvera och engagera alla tänkbara intressenter i arbetet med skolans digitalisering. Utifrån den ambitionen, upplevde personer anvariga för arbetet med #skolDigiplan utmaningar i arbetet. Bland annat lyftes svårigheter att inkludera små och avlägsna kommuner i den nationella policy processen.

Kommunal politisk och lokal förvaltningsnivå (Artikel II) — Här identifierades två huvudsakliga tillvägagångssätt för digitalisering på kommunal nivå: ett generellt tillvägagångssätt och ett specifikt tillvägagångssätt. Det generella tillvägagångssättet, som återfanns i studiens större kommuner, innebar att skolor och lärare ges stort individuellt ansvar för och inflytande över skolans digitalisering och hur den den nationella strategin omsätts i praktiken. Det specifika tillvägagångssättet, som återfanns i studiens mindre kommuner, innebar att digitaliseringsarbetet var mer strukturerat och kollektivt, med tydliga lokala policys och ett utvecklat samarbete mellan olika lokala organisatoriska nivåer, och genom olika former av nätverkande.

Lokal förvaltningsnivå: Landsbygdskommuner (Bokkapitel III) — Denna studie inriktade sig på landsbygdskommuners (C8) arbete med den nationella strategin. Här visade sig likvärdighet vara ett starkt fokus i arbetet med skolans digitalisering. Studien visade också på landsbygdskommunens svårigheter i arbetet med skolans digitalisering utifrån deras mer begränsande förutsättningar. Kommunerna i studien förordade i de flesta fall ett specifikt tillvägagångssätt vilket även var synligt exempelvis i de samarbeten som eftersöktes för att finna stöd i digitaliseringsprocessen; mellan olika organisatoriska nivåer inom kommunen och i olika former av nätverkande mellan personer verksamma inom andra kommuner. I kapitlet belystes vidare begreppet "rural resiliens", där landsbygdskommuners förmåga att anpassa sig till förändringar och utmaningar genom kollektiva ansträngningar och lokalt engagemang diskuterades.

Skolnivå: IKT-samordnare (Artikel IV) — Här lyftes IKT-pedagogers roll i digitaliseringsprocessen, deras arbetsvillkor och ansvar beroende på kommunens tillvägagångssätt utifrån ett generellt eller specifikt förhållningssätt. Oavsett tillvägagångssätt upplevde IKT-pedagogerna i studien ofta höga krav vad gäller arbetet med skolans digitalisering. Skillnader mellan kommuner med ett generellt eller ett specifikt tillvägagångssätt visade sig vara att IKT-pedagoger i den förstnämnda upplevde mer frustration i sitt arbete. Detta med anledning av en begränsad auktoritet och oro för att det lokala arbetet gick för långsamt och behandlades på ett sätt som ansågs innebära en ökad olikvärdighet i skolan.

Denna frustration återfanns inte bland IKT-pedagoger i kommuner med ett specifikt tillvägagångssätt som i jämförelse uttryckte en mer stabil arbetssituation med ett uttalat ansvar, framför allt i fråga om samordning, och ett starkare lokalt stöd för sitt arbete.

Sammantaget visar avhandlingen på kontextens betydelse för skolans digitalisering och hur arbetet med den nationella strategin kan ses som en transformativ process i två olika versioner. Den första versionen kan sägas gälla kommuner med närmre kontakt med den nationella nivån och är utifrån avhandlingens resultat, i första hand giltig för kommuner som antagit ett generellt tillvägagångssätt (huvudsakligen större kommuner). Det transformativa i skolans digitaliseringsprocess kan då ses utifrån det nationella arbetet med #skolDigiplan där nya kollaborativa ledarskapsmetoder och reformerade policyprocesser för skolan provades. Baserat på resultaten i denna avhandling verkar det dock i denna version finnas ett glapp i processens utbredning där skolor och enskilda lärare själva förväntas ta ett stort ansvar för skolans digitalisering. Den andra versionen av en transformativ process kan sägas gälla kommuner som befinner sig längre från den nationella nivån och således mest framträdande bland de som har antagit ett specifikt tillvägagångssätt (huvudsakligen mindre kommuner). Här kan den transformativa processen ses som en flernivåprocess med ett starkt lokalt fokus. Utifrån beskrivningen av dessa två versioner av det transformativa inslagen i arbetet med den nationella strategin, visar avhandlingen på betydelsen av kontextuella förutsättningar för arbetet med skolans digitalisering.

Avhandlingen lyfter vidare arbetet med skolans digitalisering ur ett governance perspektiv och visar hur den nationella strategin kan sägas representera ett steg mot en samverkande styrning, med målet att uppnå en demokratisk, förhandlad och samskapande policyprocess. Den visar dessutom på avståndet som små kommuner upplever till nationell styrning och på behovet av en mer inkluderande och stödjande nationell styrningsstruktur. Utvecklingen av nätverksstyrning bland dessa kommuner belyser deras förmåga till självorganisering och motståndskraft, men understryker också utmaningarna i att säkerställa utbildningsmässig likvärdighet i ett svenskt decentraliserat skolsystem. Utifrån avhandlingens resultat går att argumentera för behovet att vidareutveckla det kollaborativa arbetet med skolans digitalisering på nationell nivå. Den visar också på potential som finns i att söka lärdom från de olika alternativa modeller för skolans digitalisering som tillsynes är under utveckling på lokal nivå, ute i Sveriges kommuner.

List of included papers

This compilation thesis includes the following four papers.

I. Gustafsson, U. (2021). Taking a step back for a leap forward: policy formation for the digitalisation of schools from the views of Swedish national policymakers. *Education Inquiry, 12*(4), 329-346. doi:10.1080/20004508.2021.1917487.

As the sole author I planned, conducted, analysed, and wrote the paper. Reprinted as Open Access.

II. Gustafsson, U. (2022). Size matters: contextual factors in local policy translations of National School Digitalisation Policy. *Education and Information Technologies, 27*, 11741–11758. doi:10.1007/s10639-022-11009-4.

As the sole author I planned, conducted, analysed, and wrote the paper. Reprinted as Open Access.

III. Gustafsson, U. Olofsson, A. D. (2024) 'This is How We Do It!' - Rural Resilience in Local Translation Work on National School Digitalisation Policy. In S. Willermark, A.D. Olofsson, and J.O Lindberg (Eds.), *Digitalization and Digital Competence in Educational Context: A Nordic Perspective from Policy to Practice* (pp. 28-38). Routledge.

I came up with the original idea, accomplished data production, did the analytical work, and had the primary responsibility for writing the main part of the paper. Reprinted with permission from Routledge, part of the Taylor & Francis Group.

IV. Gustafsson, U., Olofsson, A. D., & Bergström, P. (2024). In service of school digitalisation in Sweden – a study on ICT coordinators' conditions for work in a local municipal context framed by national educational policy. *Education and Information Technologies*. doi.org/10.1007/s10639-024-12581-7.

I collaborated in coming up with the original research idea. I accomplished the data production, did the analysis, and had the primary responsibility for writing the findings, discussion, and conclusions of the paper. Reprinted as Open Access.

1. Introduction

This is a thesis on school digitalisation in Sweden and the processes following a national government policy initiative – the National Digital Strategy for the School Sector, hereafter referred to as the national strategy (Ministry of Education, 2017). The empirical research conducted and reported here follows the trajectory of this national strategy and provides insights on the policy translations at four different organisational levels within the decentralised Swedish education system. Moreover, it highlights the contextual aspects of digitalisation processes within Swedish K–12 education (Kindergarten, compulsory school, and upper secondary school) and focuses on the issue of education governance in such processes.

The national strategy for Swedish K–12 education was released in 2017 and included three policy objectives: (i) digital competence for all in the school system, (ii) equal access and usage of digital technology, and (iii) improved research and follow-up on the possibilities of digitalisation. These objectives were aimed by the Ministry of Education to be met on a national level no later than by the year 2023, which might be one reason why this policy document in research has been suggested to be rather ambitious (cf. Olofsson et al., 2020). A continuation of this education policy initiative furthermore seems unlikely, as the current Swedish government, shortly after being installed in November 2023, decided to terminate the preparatory work initiated for a follow-up. I will return to this later.

To describe the national context of this thesis, Swedish K–12 education may be recognised for working in a decentralised manner (Jarl & Rönnberg, 2019). The 290 municipalities, which gained much independence over K–12 education in 1991, are responsible for both setting the budget and organising K–12 education locally. National policies, such as the national strategy, therefore largely depend on education governance and the cooperation of municipalities in K–12 education matters that may be decided on locally. The municipal contexts in Sweden are diverse, with substantial variations concerning for instance area (ranging from 8 to 20,550 km^2) and population size (ranging from 2,300 to 990,000 inhabitants) (www.scb.se). For instance, rural municipalities can have a small population but cover large areas, while urban municipalities can be small in area yet have a dense population. In any case, the municipalities are expected to provide nationally equal K–12 education.

The three objectives of the national strategy, together with the idea of Swedish K-12 education's contextual diversity, was what initially piqued the research interest behind this thesis. Studies of the national strategy, moreover, seem to suggest

that local contextual aspects such as geographical location, political engagement, and supportive structures (like ICT coordinators, reported on in Paper IV) together with the level of investments in school digital technology so far have received limited attention in research (Grönlund, 2023). The ambition of this thesis is therefore to provide knowledge on contextual aspects which are intertwined in the process of school digitalisation following the national strategy. In addition, it seeks to offer relevant insights for discussing the challenges of context in school digitalisation in Swedish K–12 education and enable reflections on education governance and the four organisational levels of the decentralised Swedish education system.

This thesis at a glance

This thesis acknowledges the messiness and complexity of school digitalisation in policy (Bottino, 2020; Sosa-Díaz et al., 2022). For that reason, policy on school digitalisation is considered to be present within texts, processes, and outcomes (cf. Ball, 1993), and moreover to be taking place in different contexts and at different organisational levels in the education system (cf. Ball et al., 2012). Inspired by Gorur (2011), this understanding may also describe education policy as a practice in itself – that school digitalisation is *doing*. Emphasising sensitivity to context, this thesis uses the concept of 'translation' when addressing actions taken on school digitalisation policy. Translation is understood as 'a selective and active process in which meanings are interpreted and reinterpreted to make them fit their new context' (Clarke et al., 2015, p. 35). Hence, it is a matter of drawing attention to how policy moves, mutates, and manifests (Savage, 2020) when exploring the contextualised translations of school digitalisation foregrounded by the national strategy.

In research, education policy has been described not only as challenging and unpredictable, but also as an instrument prescribed with unreasonable expectations (Hill & Hupe, 2014; Pressman & Wildavsky, 1984). Therefore, exploring education policy further, this thesis investigates the practical implications of the national strategy, how this policy is being 'made and remade in process' as well as 'multi-sited, fluid and unstable; and as open to contestation' (Ozga, 2019, p. 9). Hence, education policy in this thesis is understood as dynamic and constantly moving, which implies continuous interpretation, translation, and recontextualisation within local practices, for example in Swedish municipalities and local K–12 schools (cf. Clarke et al., 2015; Gorur, 2011; Gulson et al., 2015; Youdell, 2015). This understanding of education policy has inspired me to delve deeper into the structures and processes of school digitalisation and the potentials that dictate the conditions for Swedish K–12 education – in other words, acts of education governance.

The four empirical studies in my research project were influenced by an education policy trajectory approach (Ball, 1993; Lewis, 2021; Taylor et al., 1997; Yorke & Vidovich, 2016), examining how national school digitalisation in Sweden unfolds at different organisational levels. The first study explores the development of the national plan of action (also called the #skolDigiplan) (Swedish Association for Local Authorities and Regions [SALAR], 2019), a national policy document meant to assist in the translations of the national strategy. The second study, a comparative cross-case study, explores how local policy translations vary across the diverse landscape of Swedish municipalities. The third study examines small and rural municipalities in their local efforts on school digitalisation. The fourth and final study explores the role and conditions of ICT coordinators, who in this study were understood as mid-level policy translators in the K–12 education context (see Mathou, 2018; Singh et al., 2013). Following the trajectory of the national strategy in this way, this thesis additionally provides insights on how this particular education policy moves within the national and local context of Sweden (cf. Wermke & Forsberg, 2023; Yorke & Vidovich, 2016). Hence, it includes individuals and locales in a way which, as Lewis (2021) describes it, enables insights on how context affects policy and how policy, in turn, affects contexts. In this way, this thesis addresses both contextual aspects of Swedish K–12 school digitalisation and education governance in a decentralised context. The empirical data were collected at four different organisational levels – the national organisational level, the municipal political level, the local education office level, and the school level. To project the diversity of local municipal K–12 contexts (cf. Lundahl, 2002), both big cities in urban contexts and small rural municipalities were included in the empirical work. In choosing this representation, SALAR's categorisation of municipalities (SALAR, 2016) was consulted.

The empirical studies conducted at different organisational levels, commencing at the national level, are reported in the four papers included in this thesis (Papers I–IV). These studies were planned subsequently and were thus flexible to the findings from the studies conducted previously (i.e. the second study was adjusted to the findings from the first study and so on). Hence, the planning of the empirical studies was open to ad-hoc adaptations (cf. Lewis, 2021). The first study of the thesis project was conducted at the Swedish national level with members of the group behind the subsequent #skolDigiplan. This study (Paper I) explored the views of this group of policymakers when making the #skolDigiplan, a document intended to legitimise the national strategy and to guide educational stakeholders working with the strategy in the Swedish K–12 context. After this initial study, the other studies were designed to explore processes and actions taken on school digitalisation at the three remaining organisational levels (cf. Lindensjö & Lundgren, 2014). The second study (Paper II) explored the approaches and translations of the national school digitalisation directives among Swedish municipalities based on their local contexts. The conditions of

rural municipalities in their work with school digitalisation were particularly recognised by the third study (Paper III). The fourth and final empirical study (Paper IV) explored the conditions of one central school profession – the ICT coordinator – regarding their work, including a specific focus on their function, responsibilities, and role as mid-level policy translators. As my doctoral research project progressed, the complexities of the decentralised Swedish K–12 context unveiled, highlighting the importance of education governance in national education policy translations.

This thesis does not make claims regarding the extent to which the national strategy so far has been realised in Swedish municipalities. Instead, it brings forward the relevance of contextual aspects in this process, seen in relation to national education governance. With this clarified, next I turn to describing the Swedish context in relation to some global trends of national school digitalisation.

School digitalisation – a global interest

From a global perspective, digital technology in schools has been highlighted as a cornerstone for both present and future societies (Voogt et al., 2018). A beneficial aspect raised for the uptake and use of digital technologies (Olofsson et al., 2015) is the development of digital competence (Lisborg et al., 2021; Olofsson & Lindberg, 2021; Rolf et al., 2019). A competence which in research has been proposed a catalyst for teaching activities that enhances student learning (Consoli et al., 2023; Willermark et al., 2024), and moreover a prerequisite for young people obtaining digital citizenship (Jørring et al., 2018; Örtegren, 2023). Based on these developments and interests, school digitalisation has become an important component in government initiatives for schools (Eickelmann, 2018; Selwyn, 2018). Even if research suggests that such initiatives often risk falling short of their expectations (see e.g. Hammond, 2020; Sancho-Gil et al., 2020; Selwyn, 2018; Ward & Parr, 2011; Wastiau et al., 2013), the development of national policies on school digitalisation has on a global level gained momentum over the past few decades (Voogt et al., 2018).

Salajan (2019) describes how national government initiatives on school digitalisation have been encouraged by supranational organisations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Organisation for Economic Co-operation and Development (OECD), and the European Union (EU) (see Eickelmann, 2018; Ottestad & Gudmundsdottir, 2018). In advocating national efforts on school digitalisation, such organisations have been offering frameworks, plans, and expert guidance. This has, for instance, been in the form of guidelines for Information and Communication Technology (ICT) in education policies (UNESCO, 2022) or national reviews on the digital transformation of education (OECD, 2018, 2019).

In the EU, the push for school digitalisation may be exemplified by frameworks such as DigComp (Vuorikari et al., 2016; Vuorikari et al., 2022), which addresses the importance of digital competence in society and in policy, or DigCompEdu (Redecker, 2017), a policy document that addresses teachers' digital competence in particular (Arstorp et al., 2024; Siddiq et al., 2024). Additional examples are programmes on teacher professional development that focus on digital technology (e.g. Erasmus+) and the Eurydice network, which among other things provides resources for national comparisons containing statistical data on country-specific work with school digitalisation (Tveit & Lundahl, 2018). Such initiatives have been argued to be following the European Commission's ambition to establish a European education policy space (Salajan, 2019), and the unification of education policy on school digitalisation is suggested to trace back to the late 1990s (Ottestad & Gudmundsdottir, 2018). The 'Europeanising' of education policy within the EU has, however, been argued to have been apparent already since the early 1970s (Grek & Lawn, 2009).

From a historical perspective, Sweden has actively been engaged in many policy initiatives on school digitalisation considered to be international trends (Bergviken Rensfeldt & Player Koro, 2020; Gu & Lindberg, 2021) and the launch of the national strategy in 2017 may be argued both part of the international trend and the result of a European push for expansion in this area (Olofsson et al., 2020). As touched upon above, there seem to be differences between what global and national policy documents communicate on school digitalisation on the one hand and research on the other. The former argue that the integration and use of digital technologies in school together with young people developing digital competence are crucial for present and future society, while the latter suggest that expectations of the outcome of national school digitalisation initiatives may be too high. Therefore, the findings reported in this thesis have a rich potential to facilitate discussions on school digitalisation policy in relation to education practice from a Swedish context – discussions which may also be relevant for other national contexts globally or in Europe, where the Nordic perspective may be particularly relevant, as highlighted in previous research (Olofsson & Lindberg, 2021).

School digitalisation – the national level

While there has been an international policy push for school digitalisation, the main authority over Swedish K–12 education remains national (cf. Pierre & Peters, 2020; Savage, 2020). Consequently, the goals of the national strategy were formulated to address education stakeholders in the specific Swedish context. Discussing the use of 'digitalisation' in policy, Heidlund and Gidlund (2023) put forth that in Sweden this term is an undefinded buzzword hard to grasp. Similarly, Vivitsou (2019) describe school digitaisation as a vague and fluid

term, becoming what key actors such as educational leaders, teachers, and educational researchers, make of it in their everyday practice. Vivitsou, therefore suggest a clearification of the term by studying the consensual voices of these specified groups before further use in reserarch. However, this thesis suggests that the 'vague and fluid nature' if school digitalisation can motivate research studies in relation to a process of uncertainty. Hence, researching various translations in different contexts and with potentially different conditions for school digitalisation could offer the unique possibility of exploring the multitude of contextual aspects relevant for school digitalisation in Sweden. In this way, studying actions derived from the national strategy in its initial phase, as in this thesis, is considered to enable highlighting contextual aspects that, as argued by Gorur (2011), most often run the risk of being overlooked and furthermore eventually become invisible as education policy settles, becomes defined, and is practised.

Compared to other Western countries, it has been argued that Sweden is relatively late in developing a comprehensive national strategy for school digitalisation (Hillman et al., 2020). When the national strategy was launched in 2017, it could therefore be seen as the start of intensified national work directed towards this area of education policy. The initiative included several additional documents following the national strategy, which all encouraged and supported the goals outlined in the strategy (cf. Grönlund, 2023). One such document of some importance for this thesis, as touched upon above, is the #skolDigiplan. This document was planned to serve as a foundational document for the 290 Swedish municipalities and other educational providers (e.g. private schools) in their work with fulfilling the national strategy. Another important document in the context of this thesis is the revised National curriculum for compulsory school, preschool class, and school-age educare (Swedish National Agency for Education [SNAE], 2018), which includes formulations that emphasise digital competence both broadly and more specifically in the goals of each teaching subject (Godhe et al., 2020). This curriculum also introduced a new learning objective related to coding, which was specified to be taught in the subjects of mathematics and technology (Raptopoulou, 2021; Vinnervik, 2021).

Similarly to other Swedish education policy documents, the national strategy and the subsequent national documents provided goal-centred objectives rather than rule-based goals (cf. Bergh, 2015). This allowed for freedom in translating the policy documents and thereby reflected the decentralised Swedish K–12 school system (cf. Lundahl, 2002). Swedish local autonomy furthermore enabled for example municipal officials, school leaders, and teachers to locally interpret and adjust the national strategy to fit their specific context. Hence, the translational freedom embedded in Swedish education policy documents could be said to imply the acceptance of national diversity; however, this also means opening up for the

risk of succumbing to national inequality (Ärlestig & Johansson, 2020). Studying Swedish education policy developments and digitalisation in schools, Gu and Lindberg (2021) raised concerns about signs of divides in access and usage of digital technologies between large and small municipalities, between schools in different areas, and between public and independent schools. Focusing on contextual diversity and policy translations in school digitalisation, this thesis adds insights about the potential existence of such divides and their characteristics.

Selwyn (2013) proposed the need for 'more socially grounded understandings of the "messy" realities of technology and education' (p. 198). Similarly, Savage (2020) called for research on what works for whom, and why, in digital technology in education, opposing the idea of 'one-size-fits-all' solutions of digitalisation in education. These requests are acknowledged in this thesis by studying translations of the national strategy, which, as described in previous research, can shed light on the structures and possible inequalities that might come into question in relation to national school digitalisation in Sweden. Hence, addressing the relevance of contextual aspects, this thesis explores the diversity in policy translations of school digitalisation as part of Swedish education governance.

School digitalisation – local governance

The decentralised Swedish school system allows for local diversity in terms of translations of national policy texts, which therefore often are characteristically broad and undefined (Bergh, 2015). Hence, although following the same national directives, translational diversity is expected among municipalities. The focus on policy translations in this thesis makes it possible to emphasise both the diversity and the dynamics of school digitalisation in Sweden. Drawing on Clarke et al. (2015), studying translations in education policy 'implies multiple voices, plural trajectories and perhaps the possibility of making policies "otherwise"' (p. 60). In this line of thinking, this thesis has also been inspired by Gulson et al. (2017) in attempting to study education policy as it moves, hence following the trajectories of the national strategy and examining the contextual embeddedness of school digitalisation. This has been done empirically by exploring the translation of school digitalisation policy from a national to a local level within its contextual settings (Vidovich, 2013; Wermke & Forsberg, 2023).

Gulson et al. (2017) suggest research should acknowledge the dynamics of education policy through which relations are held together in school-related networks and collaborations. In line with this suggestion, this thesis includes a focus on education governance in school digitalisation processes. Education governance has in previous research been pointed out as important to address

when studying processes and practices of digital technology in schools (Moos, 2020; Selwyn et al., 2016). Moreover, as described by Jacobsson et al. (2015) as well as Pierre and Peters (2020), the concept of governance illustrates the back-and-forth struggles of governing that characterise a nationally decentralised steering model. Jessop (2020) in turn argues that governance recognises both the tension and the collaboration between different organisational levels. In a similar line of argument, Jacobsson et al. (2015) propose that the efforts put into Swedish governance deserve more recognition as it is based on trust, the belief in the good will of governing officials, and collaboration between national and local organisational levels. In that way, research seems to propose education governance as the pinnacle of a well-functioning nationally decentralised K–12 school system.

Overarching purpose and research questions

The overarching purpose of this thesis is to explore Swedish K–12 school digitalisation after the launch of the national strategy and contribute to an informed and nuanced understanding thereof. The focus is set upon policy translations at four organisational levels. Following the trajectory of the national strategy, the purpose is furthermore to provide insights on education governance in K–12 school digitalisation by highlighting the influence of contextual diversity within the decentralised Swedish education system.

To answer the purpose, the following research questions are addressed:

1. How can Swedish school digitalisation as a process of national education policy translations be understood?
2. How does context influence the translation of school digitalisation at various organisational levels?
3. How can the process of national school digitalisation in Sweden be understood through the analytical lens of education governance?

Knowledge contributions

This introduction has portrayed Swedish national school digitalisation as part of a global trend. A trend that Sweden, through the national strategy launched in 2017, evidently is part of. The national strategy has since its launch been translated into action at the various organisational levels of the decentralised Swedish school system. In previous research on education policy, the importance of context has repeatedly been addressed (Braun et al., 2011; Piattoeva et al., 2019; Taylor, 1997; Thrupp & Lupton, 2006) and particularly been argued for in matters of school digitalisation (Moore, 2016; Vanderlinde & Van Braak, 2010;

Williamson et al., 2018). Contextual aspects are therefore considered the core of this thesis.

This thesis adds to the body of previous research on school digitalisation through its focus on education policy translations and education governance in the decentralised Swedish K–12 education context. Here, the contextual aspects of school digitalisation are recognised by the empirical studies at different organisational levels where translations are made. Moreover, this thesis follows the trajectory of the national strategy, which enables the exploration of how context affects education policy, and in turn, how education policy affects its contexts (Lewis, 2021). In addition, this thesis has actively sought to report both positive and negative empirical findings in the included Papers I–IV. Hereby, the ambition of this thesis is to contribute with knowledge that reflects an informed, nuanced, and constructive approach to the field of research focusing on school digitalisation and the process following a national government policy initiative.

In light of the above, in sum this thesis aspires to contribute with knowledge on how school digitalisation is translated in the context of a decentralised and diverse Swedish national setting. Addressing the importance of context, the thesis encompasses knowledge on education stakeholders, processes, and approaches that constitute the Swedish national strategy and Swedish K–12 school digitalisation. Furthermore, the thesis adds research on how national policy on school digitalisation affects education governance processes and the importance of networks and collaborations in such processes – matters of school digitalisation of which too little is known so far (Selwyn, 2013).

Outline of the thesis

This compilation thesis is structured into two parts. The first part provides a background and presentation of the overall research project as well as a summary of Papers I–IV included in this thesis. In addition, it gives an account of some of the previous and related research of importance for the thesis. Moreover, it analyses and discusses the collected findings from the four empirical studies, presents some overall concluding remarks, and suggests some implications for practice and further research. In more detail, it comprises seven chapters:

Chapter 1. Introduction – this chapter sets the scene for the thesis and is the chapter you are reading right now.

Chapter 2. Background – provides a brief historical overview of Swedish national policy concerning school digitalisation.

Chapter 3. Related research – presents some related research on school digitalisation mainly focusing on policy, contexts, and education governance.

Chapter 4. Theoretical underpinnings – offers an account of the theoretical choices made and theoretical concepts used in this thesis.

Chapter 5. Design and methods – this chapter presents the research design including the selected methods, data collection, and the analytical work on the empirical data which demonstrates the trustworthiness of the conducted research. The chapter additionally provides some ethical reflections.

Chapter 6. Summary of papers – provides a summary of Papers I–IV.

Chapter 7. Analysis and discussion – this chapter ends part one of the thesis. Starting by revisiting the purpose and research questions, this chapter analytically discusses the collected findings of this thesis. The chapter additionally provides some overall concluding remarks and thoughts on practical implications. Finally, some suggestions for further research are presented.

The second part of this compilation thesis comprises four papers, which are presented in the same order as the empirical studies were conducted. The papers are published in international peer-reviewed journals (Papers I, II, and IV) as well as in an international peer-reviewed edited book (Paper III).

Paper I (2021). Title: Taking a step back for a leap forward: policy formation for the digitalisation of schools from the views of Swedish national policymakers. Journal: *Education Inquiry*.

Paper II (2022). Title: Size matters: contextual factors in local policy translations of National School Digitalisation Policy. Journal: *Education and Information Technologies*.

Paper III (2023). Title: 'This is how we do it!' – Rural resilience in local translation work on national school digitalization policy. Publishing house: *Routledge*.

Paper IV (2024). Title: In service of school digitalisation in Sweden – a study on ICT coordinators' conditions for work in a local municipal context framed by national educational policy. Journal: *Education and Information Technologies*.

2. Background

This chapter provides a background on school digitalisation in the Swedish K–12 education context and an account of the historical context relevant to this thesis. The focus is on national education governance, acknowledging several decades of investments, efforts, and discussions related to digitalisation in Swedish K–12 education (Gu & Lindberg, 2021; Bergviken Rensfeldt & Player-Koro, 2020; Riis, 2000). It highlights Sweden's enduring interest in leveraging digital technology for teaching, learning, assessment, and administration (Gu & Lindberg, 2021; Olofsson & Lindberg, 2021; Bergviken Rensfeldt & Player-Koro, 2020; Willermark, 2018). Moreover, the chapter broadly outlines the decentralisation of the Swedish K–12 school system and explores how this organisational structure affected policy and education governance regarding school digitalisation. Notably, Sweden has for long been considered a highly digitalised country, which nowadays may be seen in close to 96% of the citizens using the internet on a daily basis (Internetstiftelsen, 2023) and in schools having widespread access to digital technology (European Commission, 2019). The introduction of a comprehensive national strategy for school digitalisation in 2017 has therefore been described as a relatively late initiative (Grönlund, 2023; Hillman et al., 2020).

This chapter begins by describing the current decentralised organisational structure of K–12 education in Sweden, followed by an examination of the overlapping periods: (i) the 1970s and 1980s; (ii) the 1990s and 2000s; and (iii) the 2010s up to 2017 and the release of the national strategy. Additionally, the chapter includes some general observations on the current state of school digitalisation in Sweden.

The organisational structure of K–12 in Swedish municipalities

Since 1991, K–12 education has been decentralised, and each of the 290 Swedish municipalities autonomously provides and organises education (Prop. 190/91:18). However, national laws and regulations on schooling (i.e. the National Education Act and the revised National curriculum for compulsory school, preschool class, and school-age educare) must be followed (SFS 2010:800). Each municipality in Sweden is governed by locally elected politicians forming a municipality assembly. Further, in most municipalities, an education committee composed of a small number of local politicians and the school superintendent are responsible for managing K–12 education. The school superintendent oversees a local education office from which civil servants administer the local school organisation (Nihlfors & Johansson, 2015). However, according to Jarl and Rönnberg (2019), the municipalities have the flexibility to

establish their own organisational frameworks and structures, which is evident in Papers II–IV. Organisational variations can, for instance, be found in how some municipalities separate upper secondary and compulsory schools by maintaining two educational committees, or in organisational structures where the elected assembly directly supervises schools without a dedicated local education office. Other variations include the division of K–12 schooling into school districts ('skolområden' in Swedish) or the arrangement of supplementary bodies supporting student health ('Elevhälsan' in Swedish) as well as students' music and arts training ('Kulturskolan' in Swedish). Of particular relevance to this thesis are functions that provide support for school digitalisation, such as ICT coordinators reported on in Paper IV. Furthermore, the Swedish school system of today additionally allows educational providers other than municipalities for K–12 education (i.e. foundations, parental cooperatives, and companies) (Rönnberg et al., 2019). Even though such alternative education providers are established within the Swedish educational landscape, this thesis does not delve deeper into the work on school digitalisation among these. For an overview on research with such a focus, see Ideland and Serder (2023), Lundahl et al. (2013), and Player-Koro and Beach (2014).

Initial interest in school digitalisation – the 1970s and 1980s

An early indication of Swedish government interest in school digitalisation can be traced back to education policy documents from the beginning of the 1970s (Riis, 2000). According to Karlsohn (2009), the initial recognition of digital technology in Swedish K–12 education was characterised by both potential benefits and concerns. On the one hand, there were apprehensions about the 'dehumanising' of educational practices, while on the other hand, there was optimism about the potential to enhance teaching and learning through the use of digital technology. Such contrasting viewpoints were reflected in the national curriculum of this time (e.g. Lgr 69), which emphasised the implications of students' understanding of digital technology for the future Swedish society (Jedeskog, 2005). Further, the National Board of Education (forerunner to SNAE) initiated around 40 small-scale studies that were to explore the outcomes of implementing digital technology in schools (Olofsson et al., 2015). Together, these studies were an important milestone in regard to school digitalisation in Sweden and have been acknowledged in research as evidence of the Swedish government's commitment to the transformative process of digitalisation (Karlsohn, 2009; Riis, 2000; Tallvid, 2015).

Reinforced by support from the political level as well as the Swedish industry, the national interest in school digitalisation increased during the 1970s (Karlsohn, 2009). The potential of digital technology piqued the interest of teachers, some of whom became early adopters and advocates for its use among students –

earning them the title of 'digitalisation pioneers' (Karlsohn, 2009). Moving on to the 1980s, the trend towards a more techno-positive rationale emerged, and according to Bergviken Rensfeldt and Player-Koro (2020), this trend was evident in Sweden's national investments in new and larger projects on digital technology in schools as well as additional changes in the curriculum emphasising the role of digital technology in shaping a future society. Karlsohn (2009) describes that during this period, the Swedish government initiated several projects aimed at providing schools with digital technology for educational purposes. Moreover, these projects involved collaborations with private companies and Swedish universities. For instance, the school student computer known as 'Compis' was developed in partnership with Esselte, an international manufacturer of office products. Another example was the DOS project for developing educational software, created in collaboration with Swedish universities (Riis, 2000). In addition to these more costly endeavours, small-scale national programmes were launched to support schools in providing digital technology. Here, the Swedish government aimed to equip secondary schools with a limited number of computers connected in a local network and available for students' use (Jedeskog, 2005).

In his doctoral thesis, Söderlund (2000) describes how the Swedish government during this period strived for a position as a producer of digital technology, while at the same time acting as a regulator exerting control over the transformative aspects of the school digitalisation process. Further, Söderlund (2000) elaborates on Swedish government initiatives by highlighting the introduction of the learning object of 'computer knowledge' ('Datalära' in Swedish) into the national curriculum (e.g. Lgr 80). This learning object, integrated into mathematics and the social science subject, did not mandate a hands-on use of computers. Instead, students were to learn about computers and engage in critical discussions about their implications. Nevertheless, the national investments in school computers provided practical exposure to 'computer knowledge' for many students. From a historical perspective, Söderlund also suggests that insufficient teacher competence, computer shortages, and the disruptive impact of 'computer knowledge' on established curricula were the main reasons for the criticism directed at digital technology initiatives during this time. He concludes that these government initiatives had limited influence on an expanded digitalised practice in Swedish schools.

Summing up the 1970s and 1980s, it could be inferred that the initial two decades of more systematic work with digitalising the Swedish K–12 school did not yield successful national initiatives with long-lasting effects. Nonetheless, this period in Sweden stands out for its early, committed, and proactive government initiatives and investments in digital technology in schools.

Local municipal autonomy in school policy – the 1990s and 2000s

During the 1990s, the Swedish K–12 education system was transformed as a result of political reforms with neoliberal influences at a national level (Lundahl, 2002). These educational reforms have been described as similar to the reform processes taking place in many other Western democracies during this period (see e.g. Blossing et al., 2013; Langer, 2019). Describing this international educational reform trend of the 1990s, Langer (2019) proposes that state-governed education was considered 'inefficient and too costly' (p. 5). Langer moreover puts forth that organisational changes akin to market models were believed to enable more efficient, transparent, and flexible school systems, which implied organisational changes accentuating decentralisation, individual freedom and responsibility, as well as competition.

In Sweden, K–12 education became decentralised from 1 January 1991 (Prop. 190/91:18). The municipalities became responsible for funding and organising schools. National governing was restructured by replacing the National Board of Education with a new national agency, the Swedish National Agency for Education (SNAE), and closing down the National Institute of Educational Literature ('Läromedelsverket' in Swedish) as well as dissolving the two regional councils for education and additional teacher training. According to the Swedish government (Dir. 2012:84), SNAE was to take a less active role in the governance of K–12 education and instead focus on evaluating the results of the newly reformed goal- and result-oriented national directives presented in a new national curriculum (e.g. Lpo 94). Sundberg and Wahlström (2012) describe that this new curriculum needed extensive translational work locally within the municipalities to make it applicable in the schools.

In line with these political reforms, new approaches were also taken in national initiatives on school digitalisation. According to Karlsohn (2009), national government documents in the 1990s show a strong technocentric rationale where school digitalisation was emphasised as crucial for Sweden to adapt to a future digitalised society. Previous ambitions to regulate school digitalisation through national control over the production of school computers and digital educational programmes were suggested to slowly lose relevance due to the rapid pace of innovations coming from the IT-industry. Furthermore, Söderlund (2000) suggests that much of the organisational structures of these initiatives disappeared with the establishment of SNAE, which contributed to the termination of both large and small-scale projects on school digitalisation in Sweden.

Applying new and alternative ways of promoting national school digitalisation, the Swedish government in 1994 established the Knowledge and Competence Foundation (KCF) ('KK-stiftelsen' in Swedish) (Jedeskog & Nissen, 2004). According to Karlsohn (2009), the purpose of the KCF was to stimulate national actions and to introduce digital technology in Swedish K–12 education. In 1996, the KCF invested extensively in the so-called Lighthouse Projects ('Fyrtornsprojekten' in Swedish). Following the principles of competitiveness, the Lighthouse Projects held the ambition of providing new national incentives for local investments in school digitalisation (Håkansson-Lindqvist, 2015; Jedeskog, 2005). Given an average of 15 million SEK each, 27 schools in Sweden were chosen by the KCF to within three years become the golden standard, the model schools for digitalisation (Riis, 2000). The projects presumed that the municipalities not chosen by the KCF would either copy or challenge the model schools by increasing their own investments in school digitalisation. However, in the evaluations of the Lighthouse Projects in 1997, the discussions concerned not only the dissemination of school digitalisation but also whether there had been any actual improvements in the Lighthouse Project schools. According to Karlsohn (2009), this suggests a scepticism towards a competitive approach to school digitalisation in Sweden compared to a more nationally inclusive one. The competitive approach described here, however, indicates the magnitude of the neoliberal trend in Sweden (cf. Lundahl, 2002).

Other signs of the 1990s' neoliberal trends in school digitalisation were the national initiatives based on ideals of individual freedom and responsibility among teachers. One such initiative was a voluntary in-service training programme on Information Technology (IT) named ITiS ('IT i Skolan' in Swedish). ITiS has thoroughly been described by for example Chaib et al. (2004) and Karlsson (2004) and was a programme arranged in a way that reflects the Swedish seminar tradition (Olofsson & Lindberg, 2011). ITiS offered teachers to critically discuss, within collegial groups, the possible use of IT in teaching and learning, and the arrangement depended on the collective participation of most teacher colleagues. A noticeable feature in this programme was that participating teachers were offered the heavily subsidised at-home computer – an offer that required fifty per cent co-funding from participating municipalities. All 290 Swedish municipalities, without exception, chose to join the ITiS programme (Tebelius et al., 2003). In national reports, like *Live with ITiS* ('Leva med ITiS' in Swedish), it was hailed as a success and as being much appreciated by teachers (Chaib et al., 2004). Jedeskog (2005) suggests, however, that this might also reflect the increase in teacher collaborations on matters beyond the use of digital technology and that ITiS provided at-home computers to half of all teachers in Sweden. Noteworthy in this national initiative is that, despite participation from all 290 municipalities, local limits were set on both the number of teachers and which teachers were allowed to take part in ITiS. As reported by Chaib et al.

(2004), approximately 60 per cent of the teachers in Sweden in fact joined ITiS. This means that 40 per cent did not, suggesting that the issue of national equality in school digitalisation may be raised in relation to ITiS.

In 2006, the Swedish government once again bolstered support for K–12 school digitalisation in providing a national teacher training programme called PIM (Practical IT and Media competence) ('Praktisk IT- och Mediekompetens' in Swedish) (SNAE, 2009). PIM focused on K–12 teachers individually and was designed as a 40-hour interactive online course (SNAE, 2013). According to Tallvid (2015), PIM was launched with the purpose of enhancing teachers' in-school use and production of digitally mediated learning content. This involved teachers learning, for example, how to create PowerPoint presentations and make digital voice recordings. The PIM online resource was free of charge; however, municipalities were expected to provide the resources needed (such as digital technology, technical support, and time for teachers to participate in the course). According to national reports, 220 out of 290 municipalities accessed the PIM programme (SNAE, 2013). Håkansson Lindqvist (2015) describes that when PIM closed in 2014, it was due to both lack of funding and a decline in interest in the programme among Swedish municipalities. Similarly to ITiS, this implies that when PIM ended, teachers in 70 municipalities had not taken part in this programme. Notably, these initiatives also exemplify the market logics of this era with their emphasis on efficiency in teaching, learning, and administration (cf. Lundahl et al., 2013) – arguments which, according to Gu and Lindberg (2021), were used during this era in favour of an extensive acquisition of digital technology for Swedish K–12 education.

Summing up the 1990s and 2000s, decentralisation and a strengthened local municipal autonomy brought new approaches to national initiatives on school digitalisation in Sweden. Neoliberal trends seen in national investments in school digitalisation followed market logics. The Swedish government invested in initiatives promoting school digitalisation through competitive measures, as for example seen in the Lighthouse Projects as well as in initiatives like PIM approaching individual teachers more directly. Despite massive national investments like ITiS, with individual financial supplements subsidising at-home computers, research suggests that signs of increasing national inequality may be detected regarding school digitalisation. For instance, an uneven distribution of support both within and between municipalities, which, however, did not seem to be a main concern at the national level during this period of time.

Initiating national efforts – the 2010s up to the launch of the national strategy

The last period described in this chapter covers the Swedish national efforts on school digitalisation from the start of the 2010s until the launch of the national strategy in 2017. This period starts with the Swedish government in 2012 appointing the so-called Digitalisation Commission ('Digitaliseringskommissionen' in Swedish) (Dir. 2012:61). The Digitalisation Commission was given the mission to analyse and strategically prepare for a highly digitalised and modern Swedish society, encompassing all areas of life (i.e. private life, life in society, working life, and education). The mission was described in terms of aiming 'to promote the digitalisation of Sweden and strive to achieve Sweden's IT policy objective to be the best in the world at utilising the opportunities of digitalisation' (SOU 2016:89, p. 33). Among the reports published by the Digitalisation Commission, two are of certain interest in this thesis, demonstrating how digitalisation emerged in both society and K–12 education. One report was called *A digital agenda in the service of man – a bright future within reach* ('En digital agenda i människans tjänst – en ljusnande framtid kan bli vår' in Swedish) (SOU 2014:13). This report indicated opportunities associated with a digitalised society and was also a showcase of the Swedish government's view on the necessity of preparing citizens for a digitalised future. The second report was titled *Constructing Sweden in the future: Digital competence* ('Gör Sverige i framtiden: Digital kompetens' in Swedish). This report emphasised K–12 education as a primary target when directing national efforts (SOU 2015:28).

The work by the Digitalisation Commission was supported by SNAE, for instance through a series of national reports on school digitalisation titled *IT use and IT competence in schools* ('IT-användning och IT-kompetens i skolan' in Swedish) (SNAE, 2009, 2013, 2016). These reports provided information on schools' access to digital technology, the organisation of implementation and use, as well as information on the level of teachers' digital competence. The latter is an issue that over the years has gained increased attention in both research and policy (see e.g. Godhe, 2019; Lisborg et al., 2021; Olofsson et al., 2020; Willermark et al., 2024). The SNAE reports from 2013 and 2016 added information on school digitalisation and the student perspective, students with special needs, and adult education. The reports also convey the rapid increase of access to digital technology in Swedish schools during this time. In 2009, the ratio for student computers was one computer per every 6 students in compulsory schools (one per 2.5 students in upper secondary school), which in 2016 had increased to one per 1.8 students (one per student in upper secondary school). The distribution of computers seems to be of interest in the reports, but this is not made explicit. In research, a particular interest can be found in the initiative 'one computer per

student' (1:1) in teaching and learning (see e.g. Fleischer, 2013; Penuel, 2006; Tallvid, 2015; Åkerfeldt, 2014).

The Digitalisation Commission and SNAE collaborated in the strategic planning for digitalisation in K–12 educational practice. From this joint work, initiatives were suggested to the Swedish government and were acted upon instantly after being approved (cf. Håkansson Lindqvist, 2015). One such early initiative with a focus on teachers was the 2013 programme titled *The Digital Competence Uplift* ('Digitala Kompetenslyftet' in Swedish) (SOU 2014:13). According to the report of this initiative (SNAE, 2013), K–12 teachers were too slow in their adoption of a more digitalised teaching practice. A national programme was therefore provided to offer additional training for teachers. In short, the programme can be seen as a mixture of ITiS and PIM. Similar to PIM, a free online resource called the *Learning Portal* ('Lärportalen' in Swedish) was provided. The Learning Portal, which is still up and running (on https://larportalen.skolverket.se), was (and is) made available on SNAE's web page. Additionally, and in similarity to ITiS, this programme offered working materials to initiate local collegial discussions aiming to enhance teachers' digital competence through collaborative and collegial learning.

The SNAE reports (2009, 2013, 2016) also accounted for school digitalisation from a local organisational perspective, presenting data on the number of schools with a local plan for school digitalisation as well as teachers' level of access to pedagogical and technological support. In the SNAE report from 2016, such local plans were reported in six out of ten K–12 schools, disclosing the diversity in the local processes. Additionally, whereas some local plans were reportedly made by the educational providers (e.g. the municipalities), some were reportedly written by and for a certain school. Some local plans addressed technological aspects (access and support), while others addressed ethics or aspects of pedagogical use; some were recognised as more limited in scope, while others were more comprehensive. It can moreover be noted that the SNAE reports addressed that some municipalities, schools, and teachers seemed less dedicated to school digitalisation than others. Followingly, slow-paced adoption could be a possible risk for widening the gaps of educational equality (Olofsson et al., 2015). The final report from the Digitalisation Commission (SOU 2016:89) emphasised the need for national initiatives on strengthening leadership, competence building, and policy work on strategies for school digitalisation. Additionally, it was suggested that the national government should provide clarifications for municipalities to understand the benefits of K–12 school digitalisation. This final report also pushed for a revision of the national curriculum and the inclusion of 'digital competence' as a key concept, as well as continuous competence-building efforts for education stakeholders at all organisational levels to enhance knowledge and innovation capacity within school digitalisation.

Acting on the proposals found in the Digitalisation Commission's final report, the Swedish government initiated the work on a series of national education policy documents. First, the national strategy was launched in 2017, a policy document which stated the goal that Swedish K–12 education by 2023 should 'be the best in the world at utilising the opportunities of digitalisation' (Ministry of Education, 2017, p. 3). Secondly, the national curricula (e.g. Lgr 11) were revised, integrating aspects of digital competence into all the existing teaching subjects and adding computer programming to the subjects of mathematics and technology (Raptopoulou, 2021; Vinnervik, 2021). To guide the process of school digitalisation, the national plan of action for the digitalisation of schools – the #skolDigiplan – was launched in 2019 (SALAR, 2019). Taken together, the initiation of these policy documents constitutes the point of departure for the empirical studies reported in this thesis (Papers I–IV).

Summing up this period, it has been described that the policy focus often was on the work of teachers in the digitalised Swedish school and on access to digital technology (Bergström et al., 2019; Willermark, 2018) to address possibilities and challenges linked to a digitalised K–12 educational practice (see Grönlund, 2014; Hatakka et al., 2013; Håkansson Lindqvist, 2015; Tallvid, 2015). However, the importance of engaging in school digitalisation policy, at both national and local level, is also recognised (Grönlund, 2014) – not least the importance of having a national strategy for school digitalisation, as addressed by Tallvid (2015). Next in this chapter, the process behind #skolDigiplan will be accounted for.

The process behind #skolDigiplan

The national policy initiatives on K–12 education that were launched as an outcome of the work by the Digitalisation Commission are taken as the starting point for researching Swedish school digitalisation in this thesis. In specific, the #skolDigiplan, guiding the work with the national strategy, is a policy document highly relevant for the empirical work conducted throughout my doctoral research project. Below, the #skolDigiplan will be introduced in brief. The uniqueness of Swedish education governance will hereby be exemplified, showcasing the actions for national school digitalisation taken at national level by the Swedish government.

Unlike most former national policy documents for K–12 education, the #skolDigiplan was not produced by SNAE (Grönlund, 2023). Instead, SALAR, a Swedish non-governmental organisation, was assigned by the Swedish government to produce this national policy document. Organising municipalities and regions and advocating their local independence, SALAR has a long history of collaborating with Swedish governments on school digitalisation (Gu & Lindberg, 2021). Among previous collaborations are SALAR's involvement in the

earlier 'one computer per student' (1:1) school project in the 2010s (Gu & Lindberg, 2021) and in developing an assessment tool for teachers' digital competence (LIKA) in 2014 to evaluate the progress of school digitalisation in Sweden on both a national and a local level (Siljebo, 2023). The process involved in #skolDigiplan may be suggested to be explorative, trying out new forms of collaboration. SALAR (2019) has described this working process as a broad approach emphasising inclusiveness, public transparency, and collaborating with all kinds of educational stakeholders (such as SNAE, the Research Institute of Sweden, academia, independent schools, municipalities, teachers' unions, educational software companies, student associations, and non-profit organisations) (see Paper I for additional descriptions of the process of #skolDigiplan). It might be reasonable to suggest that the decentralised organisation of Swedish K–12 education was an important reason as to why SALAR was given the responsibility of performing the work with #skolDigiplan. Hence, how school digitalisation is approached and put into practice locally in the municipalities becomes a particular aspect of Swedish national school digitalisation policy and is clearly related to the education governance of K–12 schooling.

A few words to sum up

To sum up this historical background, despite having been an object of large national investments since the 1970s, it seems that neither strict regulations nor clear directives for school digitalisation have been frequent in Sweden. This may be related to the decentralised organisation of K–12 education, particularly since the 1990s. The autonomy of municipalities, in which K–12 education is provided for locally, seems to have transformed national initiatives on school digitalisation into something that is somewhat optional for municipalities to live up to. As time has passed, the differences in school digitalisation between Swedish municipalities shown in national reports have raised concerns about a national gap in K–12 education, which also has been addressed in more recent national reports (e.g. SNAE, 2020). In research, this has for example been raised as a question of education equality in Swedish school digitalisation, with inequalities visible and particularly pertinent in matters of digital technology and the internet (Gu & Lindberg, 2021) and in regard to students' development of an adequate digital competence (Olofsson et al., 2020). Gu and Lindberg (2021) moreover argue that divides are found between large and small municipalities, between schools in different geographical areas, and between public and independent schools. It can be noted here that the Swedish government in 2012 appointed the Digitalisation Commission to analyse and strategically prepare for a digitalised future, which was to mark a new starting point for an equal-to-all school digitalisation process in K–12 education. Hence, this thesis provides knowledge on school digitalisation, foregrounded by the national strategy, by focusing on

education governance and actions taken at different organisational levels in the Swedish education system.

In addition to the historical background of school digitalisation in Sweden, a short comment on the present situation seems warranted. The national strategy was set to run in the years 2017–2022. Therefore, there has been a certain expectation within the school sector for a continuation of this national initiative, which for instance is shown in the report evaluating the outcome of the national strategy (SNAE, 2022b) and the draft proposal for a new national strategy for the school sector in 2023–2027 (SNAE, 2022a). However, with the outcome of the general election in 2022, with a new parliamentary situation and a new Swedish Minister of Education installed, any continuation of the national strategy was put to a stop (SNAE, n.d.; The Guardian, 2023). Instead, the risks of digital technology in schools were to be addressed, with a call for a more analogue practice (i.e. less use of digital screens) in Swedish K–12 education. What this means in practice remains to be seen; however, international scholars such as Selwyn (TIMDA, 2023a) as well as Kucirkova and Maciello (TIMDA, 2023b) provide some critical reflections from education researchers' point of view on this government statement and what consequences the absence of a national strategy for school digitalisation might have in a long-term perspective.

The next chapter will present some related research on national school digitalisation and education governance, a chapter that also should be read as a way of positioning the findings in this thesis.

3. Related Research

This chapter presents some related research to frame the overarching focal points explored in this thesis. It delves into research topics and findings reported in both international and national scholarly work, such as national school digitalisation, policy translations, and education governance – topics and findings that are illuminated and reflected in this thesis in Papers I–IV. However, this chapter begins with a brief overview of recent topics in Swedish research following the launch of the 2017 National Strategy for the Digitalisation of the School Sector. Taken together, this chapter lays the research-based groundwork for an informed and nuanced understanding of the ongoing processes of Swedish K–12 school digitalisation and prepares for the collected analysis and discussion in Chapter 7.

Three topics in Swedish research on school digitalisation

To start with a broad description of topics found in recent research on Swedish K–12 school digitalisation, research that has been conducted since the launch of the national strategy seems focused on mainly three topics. The first topic is *the teacher* – for instance, the meaning(s) of school digitalisation and what consequences it could have for teachers' time management (Sandén, 2021), changes in the teacher's role (Skog et al., 2024), teachers' actions and responsibilities in the technology-supported classroom (Ekström, 2023; Ericsson, 2023), and how teachers learn about integrating technology to meet their teaching needs (Leino Lindell, 2022). The second topic is *computer programming* – for example, issues related to computer programming as a learning object in the school subjects of mathematics and/or technology (Fuentes Martinez, 2024; Humble, 2023; Raptopoulou, 2021; Vinnervik, 2021). The third topic is the *process of school digitalisation* – for example, mapping discourses of digital technology in national policy and classroom practice (Almén, 2021), organising for successful use of digital technology in schools (Agélii Genlott, 2020), and the role of school leaders in this process (Reis-Andersson, 2023; Siljebo, 2023).

What emerges from this brief description is that recent Swedish research only to a limited degree seems to concern school digitalisation in regard to policy processes at various organisational levels. Therefore, this thesis addresses this gap and will shed light on somewhat unexplored aspects of school digitalisation, framed by the national strategy, highlighting policy translations and education governance in the decentralised Swedish K–12 education context.

In the following, this chapter is divided into three parts. The first part presents related research on school digitalisation by consulting three recently published

international review studies on this topic. This part provides insights on how processes in school digitalisation have been studied in terms of focus and scope. The second part highlights two important aspects addressed in the four empirical studies reported in this thesis: (i) the situated context of Swedish municipalities (mainly explored in Papers II and III) and (ii) the professional cultures of national policymakers and the work of ICT coordinators (mainly explored in Papers I and IV). The third part broadens its focus on school digitalisation by examining some related research on education governance. In this final part of the chapter, insights are also provided on some claims regarding governance, including how school digitalisation impacts education governance as well as how national school systems adapt their approaches to education policy concerned with school digitalisation.

Three reviews

Over the last decades, research has shown a growing interest in the intersection of digital technology and education (Timotheou et al., 2023; Voogt et al., 2018), and bibliometric analyses reveal a surge in research publications addressing various perspectives and foci on school digitalisation (Baako & Abroampa, 2023). To distil some key insights from previous research, three comprehensive review studies spanning the past 20 years of research on school digitalisation will first be presented. It is acknowledged that multiple review papers that emphasise the teacher's role in technology-supported teaching and learning can be found (e.g. Consoli et al., 2023; Granić & Marangunić, 2019; Msafiri et al., 2023; Pettersson, 2018; Wohlfart & Wagner, 2023); however, the point of departure for this thesis is the focus on school digitalisation from the perspective of various organisational levels (see Lindensjö & Lundgren, 2014). Therefore, the three reviews presented below all include research studies that from an organisational perspective shed light on various strategic processes in school digitalisation, including work with national school digitalisation policy.

Review 1

The first review was written by Dexter and Richardson (2020). They conducted a systematic review focusing on teachers' technology integration with the specific aim to investigate suggestions and consequences for school leadership that follow with such an integration. The review covers the period from 1998 to 2018 and includes in total 34 papers that mainly use qualitative and mixed methods approaches. Guided by the so-called Unified Model for Effective Leader Practices Framework, this review explores five domains: (i) Establishing and conveying a vision, (ii) Facilitating education technology use for students, (iii) Building professional capacity, (iv) Creating a supportive organisation, and (v) Connecting with external partners (e.g. family and community). The findings in this review show that the first and fifth domain are addressed in the least number of papers.

The first domain is of particular interest in this thesis as the Swedish national strategy may be considered an initiative to establish and convey a vision for school digitalisation. The third and fourth domain were found to emphasise teacher professional development and how to frame a learning organisation. These two domains spotlighted the importance of shared and distributed leadership together with building collaborative processes for school digitalisation. Relating to the focal points of this thesis, the contextual features of school digitalisation were emphasised in these two domains, including for instance professional cultures and the situated contexts of local school organisations. Contextual issues were furthermore suggested to limit the possibilities of providing school leaders with some general guidance on leading school digitalisation. In the findings, the second domain provided moderate insights linked to several suggestions for school leadership. Dexter and Richardson conclude by suggesting that papers on teachers' technology integration seem to exist in silos and that research bridging different organisational levels in the school system so far seems to be rare.

What can be drawn from the review by Dexter and Richardson in terms of school digitalisation policy and governance is that visionary work seldom seems to be acknowledged in studies on teachers' technology integration. Considering this, this thesis will add research on how national visionary work on school digitalisation is translated and enacted in policy processes within various organisational levels. Other findings are that 'context', 'collaborative processes' as well as 'shared and distributed leadership' are recognised as important to acknowledge in research concerned with school digitalisation and in need of further investigation. Moreover, Dexter and Richardson suggest that guidance in the process of school digitalisation may benefit from research that bridges findings from different organisational levels. This thesis relates to both suggestions when researching school digitalisation from the perspective of various organisational levels, or, put differently, through the four empirical studies (Papers I–IV) following the trajectory of the national strategy

Review 2

The second review was conducted by Timotheou et al. (2023). This is a non-systematic meta-review on the impact of digital technology in education and factors influencing schools' digital capacity and transformation (i.e. factors that in this thesis are considered aspects of school digitalisation). Using a non-systematic method, Timotheou and colleagues collected 86 meta-analyses or review papers covering the period from 2005 to 2022. The papers included in the review cover studies on school digitalisation, ranging from 'hard matters' (different kinds of digital technology such as interactive boards and VR/AR/AI) to 'soft matters' (such as students' knowledge, skills, attitudes, and emotions).

The review portrays various interrelated factors influencing school digitalisation. In specific, the researchers identified seven factors that influence the process of school digitalisation: (i) digital competence, (ii) teachers' personal characteristics and professional development, (iii) school leadership and management, (iv) connectivity, infrastructure, and government and other support, (v) administration and data management practices, (vi) students' socioeconomic background and family support, and (vii) schools' socioeconomic context and emergency situations (e.g. COVID-19). Two factors seem to be of particular interest for this thesis, and these are 'school leadership and management' as well as 'connectivity, infrastructure, and government and other support'. Regarding the former, the review presents school leadership and management as cornerstones for school digitalisation, spotlighting factors such as visionary work, comprehensive strategic work for the whole organisation, shaping school cultures, and teacher training support. Moreover, there seems to be a need to provide guidance for leadership in school digitalisation processes, and such processes include new methods and new strategic planning techniques. The latter factor, regarding connectivity, infrastructure, and government, signals that school digitalisation presupposes proper technological resources and support. This factor also raises the matter of education equality and is connected to the factor concerned with schools' socioeconomic context and emergency situations, where an urban/rural divide in school digitalisation is identified. The researchers also raise the issue of government support and how national investments together with national policy efforts may contribute to school digitalisation. In this thesis, it is explored if and how a national strategy can create a culture of sharing that may provide possibilities to collectively and locally engage in school digitalisation, and which also may accumulate an increase in national competence and build long-term digital technology resources.

Findings in the review by Timotheou and colleagues moreover relate to the focal points of this thesis by calling attention to the multiple factors at play in school digitalisation processes. These factors are also recognisable in the national strategy's education governance. Highlighting these multiple factors, the review by Timotheou and colleagues speaks in favour of research using a holistic and systematic approach when investigating the impact of digital technology in K–12 education including issues of digital capacity and digital transformation. Furthermore, the researchers address the importance of investigating the question of leadership in context as well as visions and strategic work in school digitalisation processes. Finally, their review addresses questions of equality in terms of signs of urban/rural divides in school digitalisation, and, as touched upon above, the beneficial aspects of sharing resources and competence nationally in these processes. This thesis has approached these questions through its analytical lens of education governance and the acknowledgement of rural resilience (see Roberts et al., 2017a, 2017b; Young, 2019).

Review 3

The third and final review was conducted by Sosa-Díaz et al. (2022) in the form of a systematic literature review including 42 papers on strategic planning in ICT integration processes in primary and secondary schools during the period 2010 to 2021. Most papers used quantitative methods (e.g. questionnaires) (45.2%) followed by qualitative methods (e.g. interviews) (33.3%) and mixed methods (21.4%). The papers reviewed were mainly concerned with teachers (48%) and to a lesser extent with members of school management teams (e.g. school principals) (21%), while a focus on other types of participants (e.g. students and experts) or institutional documents are said to be 'almost non-existent' (p. 6). Notably, the papers included in this review in total cover 2,531 educational centres (organisational levels in education governance below the national level), 19,936 teachers, 8,652 members of school management teams, 467 students, and 27 experts. The aim of this review was to provide a framework for guiding the integration of ICT on multiple organisational levels excluding the teacher level (i.e. the national level, the local autonomous level such as municipalities, and the school level). In relation to this thesis, this review considers the different organisational levels in education governance and approaches to school digitalisation from a top-down perspective. The findings demonstrate seven themes: (i) ICT integration models, (ii) ICT strategic planning, (iii) ICT leadership, (iv) school management teams, (v) ICT coordinators, (vi) ICT teams, and (vii) ICT evaluation tools. In the first theme, Sosa-Díaz et al. present ICT integration as a complex and systemic process (an act of school digitalisation). The organisational setting is said to be an important part of the process in which visionary work, strategic planning, and collaboration among professionals is included. In the somewhat overlapping theme of ICT strategic planning, the visionary work stands out as important in efforts to move forward in the process of school digitalisation. In the theme on ICT leadership, the fundamentals of joint decision-making are brought forward, linking ICT leadership with the three themes of school management teams, ICT coordinators, and ICT teams. Leadership in school digitalisation processes is made explicit in the theme called school management teams, which acknowledges the levels at which important decisions may be made. In this thesis, leadership in school digitalisation is proposed to be at multiple levels in the decentralised organisation of Swedish K–12 education. Moreover, the importance of joint decision-making and pedagogical leadership is highlighted in this theme of the review, which indicates the importance of recognising ICT coordinators as a key profession in school digitalisation processes, as also is the case in this thesis. The role of ICT coordinators is in this theme depicted as multifunctional and often without a clear work description. However, ICT coordinators are also described as the primary persons in leading the work with school digitalisation, which includes supporting and training the schoolteachers. The necessity of forming local ICT management teams to foster learning communities is further raised. The

establishment of such learning communities is suggested by Sosa-Díaz and colleagues as a primary goal for ICT coordinators, with the goal of creating an environment in which ICT strategic planning and school policy can be facilitated.

Another relevant aspect of this systematic literature review is its portrayal of the interconnected relations between organisational structures and the process of school digitalisation. From their findings, Sosa-Díaz and colleagues acknowledge a lack of research concerned with investigating municipal and national levels in the governance of school digitalisation. Moreover, and also of relevance for this thesis, work on school digitalisation in this review is argued for in terms of a systemic change, a process that should be characterised by a practice of joint decision-making. In addition, the researchers propose a redefinition of schools' organisational culture so that education policy may be tailored to fit the local context. The proposed redefinition is drawn from findings pointing towards the need for schools to adapt to technological developments and continuous change. Therefore, school digitalisation can preferably be researched as a process of (re)contextualisation.

In light of the findings from the review by Sosa-Díaz and colleagues, this thesis proposes that the ongoing process of school digitalisation in the decentralised Swedish K–12 school system can gain from being studied holistically, exploring the redefinition of organisation of which these researchers speak. Highlighting the school digitalisation process initiated by the national strategy and examining how school digitalisation is translated at various organisational levels paves the way for providing insights into the systemic changes proposed by Sosa-Díaz and colleagues. Additionally, as visionary work and collaborations within and between different organisational levels together with the pivotal role of ICT coordinators are emphasised in this thesis, education governance emerges as embedded in the process of K–12 school digitalisation and therefore of importance to address in the studies of this thesis.

Key insights from the three reviews

The reviews by Dexter and Richardson (2020), Timotheou et al. (2023), and Sosa-Díaz et al. (2022) in total include 162 papers, and together they cover research published between 1998 and 2022. The works included in these reviews slightly differ based on which data collection methods are used. Dexter and Richardson (2020) and Sosa-Díaz et al. (2022) based their reviews solely on scientific papers, while the review by Timotheou et al. (2023), using a non-systematic method, combined scientific papers with concept documents (on digitalisation, digital capacity, and digital transformation) published by professional and international organisations.

Together, the reviews demonstrate a view of school digitalisation as transformative. This is seen regardless of whether the review has taken a bottom-up perspective on school digitalisation and leadership (Dexter & Richardson, 2020), summarised factors influencing the process of digital transformation in schools (Timotheou et al., 2023), or taken a top-down perspective on the process, focusing on strategic planning of ICT integration (Sosa-Díaz et al., 2022). It can be drawn from the reviews that the complex and systemic character of school digitalisation calls for further research on this topic, preferably conducted from a holistic perspective. It can also be drawn that future research should recognise different organisational levels (from national to local) in order to bridge possible gaps between such levels and thereby contribute with new knowledge on education governance of school digitalisation processes. In addition, according to the reviews there is a need to further convey ideas in research of sharing resources and competence in the process of school digitalisation, which was argued to be particularly beneficial when providing for education equality and bridging possible divides (e.g. between urban and rural contexts).

Before moving on to the next section in this chapter, it should also be put forth that the three reviews address the importance in both research and practice of visionary work to guide school digitalisation. Visionary work is furthermore portrayed as important for redefining leadership practices in schools (Sosa-Díaz et al., 2022), and school digitalisation is reported to encompass the need for reformed leadership methods and new strategic planning techniques (Timotheou et al., 2023). Therefore, guidance from research in this area is needed (Dexter & Richardson, 2020). Regarding the transformative aspects of school digitalisation, all three reviews argue in favour of a more distributed and collaborative leadership in school digitalisation processes. A leadership which, as suggested by Sosa-Díaz et al. (2022), includes joint decision-making and is supported by an ICT coordinator who can take a strategic, technical, and pedagogical role in this process. Given the reviews, what is also proposed as central to address in future research on school digitalisation is context. In this thesis, context is of particular interest since it is a concept that recognises the importance of researching potential diversity in school digitalisation in the nationally decentralised Swedish K–12 education context. For a brief overview of the three reviews and their key insights, see Table 3.1.

Table 3.1 *Overview of the three reviews.*

Author	Dexter & Richardson (2020)	Timotheou et al. (2023)	Sosa-Díaz et al. (2022)
Period	1998–2018	2005–2022	2010–2021
Publications included, type of review	34 articles, systematic review	86 articles or meta-analyses, non-systematic review	42 articles, systematic review
Focus	Leadership, strategic planning, and organisational dynamics	Impact of digital technologies on education and the factors influencing the policy concepts of schools' digital capacity and digital transformation	Strategic planning in the ICT integration process in primary and secondary schools
Key findings on school digitalisation	Visionary work is portrayed as seldom acknowledged in studies on technology incorporation in schools. Contexts are recognised, explicitly raising collaborative processes and shared and distributed leadership in this process. Guidance is needed for leadership. School digitalisation may benefit from research bridging findings from different governance levels.	Multiple factors are at play in school digitalisation, which argues for research that takes a holistic approach. Visionary work is important, as it is also strategic work for the whole school organisation. Leadership is a cornerstone in the process and should be supported. New methods in school organisation and school leadership are called for, as are new strategic planning techniques. Education equality should be addressed as signs of an urban/rural divide may be detected. Governance should recognise the beneficial aspects of sharing resources and competence in the process of school digitalisation.	Schools need the ability to adapt more quickly to technological developments and continuous change. School digitalisation is a systemic change in which organisational structures are redefined. Visionary work may guide this process. Limited research recognises the importance of municipal and national level governance in this process. A redefined organisational school culture points towards a more collaborative and joint decision-making, one in which policy needs tailoring to fit the local context. ICT coordinators are portrayed as particularly important in the processes.

Contextual conditions in school digitalisation

The three reviews presented above cover a convincing number of research papers in which characteristics of the school digitalisation process are described. In the reviews, as touched upon before, context may be seen as particularly relevant in relation to this thesis. The four empirical studies reported in this thesis are framed by the situated context of Swedish municipalities and/or the professional cultures of national educational policymakers and ICT coordinators. Below, previous research on these contextual conditions will be further developed.

Situated contexts

Research on school digitalisation in Sweden is often portrayed in its local practice, in which the *situated context* is clearly stated (see e.g. Agélii Genlott et al., 2019; Håkansson Lindqvist, 2015; Leino Lindell, 2022; Raptopoulou, 2021; Reis-Andersson, 2023; Sandén, 2021; Tallvid, 2015). In the decentralised Swedish K–12 education system, national policy is recognised as being made through its local contextualisation and acts of translation (Sundberg & Wahlström, 2012; Ärlestig & Johansson, 2020). More seldom, studies have explored how contextual reinterpretations of national policy influence school digitalisation in the broad variety of national contexts. However, a previous report from SNAE (2020) that evaluated the outcome of the national strategy addressed the importance of the varied situated contexts (such as the organisational size of Swedish municipalities) in relation to school digitalisation. While not addressing the issue of context directly, the report suggests that smaller municipalities may have difficulties in carrying the cost of school digitalisation. Their limited financial and staffing resources were in this report addressed in relation to the question of education equality.

The disadvantages of small and rural municipal organisations in school digitalisation are recognised in both international and national research. For example, it has been argued that issues concerning digitalisation in rural contexts frequently are overlooked (Nyhlén & Gidlund, 2022; Salemink et al., 2017; Wagg & Simeonova, 2022). In the same line of argument, Corbett (2013) proposes that research often fails to address the capacity of rural contexts, for instance the capacity to compensate for their disadvantaged position and their possibilities to adjust to national policy. Salemink et al. (2017) present a systematic literature review of 157 papers on digital development in rural contexts in advanced countries and suggest that generic policies in this domain neglect the specific local needs crucial for such contexts. Furthermore, the researchers highlight the paradox of rural communities. While these communities stand to benefit the most from digitalisation (e.g. improved digital connectivity could partially compensate for their disadvantageous remoteness), they are often the least connected. In addition, according to the review, rural communities are rarely included in

national policy or targeted in empirical research (Salemink et al., 2017). A more recent study (Wagg & Simeonova, 2022) from the UK also illustrates this paradox. Wagg and Simeonova interviewed national policy stakeholders on the issue of digitalisation in rural contexts and found that the primary spotlight was on the anticipated disadvantages, such as economic conditions, IT-skills among the population, or the degree of broadband access. Rarely were rural contexts considered on their own merits. Nyhlén and Gidlund (2022) report similar findings from the Swedish context in their analysis of strategic policy documents on digitalisation produced by the Swedish government, SALAR, and the EU. In their paper, an 'urban-rural dichotomy' is described, in which 'the urban' is placed at the centre of policy, portraying cities as the producers of innovative solutions for school digitalisation. 'The rural', on the other hand, is described as non-modern and the recipient of innovative solutions. According to Nyhlén and Gidlund, this suggests that Swedish digitalisation policy is imbued with urban normative values, which they argue may overshadow potential policy translations beneficial for the rural context as well as innovations and rural challenges. Recognising school digitalisation in rural contexts in the United States, Kormos and Wisdom (2021) conducted a survey among 937 K–12 schoolteachers. Their findings reveal limitations for school digitalisation in the rural context, primarily attributed to material aspects such as financial costs, time required to incorporate digital technology into lesson plans, and student internet access at home. Their findings furthermore suggest that teachers in rural contexts were most likely to obtain innovative skills and new abilities and to adopt new technologies through personal trials and conversations with colleagues. In their survey, teachers' various levels of interest in digital technology were not considered a barrier, although some findings indicate that usage and perceptions varied widely among the teachers. In a subsequent survey, Kormos and Wisdom (2023) reported that among 423 K–12 schoolteachers in rural, suburban, and urban schools in the United States, differences in the use of digital technology were primarily observed between urban and rural contexts. Specifically, unlike schools in an urban context, teachers in schools located in a rural context seemed to have a preference for applying digital technology in collaborative work by small student groups rather than using digital technology as a classroom teaching tool. Showcasing this divergence between the rural, urban, and suburban contexts, Kormos and Wisdom in both of their surveys (2021, 2023) provide examples of how rural contexts should be recognised on their own merits and that research in a rural context may provide unique insights on school digitalisation.

This thesis raises the importance of considering the situated contexts of diverse municipal settings within the decentralised Swedish K–12 education context. Therefore, school digitalisation is through four empirical studies explored within various contextual settings, rural as well as urban.

The research described in this chapter suggests that school digitalisation in rural contexts may differ from other contexts, which firstly points at the need for rural contexts to be included in research and secondly the need for diverse contextual settings to be addressed and recognised on their own merits. This is especially seen in Papers II, III, and IV, where contextual conditions and the diversity of municipalities in Sweden are acknowledged. Following the picture portrayed in previous research, this thesis has studied municipalities as capable experts on their contexts, a viewpoint suggested to preferably be included in research and recognised in policy more often (see Roberts et al., 2017b; Salemink et al., 2017; Young, 2019). By doing so, this thesis contributes with a study (Paper III) on rural resilience. Resilience is considered a concept that captures rural municipalities' ability to develop context-relevant processes for school digitalisation and the ability to mobilise capacity and resources. Focusing on resilience is also motivated by a desire to conduct research free from what Nyhlén and Gidlund (2022) propose a hegemonic urban-centred perspective, which according to them is dominant in digitalisation policy and related research studies thus far.

Professional cultures

In light of contextual conditions and in relation to professional cultures in school digitalisation processes, this thesis addresses two education stakeholders in particular. Paper I focuses on a group of national education policymakers, while Paper IV focuses on ICT coordinators. So far, policymakers and ICT coordinators seem to have attracted limited attention in research on school digitalisation processes in K–12 compared to for example teachers (see e.g. Löfving, 2023; Olofsson et al., 2017; Wohlfart & Wagner, 2023) or school leaders/ principals (see e.g. Dexter & Richardson, 2020; Ottestad, 2013; Reis-Andersson, 2023; Siljebo, 2023).

According to Bottino (2020), tensions in the process of school digitalisation may be suggested to be emanating from the historical development of digital technology. With the development of technology, the goals for school digitalisation have shifted, and policymakers and other stakeholders (such as school superintendents, ICT coordinators) may have come to develop, or prioritise, multiple and sometimes also somewhat contradictory views on the goals of school digitalisation. Providing examples of such possibly contradictory goals, Bottino pinpoints a variation of school digitalisation goals that can focus on a future labour market or on teaching and learning, focus on either supporting individualised student learning or student collaborative learning, or focus on creativity and diversity, compared to goals that provide coherence to enhance efficiency in schools' assessment practices. Acknowledging such various goals of school digitalisation, this thesis contributes with insights from two professional

cultures on different organisational levels: national education policymakers and ICT coordinators.

National education policymakers

In research on school digitalisation, studies on national education policymakers seem rare. Rather, these professionals may be found being studied through the investigation of governmental policy texts, as seen in the work of Karseth et al. (2022) on citation patterns among Nordic policymakers and experts. Karseth and colleagues propose that due to digitalisation, policymakers allocate their attention to new agenda-setters in the work of pluralising the education policy process. A second example of how policymakers are studied from a distance is found in Janssen and Helbig (2018), who investigate digitalisation policy processes in the Netherlands and the United States. These researchers argue that policymakers struggle over governance processes concerned with digitalisation, as their role is shifting from being experts to becoming orchestrators who are expected to 'engage stakeholders, oversee the policy-making process, and assure quality engagement activities, legitimate processes, and ensure the usability of the data and information' (p. 104). A third and final example is the work of Hanell (2018), who researched Swedish education policymakers based on the writings of the national strategy and other education policy texts on digitalisation. Hanell suggests that national education policymakers view teachers' potential shortcomings in using digital technology as the primary reason why Swedish schools provide students with neither adequate nor quantifiable digital competence. These shortcomings are, according to Hanell, furthermore understood by the policymakers as the outcome of an inadequate teacher education. In the later parts of his paper, Hanell proposes there is a strong belief among Swedish policymakers in the economic benefits of K–12 school digitalisation.

Taken together, these studies report important findings on national education policymakers. However, they entail a certain methodological distance to these education stakeholders. As a response, this thesis has approached policymakers in person through interviews. Paper I of this thesis is based on retrospective first-hand interviews with members of a group of national education policymakers who were directly involved in the work with #skolDigiplan. This policy text was said to guide Swedish municipalities in their school digitalisation processes in accordance with the national strategy. The voices of these policymakers and others involved in the work of the national strategy heard in this thesis (see Papers I–IV) add insights on national school digitalisation from the national level down to the school level. Moreover, exploring the views of national education policymakers in person may offer a contrast to research approaching policymakers from a distance. Such an approach has by scholars in the field been suggested to be a risk, by virtue of 'only' providing a limited understanding of

these persons' view of their work (see e.g. Albion & Tondeur, 2018; Selwyn, 2018; Hammond, 2014; Ward & Parr, 2011).

ICT coordinators

As reported in Paper IV, ICT coordinators are becoming increasingly influential in many Western countries in guiding and overseeing school digitalisation processes among teachers and school organisations (see e.g. León-Jariego et al., 2020; Milman & Henderson, 2021; Tømte & Wollscheid, 2024). For instance, the Eurydice report (European Commission, 2022) states that out of the 38 European country reports included, 11 national education systems have established ICT coordinators in their school organisations. An additional 16 education systems are reported to have ICT coordinators in most schools although not nationally required. Further, according to this Eurydice report, ICT coordinators are argued to be important in the work of nationally fostering a so-called 'school digitalisation ecosystem' (p. 15).

Despite this development, ICT coordinators seem to have received limited attention in scholarly work so far (Dexter & Richardson, 2020; Sosa-Díaz et al., 2022). It should be noted that this thesis has chosen to follow León-Jariego et al. (2020) in using the notion of 'ICT coordinator'. However, being a fairly new school-related profession, it has in fact been termed in a variety of ways. For instance, 'formator teachers' (Sugar & Holloman, 2009), 'computer coordinators' (León-Jariego et al., 2020), 'ICT champions' (McDonagh & McGarr, 2015), 'digital facilitators' (Cattaneo et al., 2021), and 'ETEC professionals' (Education Technology professionals) (Murphy et al., 2018), with the latter term being more commonly used in the United States.

The role of ICT coordinators has furthermore been suggested to be difficult to delineate. According to McGarr and McDonagh (2013), it fluctuates between being a technician, an educational leader, and an administrator. Moreover, it has been described as a role able to bridge the gap between national-level educational demands and local school practices (Devolder et al., 2010; Moreira et al., 2019; Shamir-Inbal & Blau, 2022; Woo, 2023). In a similar line of reasoning, Sosa-Díaz et al. (2022) argue that ICT coordinators are considered highly influential mid-level policy translators, as their role is to navigate both national and local policy directives towards school digitalisation. Some scholars, such as León-Jariego et al. (2020), Moreira et al. (2019), and Woo (2023), advocate in favour of ICT coordinators' influence over school digitalisation processes by proposing that this role should be clarified as a profession and that formal training should be developed and provided. However, there seem to be few signs in the research literature indicating such a professionalisation taking place on a large scale (e.g. Woo, 2023).

The body of research reviewed here also contains some more critical remarks in relation to the role of ICT coordinators. One such remark is found in the Norwegian study by Ottestad (2013), who puts forth that school digitalisation should be led by a digitally competent school leader (compared to those arguing in favour of ICT coordinators). Additional doubts towards ICT coordinators can for example be found in McGarr and McDonagh (2013), who in a mixed-methods study of 44 Irish schools conclude that the ICT coordinators were concerned with issues of technology rather than pedagogy. A similar finding is reported by Becuwe et al. (2017), who conducted three rounds of interviews and follow-ups (a Delphi-study) with a set of 36 ICT coordinators in Australia, Belgium, and the United States. The researchers suggest that ICT coordinators may not present a sound approach to digital technology usage in schools. Rather, the researchers propose that ICT coordinators often seem to act as technocentric proponents who approach school digitalisation as mere implementations of new 'digital tools', with less engagement in pedagogical reasoning about how to use these tools in teaching and learning practices. Moreover, McDonagh and McGarr (2015) put forth that the work with school digitalisation should not be assigned to any specific profession or individual like an ICT coordinator but rather be collectively approached by all staff in a school.

To sum up, with the overall focus on school digitalisation and the contextual aspects of situated contexts and professional cultures (such as national policymakers and ICT coordinators), this thesis particularly highlights the situated context, given the characteristics of the decentralised setting of Swedish municipalities and education stakeholders that in research have been recognised as influential in the process but not yet researched in more detail.

Education governance and school digitalisation

In relation to aspects of situated contexts and professional cultures, this thesis includes previous research that takes an education governance perspective when it delves deeper into the translation and transformation processes connected to school digitalisation (Hartong et al., 2022; Jarke & Breiter, 2019; Ozga, 2020; Selwyn, 2018; Williamson, 2015). So far, related research (Ozga, 2020; Selwyn, 2018; Williamson & Piattoeva, 2019) has for instance suggested that school digitalisation affects education governance in terms of (i) what stakeholders put into education policy processes, (ii) what grounds education policy is based on, and (iii) the way in which education policy moves. In short, elaborating on the collective findings in Papers I–IV, and using education governance as an analytical lens, this thesis contributes with knowledge on how K–12 school digitalisation fuelled by the national strategy can be understood in the context of the decentralised Swedish policy landscape.

Ozga (2012, 2020) suggests that European research on education policy and governance reports on international trends related to the influence of school digitalisation. An example of one such international trend in education governance is the speeding up of the policy process due to an increased interconnectedness between organisational levels (Hardy et al., 2019; Lewis & Hogan, 2019; Peck & Theodore, 2015; Volmari, 2022). For instance, Peck and Theodore (2015) use the term 'fast policy' when referring to how local policymaking borrows or imports ideas from different geographical contexts. Regardless of the level of governance or geography, fast policy is suggested by Peck and Theodore to provide shortcuts in local policy processes. These shortcuts are moreover suggested to diminish local participation in the policymaking process, with the outcome being a more contextually disconnected policy process. In addition, in a fast policy process, networks are suggested to become increasingly important sources for local governance in providing support for local policymakers and local policymaking.

A second trend in school digitalisation influencing education governance is the transformed policy processes for which policymakers create new collaborative constellations and engage new agenda-setters for education policy (Karseth et al., 2022; Loukis et al., 2016; Raptopoulou, 2021; Williamson et al., 2018). For instance, Williamson (2019) suggests that typical effects of school digitalisation have been the proliferation of education stakeholders and networks playing 'increasingly powerful and influential roles over schools, colleges, universities, and education systems' (p. 396). Linking this to fast policy, Lewis and Hogan (2019) set their focus on stakeholders active in speeding up policy, hence laying the ground for fast policy conditions to define and promote a certain policy. They also put forth that such stakeholders can limit or broaden the policy process by directing it either towards closed networks or towards becoming more collaborative and inclusive. In this thesis, the education stakeholders involved (i.e. national policymakers, school superintendents, ICT coordinators) are approached as particularly influential in Swedish K–12 school digitalisation and they are conceptualised as national and/or mid-level policy translators (see also Mathou, 2018; Singh et al., 2013).

A third trend from previous research on school digitalisation that influences education governance to be mentioned here is datafication, which is concept to describe 'a growing production, legitimation, and usage of (digital) data to inform decision-making' (Hartong et al., 2022, p. 305). Studying the transformation of education governance resulting from datafication, Hartong et al. (2022) present four specific country cases – Finland, Australia, the United States, and Germany. The researchers identified manifestations of transformed governance at three organisational levels (the national, school, and school practice level). At the national level, changes were found in the act of policymaking and in new non-

state actors perceived to provide expertise on digital technology. At the school level, new assessment and accountability measures were found to inform policy, governance, and educational practices. Additionally, the implementation of school platforms and Learning Management Systems (LMS) was suggested to conform educational practices. Moreover, the study by Hartong et al. (2022) exemplifies that digital transformation processes in education may be studied on different organisational levels and that education policy and governance may be affected differently depending on the national context (see also Selwyn, 2015).

The study by Hartong et al. (2022) shares similarities with Paper I in this thesis as well as other research conducted on school digitalisation in the Swedish context by virtue of drawing attention to new education stakeholders in school digitalisation processes. The involvement of such stakeholders – for example think tanks, philanthropic foundations, non-profit organisations, and commercial companies – has been criticised in studies from both a Swedish context (Hillman et al., 2020; Player-Koro et al., 2018; Raptopoulou, 2021) and international contexts such as Australia and the UK (Selwyn, 2018; Williamson et al., 2018). The argument in this critique is the concern about ulterior motives for engaging in education policy (such as profiting from an expanding school-digitalisation market) and a possible lack of familiarity with the work of schools, which could jeopardise commonly assumed values in school policy (such as the common good, societal benefits, equality) (see further Selwyn, 2018). This thesis additionally addresses how such education stakeholders may become involved in processes of national education policy.

What the last parts of this chapter raise is that based on previous research, school digitalisation may be seen as transforming education governance at different levels and in different ways. The policy process is described as urgently speeding up, and within these fast policy conditions, reflexive and well-thought-through processes of policy translations become rare. Instead, shortcuts are sought through replications of policy, digital technology solutions, and the assistance of mid-level translators. Networking is also valued, since assistance may be provided for the translation process. Moreover, context needs to be considered when researching school digitalisation and education governance. Based on the aggregated findings of Papers I–IV, this thesis contributes new knowledge pertaining to how K–12 school digitalisation may be considered to transform education policy and governance in a nationally decentralised setting. By following the trajectory of the national strategy and studying school digitalisation at different levels within the Swedish education system, this thesis supplements previous research on school digitalisation and education governance by spotlighting the education policy landscape as well as recognising possible tensions and frictions between organisational levels of governance in this landscape.

A few words to sum up the related research

This chapter has presented research framing this thesis' overarching focal points of exploration and thereby established a foundation for contributing to an informed and nuanced understanding of Swedish K–12 school digitalisation after the launch of the national strategy. It has addressed the characteristics of the nationally decentralised K–12 education context in Sweden, where contextual conditions are pronounced as important in the national policy process of school digitalisation (such as the acts following the national strategy). The situated contexts portrayed by the diversity of Swedish municipalities and the professional cultures of national policymakers and local ICT coordinators have been addressed together with a focus on education governance. This chapter has described that the influence of school digitalisation on policy processes may be considered at different organisational levels with the potential of transforming the educational landscape in Sweden. The next chapter will address the theoretical underpinnings of this thesis.

4. Theoretical Underpinnings

This chapter presents the theoretical underpinnings of this thesis. It also mirrors how my understanding has developed over the years during this research project. Hence the chapter reflects how K–12 school digitalisation gradually became further elaborated and in later stages of the project expanded into reflections on education governance. Therefore, the first part of this chapter addresses the concepts used in one or more of the four papers included in the thesis, presented in the order they were conducted. In this part, the empirical foci of the papers are described in brief. The second part presents two models of education governance (Ozga, 2012; Pierre & Peters, 2020) considered within a conceptualisation of network structures (van Dijk, 2013). This will later be used for the collected analysis and discussion of the main findings reported in Papers I–IV (see Chapter 7).

Theoretical concepts in the included papers

During my time as a doctoral student I learnt about and applied various, yet related, theoretical concepts for analysis in my research. The description of these concepts in this chapter shows the paths followed in my interest in school digitalisation and moreover the inspiration taken from the field of policy sociology. This may be clearer in the analysis and discussion of the collected findings of Papers I–IV in Chapter 7.

Drawing on Ball et al. (2012) and their descriptions of context and contextualisation, this thesis has through four empirical studies followed the trajectory of the national strategy from a national level through different municipal contexts down to the local school level. The first empirical study reported in Paper I was conducted at the national level. The three studies which followed concerned the municipalities and their political and local office level in Paper II, going deeper into the rural context and the local education office level in Paper III, finally addressing the ICT coordinators at the school level in Paper IV. The importance of context, which has been argued to be relevant in understanding the education policy process (see e.g. Thrupp & Lupton, 2006; White, 1985), has been a cornerstone in this thesis project. Additionally, the importance of context has resulted in the recognition of translational drifts in the explorations of school digitalisation in Swedish K–12 education, as policy moves within and between organisational levels (Norqvist & Ärlestig, 2020; Supovitz & Weinbaum, 2008). From the understanding that school digitalisation in Sweden will turn out differently depending on context, this thesis has approached policy as translations. According to Clarke et al. (2015), this concept signals a 'selective and active process in which meanings are interpreted and reinterpreted to make

them fit in their new context' (p. 35). Hence, using the concept of translation when speaking of education policy is a way of recognising the limitations which may be set by the contextual conditions.

Table 4.1 *Overview of theoretical concepts and frameworks used for analysis in the four papers.*

Levels of the Swedish K–12 education system	**Primary literature**	**Concepts and frameworks**
Paper I National level	Ward & Parr (2011)	Strategic vs. operational policy texts. Incoherence between different types of policy texts results in a challenging and faulty policy process.
	Supovitz (2008)	Policy refracts when transferred between organisational levels.
	Supovitz & Weinbaum (2008)	Education policy becomes different as a result of contextual implications and policy translations.
Paper II Municipal political and local education office level	Ball, Maguire & Brown (2012)	Policy is practice, something being done. Policy is interpreted and translated into context. Four contextual aspects of education policy: (i) situated contexts, (ii) professional cultures, (iii) material contexts, and (iv) external contexts.
Paper III Local education office level	Ball, Maguire & Brown (2012)	See description above (Paper II).
	Selwyn (2018)	Four areas of policy activity in school digitalisation: technology resourcing, digital technology as a classroom resource for teaching and learning, curriculum concerns, and organisation and governance.
	Roberts et al. (2017a)	Rural resilience with its dimensions: (i) multi-scalar resilience, (ii) normative understandings of resilience, and (iii) integrated policy conceptions of resilience.
Paper IV School level	Ball, Maguire & Brown (2012)	See description above (Paper II).

Table 4.1 provides an overview of the concepts and frameworks used in one or more of the four papers. It also illustrates the journey of this thesis represented by three interconnected ways of thinking about education policy for school digitalisation in a decentralised Swedish K–12 education context. First, school digitalisation was primarily considered from a policy-as-text perspective. The primary concern was with the challenges of accomplishing nationally coherent understandings of the national strategy, for which the work of Ward and Parr

(2011) became relevant, especially how they described strategic policy versus operational policy (Paper I).

Continuous thoughts on school digitalisation and education policy, which developed through the work on the comparative cross-case study (Paper II), resulted in considering policy as a process in which translations determine the outcome. Here, contextual aspects became even more central and were further elaborated in the later studies. During the later phases of this thesis, my considerations regarding school digitalisation and policy moved from focusing on the process to becoming more system oriented and gradually led me into the field of policy sociology (Ozga, 2019; Regmi, 2019; Selwyn et al., 2016) and towards ideas of governance. Hence, when summing up the collected findings reported in Papers I–IV (see Chapter 7), in relation to the process of national school digitalisation I continuously return to the organisational structure of the Swedish K–12 education system. These reflections, together with further readings of research literature, inspired the additional focus on education governance (Pierre & Peters, 2020; Ozga, 2012) as well as network structures (van Dijk, 2006, 2013).

To describe the theoretically informed work of the four papers in more detail, Paper I focused on policymakers at the national level. This paper was guided by Ward and Parr (2011) and their work on different types of education policy documents in school digitalisation, proposing the importance of coherence within and across (i) national strategic policy, (ii) national operational policy, and (iii) local school policy. Parallels were drawn between the national strategy as a strategic national policy and the #skolDigiplan as an operational policy. Paper I took an interest in the policymakers' view when developing an operational policy on national school digitalisation. The challenge of school digitalisation in this conceptualisation, as proposed by Ward and Parr (2011), is to provide policy texts that speak the same way. Developing the ideas of policy coherence, Supovitz (2008) provides further arguments to pay attention to education policy refractions and the importance of context. These theoretical reasonings on school digitalisation transferred to the empirical studies that followed.

Paper II approached the process of school digitalisation by conceptualising education policy as something more than text, that is, something that is made within a context (Gorur, 2011). This step towards a broader conceptualisation of education policy was inspired by the work of Maguire, Ball, and Brown (2013), which also elaborated further on policy refractions in educational contexts referencing Supovitz (2008). Paper II explored four contextually diverse Swedish municipalities and their translations of school digitalisation policy, and Maguire and colleagues' (2013) framework provided a possibility to study context divided into four overlapping dimensions: situated contexts (e.g. history and local settings), professional cultures (e.g. individual competence, values, and

experiences), material contexts (e.g. budget, buildings, technology and infrastructure), and external contexts (e.g. expectations from society, authority support, legal requirements and responsibilities). This framework was additionally used for the analytical structure in the paper.

Further exploring school digitalisation in municipal contexts, Paper III focused on rural municipalities. In scholarly work, school digitalisation in rural contexts seemed to have been overlooked and often portrayed in terms of their disadvantaged position and described as somewhat pitiful (see e.g. Fargas-Malet & Bagley, 2022; Wagg & Simeonova, 2022). However, as a result of the analysis in Paper II, this picture seemed inconclusive. In Paper III, therefore, policy work in rural municipalities was analysed using Selwyn's (2018) description of policy activities in school digitalisation processes as a framework, employed together with the concept of rural resilience (Roberts et al., 2017a, 2017b). Rural resilience is by Roberts et al. (2017a) described as 'the capacity of individuals and communities to proactively adapt to constant change through processes of building capacity and resources' (p. 374) and as characteristic of rural contexts. Analysing the empirical material through the lens of rural resilience (Roberts et al., 2017a, 2017b), it was possible to raise critique with regard to the level of support for school digitalisation processes in rural contexts and hence recognise the importance of context as well as the rural municipalities' agency and competence in the local work on school digitalisation. The paper provides insights on three forms of resilience: multi-scalar resilience (different levels of governance), normative understandings of resilience (collectivistic mobilisation), and integrated policy conceptions of resilience (bottom-up policy initiatives).

Informed by Papers I–III, Paper IV focused on ICT coordinators and their role as mid-level policy translators (Ball et al., 2012; Braun et al., 2010; Singh et al., 2013). The study reported in Paper IV was mainly empirically driven and concerned the ICT coordinators' thoughts and experiences on local school digitalisation processes following the national strategy. Therefore, besides being theoretically informed by the ideas of context previously described (Ball et al., 2012), no new concepts or frameworks were applied.

Chapter 7 provides an overall analysis and discussion, taking a holistic perspective on the national strategy trajectory and the school digitalisation process. For that reason, the next part of this chapter addresses the understanding of education governance (Ozga, 2012) and network structures (van Dijk, 2013), concepts considered beneficial when approaching the collected findings of Papers I–IV and taking a holistic perspective on the process of national school digitalisation within decentralised Swedish K–12 education.

Education governance

In this second part of the chapter, education governance is described with focus on two models – collaborative governance and network governance. Moreover, drawing from the work of van Dijk (2013), the network structures will be problematised by pointing out possible challenges in the governance models presented.

By applying perspectives on education governance to the overall findings, this thesis highlights the collaboration and tensions between different organisational levels in the Swedish K–12 school system (see Jessop, 2020; Lindensjö & Lundgren, 2014). Describing education steering as education governance may, according to Langer (2019), historically be understood in connection to the decentralised national school system and the neoliberal trends seen both in Sweden and internationally during the 1990s. Langer describes how research at that time needed to adopt new theoretical concepts, which brought forward the redistribution of influence over national policy going from a national to a local level. It may be of interest to note here that the Swedish language has no clear distinction between governing and governance. Jacobsson et al. (2015) ascribe this to the historical way of exercising national policy in Sweden, implicitly recognising local influence. An example of this is how the Swedish school system sometimes is characterised by its trust between national and local authorities (Öberg & Wockelberg, 2021).

Collaborative governance and network governance

The concept of governance makes it possible to illuminate the back-and-forth struggles of governing that characterise a nationally decentralised steering (Pierre & Peters, 2020). Seconding this, Langer (2019) suggests that national governing in a decentralised school system is replaced by education governance in the form of informal coordination and networks. Hence, for the overall analysis and discussion of the collective findings reported in Papers I–IV, this thesis applies two models, enabling further elaboration of education governance in the school digitalisation process – *collaborative governance* and *network governance* (Pierre & Peters, 2020). Wang and Ran (2023) have shown similarities, differences, and entanglements in the use of these two governance models in research. Following that, in the next section, the models will be described and distinctions between the two, as used in this thesis, will be clarified.

Collaborative governance is a model that describes an ideal form of governance for a decentralised democracy. According to Pierre and Peters (2020), this form of education governance tones down hierarchical relations by applying activities such as continuous discussions and negotiations when forming policy. In collaborative governance, both the private and the public sector are seen as

important, and policy is considered a strife for consensus and coherent understanding. Therefore, as described by Pierre and Peters, the basis for collaborative governance is participation. To elaborate further, Pierre and Peters raise the challenge of remoteness in this form of governance, which may challenge participation, for instance due to geographical distance or organisational size. Researching governance models for digitalisation, Yu (2022) suggests that Sweden in many cases seems to favour collaborative governance (p. 5) in a form where national authorities serve as central educational stakeholders in the policy process. Thinking of the national strategy as a model of collaborative governance was considered beneficial in the overall analysis and discussion as it enabled highlighting the balance or imbalance between stakeholders at different organisational levels in the decentralised K–12 education system.

Network governance is a model that considers policy as developed by shaping ideas through back-and-forth communication and, like collaborative governance, the creation of a shared narrative for the specific object of interest (Pierre & Peters, 2020). In comparison, what characterises network governance is how it is self-organised through the development of networks, separate from national authorities. To encapsulate what can be referred to as networks in the educational setting, Ball and Junemann (2012) have proposed that networks are carriers of ideas for which no clear organisational feature is needed (e.g. a fellowship or an association). Ball and Junemann moreover put forth that networks are guided by two main principles: levels of trust and social relationships among the members. In this thesis, network governance is considered a model that portrays the divide between a nationally led and a locally autonomous policy process of school digitalisation. Hence, in the overall analysis of the findings in this thesis, network governance is considered a way of approaching self-organised organisational structures, such as contacts between municipalities or individual teachers in the process of school digitalisation.

To sum up, the two models of education governance described here – collaborative governance and network governance – provide an analytical lens to approach school digitalisation as translations, taking place with a centre point at the national level in the former model and considered self-organised within networks in the latter. Drawing from the findings in the empirical studies, these models of education governance enable further holistic insights on school digitalisation processes following the national strategy.

Network structures

Recognising the challenges of remoteness in collaborative governance (Pierre & Peters, 2020), the collective analysis and discussion in Chapter 7 will apply van Dijk's (2013) conceptualisation of network structures. This conceptualisation will

be used to illustrate the governance of school digitalisation in Swedish K–12 education and the imbalances of the organisational structure of networks, which van Dijk argues harbours inequalities.

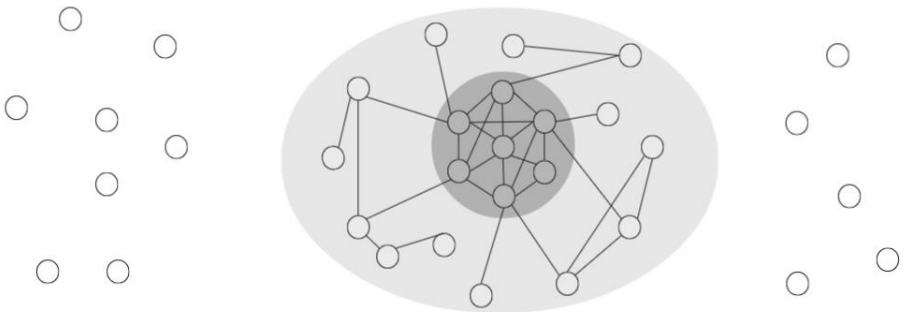

Figure 4.1 *The network structure. Adapted from van Dijk (2013).*

According to van Dijk, inequalities within network structures come from the informality of networks and relate to access (who may participate in a network) and selectivity (the level of recognition taken or given to each participant in a network). Regarding access, van Dijk points to the so-called 'inclusion-exclusion' challenge (p. 114), described as the challenge of getting access to a network. He suggests that the risk of inequalities in network structures lies in participants' potential being overlooked. Regarding selectivity, van Dijk describes network structures as having a core and a periphery, as illustrated in Figure 4.1. In the network core (the dark grey area at the centre of Figure 4.1), the most well-informed, knowledgeable, and/or innovative participants in the network are found. These participants have the advantage of being in a position of influencing the network activities and advocating for their agenda. Having a core position is therefore also suggested to solidify over time when these participants advance in their advantaged position by staying well-informed and continuously influence the network agenda. The network structure is also said to harbour disadvantaged participants peripheral to the network and with weak connections to the advantaged core (the light grey areas and surrounding white areas). Participants in these positions are, according to van Dijk, recognised to a small extent or not at all, and they are at risk of remaining disadvantaged as they have few possibilities of advancing from their position by encountering those in the network core. Hence, according to van Dijk, network structures as organisational arrangements pose the risk of inflating inequality due to the implicit support of the advantaged core participants and the fact that peripheral or excluded participants already are disadvantaged in relation to this structure. Put differently, they may never be able to advance or gain access to the core of a network. Network structures are therefore proposed by van Dijk to always be considered at risk of being suppressive, and an organisational setup in which the

already disadvantaged remain so. Although sometimes projected as an organisational arrangement on equal terms for all, it may be considered a possible chimaera for equality in governance.

To sum up this part, the network structure as described by van Dijk (2013), together with education governance and the models of collaborative governance and network governance, provide the theoretical underpinning and lens for the collective analysis. Hence, these concepts will be used to discuss education governance and school digitalisation in Swedish K–12 education from the findings reported in Papers I–IV. Next, the chapter on 'Design and Methods' will be presented.

5. Design and Methods

This chapter describes the overall design, procedures, and methods chosen in this thesis, divided into three parts. The first part outlines the overall design of the thesis, inspired by education policy trajectory studies (see e.g. Lewis, 2021; Yorke & Vidovich, 2016). Moreover, the first part describes the approach of researching translational processes and education governance by following school digitalisation from the national level to local organisational levels in the decentralised Swedish K–12 education context (see Lindensjö & Lundgren, 2014). In the second part, the methods used in the four empirical studies are detailed, including data collection and analytical processes. The third and final part concerns ethical responsibilities in educational research and how these have been considered in this thesis from both a researcher and a research perspective.

Design of this thesis

The design was inspired by the work of Ball et al. (2012), on the importance of context in education policy studies, and furthermore by education policy trajectory studies (Ball, 1993; Lewis, 2021; Taylor et al., 1997; Yorke & Vidovich, 2016) and the field of policy sociology (Ozga, 2019; Savage et al., 2021). Studying education policy by following its trajectory has been argued by Ball (1993) to enable asking questions of critical and theoretical nature in studies concerned with contexts of influence, contexts of policy text production, and contexts of practice. Researchers such as Yorke and Vidovich (2016) have described such a design as a 'hybrid approach' to study both the micro perspective within contextual settings and the macro perspective of higher organisational levels in education governance. To enable this 'hybrid approach', which also allows capturing how education policy moves from the national level to the local level in the Swedish national context, the thesis project found support in this design in the illustration of the Swedish K–12 school system suggested by Lindensjö and Lundgren (2014). In short, they divided the Swedish K–12 structure into four organisational levels, see Figure 5.1 below.

National level	Municipal political level	Local education office level	School level - School leader - ICT coordinator - Teacher

Figure 5.1 *Organisational levels of the Swedish education system, adapted from Lindensjö and Lundgren (2014).*

Figure 5.1 illustrates how the organisational levels of K–12 education in the decentralised Swedish context, as suggested by Lindensjö and Lundgren, are linked together from the national level via the municipal political level and the local education office level down to the school level. In this organisational structure, municipalities may be considered the primary recipients of national directives (see Lundahl, 2002, for more on this), which in relation to the national strategy means enabling school digitalisation by providing material and other resources. The municipalities are then expected to act in accordance with national policy on K–12 education by translating these into their various contexts; however, they may also develop their own local policies to inform K–12 education.

The advantage of an education policy trajectory study design for this thesis proved to be the possibility of studying national governance of school digitalisation with sensitivity to contextual settings, raising questions of what, why, and how this process is enacted (cf. Gale, 1999; Yorke & Vidovich, 2016). Vidovich (2013) suggests that policy trajectory studies in education are to be initiated at a higher organisational level and thereafter followed by context-specific studies of how policy develops at different organisational levels. Taylor et al. (1997) in turn describe policy trajectory studies as procedures structured by 'studies of policy text production as the first stage in the research agenda', followed by studies of 'stages of gestation, the micropolitics inside the state involved in text production, and through case studies of the implementation of the policy into practice' (p. 42). In this thesis, the first empirical study (Paper I) was conducted at the national organisational level in the context of national policy text production. This study was thereafter followed by a comparative cross-case study (Paper II) and two additional empirical studies of the processes of policy translation at different organisational levels (Papers III and IV). Although, as argued by Lewis (2021), an ad-hoc approach is important when studying the dynamic nature of 'policy moves' in education, the choice to incorporate a comparative cross-case study in the research design was made early. The benefit of case studies in education policy trajectory studies, however, has been addressed in earlier literature (see e.g. Ball, 1993; Lewis, 2021; Yorke & Vidovich, 2016). For an overview of the design of the overall research project in general and the four studies in particular, see Table 5.1.

Table 5.1 *Overview of the research design.*

Overall design	A study inspired by education policy trajectory studies.			
Purpose of this thesis	The overarching purpose of this thesis is to explore Swedish K–12 school digitalisation after the launch of the national strategy and contribute to an informed and nuanced understanding thereof. The focus is set upon policy translations at four organisational levels. Following the trajectory of the national strategy, the purpose is furthermore to provide insights on education governance in K–12 school digitalisation by highlighting the influence of contextual diversity within the decentralised Swedish education system.			
Research questions of the thesis	1. How can Swedish school digitalisation as a process of national education policy translations be understood? 2. How does context influence the translation of school digitalisation at various organisational levels? 3. How can the process of national school digitalisation in Sweden be understood through the analytical lens of education governance?			
Organisational level	National level	Municipal political and local education office level	Local education office level – rural	School level
	Paper I	**Paper II**	**Paper III**	**Paper IV**
Title	Taking a step back for a leap forward: policy formation for the digitalisation of schools from the views of Swedish national policymakers	Size matters: contextual factors in local policy translations of National School Digitalisation Policy	'This is how we do it' – Rural resilience in local translational work on national school digitalization policy	In service of school digitalisation in Sweden – a study on ICT coordinators' conditions for work in a local municipal context framed by national education policy
Aim or research questions of the papers	(a) How do non-traditional Swedish national policymakers view the policy formation work of #skolDigiplan? (b) What do they consider challenging for the projected policy outcome?	(a) How do municipalities translate national school digitalisation policy into actions based on local context? (b) What similarities and differences can be found in these translations between different local contexts? (c) Do contextual differences affect the local translations of policy concerning the digitalisation of schools, and if so, in what ways?	(a) How do rural municipalities work with translating national school digitalisation policies into local and contextual action? (b) How can this work be understood from a rural resilience perspective?	The aim is to explore, analyse, and critically discuss conditions for Swedish ICT coordinators working on school digitalisation in a local municipal school context framed by national education policy.
Stakeholders	National policymakers	Local politicians and school superintendents	Local key informants	ICT coordinators
Empirical data collection	Semi-structured interviews	Semi-structured interviews, documents	Semi-structured interviews, documents	Semi-structured interviews
Analysis	Thematic analysis	Thematic analysis	Two-step thematic analysis	Thematic analysis

National level – Paper I

The first empirical study addresses the national organisational level and originates from an opportunity to conduct interviews with members of the group assigned by SALAR to produce the national plan of action for the digitalisation of the school sector, the #skolDigiplan. This education policy document was launched in the year 2019 with the purpose of supporting school digitalisation processes in all 290 Swedish municipalities. The national level was studied with a focus on national policymakers' views on school digitalisation with the aspiration of contributing knowledge on an empirical context described as both important and necessary in previous research (see e.g. Sosa-Díaz et al., 2022; Selwyn, 2018; Ward & Parr, 2011). Moreover, and in line with Freeman and Maybin (2011), studying policy within the contextual processes of text formation and production is beneficial for the sensemaking of the policy itself.

The group members were asked to participate in the study with the help of a gatekeeper. A first meeting with this gatekeeper was initiated, during which the study was introduced and discussed. This introduction covered the aim of the study, the research questions, and information about research ethics. The group of eligible research participants was an exclusive group of 13 members in total. Recognising the vulnerability of a gatekeeper position (Cohen, 2011), the meeting concerned different possible methods for data collection, which resulted in the decision to ask the group members to participate in semi-structured online interviews. In total, eight of the members accepted to participate in the study and were interviewed in an online face-to-face setting. The interviews focused on the policy formation work of #skolDigiplan. This study became a unique opportunity to gain insights into these policymakers' views on school digitalisation, the translation of the national strategy, and their reflections on the policy process.

Municipal political and local education office level – Paper II

The second empirical study was carried out at the municipal political and local education office level. The goal was to gain insights into how school digitalisation was translated across a variety of municipal contexts in Sweden. The study was designed as a comparative cross-case study (see Simons, 2009; Yazan, 2015). This is an approach taken to provide an enriched understanding of how a particular policy process (such as school digitalisation) is acted out in a certain context (such as an organisational level). In the selection, four municipalities were chosen to represent a broad variation of Swedish municipal contexts. Three criteria were formulated for this choice. The first criterion was that there needed to be signs indicating that a municipality had started an initiative to follow the national strategy. For this, assistance was found on a SALAR web page that presented statistics on Swedish municipalities' use of the online assessment tool LIKA. This online tool was launched in August 2014 (SALAR, 2015) and promoted as being

beneficial when initiating and evaluating local school digitalisation processes. Municipalities that had made use of this tool (and provided data to LIKA) were marked on a web-based map over Sweden. A decision was made that the municipalities presented on this map were eligible for the study. It can be noted that SALAR wound LIKA down in June 2023.

The second criterion was related to the intention of capturing a contextual variety of municipalities for investigation, and for that reason SALAR's categorisation of municipalities was consulted. This categorisation was considered to have two advantages. First, the categorisation is continuously revised and well fitted for the Swedish context with its small population. Second, the categorisation shares similarities with other internationally known instruments for municipal or regional categorisation, such as Eurostat (SALAR, 2016). SALAR's categorisation of municipalities divides Swedish municipalities into three categories – A (big cities and adjacent municipalities), B (large cities and adjacent municipalities), and C (small towns to rural municipalities). These three categories are in turn divided into nine sub-categories.The selected municipalities for the study were found within the categories A2, B3, C6, and C8 and are displayed in Table 5.2. This meant that the municipalities chosen represented both urban municipalities with dense populations of about 150,000 inhabitants, all the way through to rural areas in which the smallest municipalities had a population of about 2,500 people. The third and final criterion was concerned with the intention to also include municipalities geographically located in the north, south, east, and west of Sweden.

Table 5.2 *Categories of Swedish municipalities. Those chosen for the comparative cross-case study are in bold.*

A1 Big cities **A2 Adjacent municipalities**	**B3 Large cities** B4 Near adjacent municipalities B5 Far adjacent municipalities	**C6 Small towns** C7 Adjacent municipalities **C8 Rural municipalities** C9 Rural with large tourist industry

According to Yazan (2015) and Simons (2009), one of the benefits of conducting a comparative cross-case study is that it recognises the importance of context. In this study of the municipal political and local education office level in the work on school digitalisation, the case study approach contributed to providing examples of diversity in relation to the national strategy. Lewis (2021) and Yorke and Vidovich (2016), for example, argue that case studies are flexible and include

research processes that enable unexpected findings to be recognised and are hence particularly beneficial in education policy trajectory studies. However, it should also be mentioned that case studies have been criticised for a lack of methodological consensus, and it has been suggested that they should be considered an approach rather than a method (see e.g. Flyvbjerg, 2010; Simons, 2009; Yazan, 2015). In response to such critique, data were collected through multiple sources for each municipality to ensure that each case would be studied within its own unique context. The four municipalities included in the study were moreover conceptualised and analysed as separate cases (cf. Simons, 2009). In addition, each municipality was approached systematically, one at a time, following the same procedures in terms of data collection and analysis. Finally, the cases were further analysed and compared with each other.

This study was also guided by the work of Yin (2014) and Stake (2006), who emphasise the importance of communicating the research process thoroughly and acknowledging the researcher in shaping the data. The comparative analysis investigated similarities and differences between the four cases (i.e. the four municipalities). From this analysis, two findings became particularly important for the empirical studies reported in Papers III and IV. First, at the municipal political and local education office level, school digitalisation seemed to be approached in two separate ways: either by municipalities taking a more *general approach* (e.g. providing resources and support for schools and teachers to individually translate the national policy into practice) or by taking a more *specific approach* in which translational processes of school digitalisation were initiated in the municipalities to provide coherence in how school digitalisation was enacted locally. Second, the findings in Paper II also suggested that the size of the municipal organisation was important for whether a municipality had taken a general or a specific approach.

Local education office level (rural) – Paper III

The third empirical study explored the local education office level and the organisational structure of K–12 education in small and rural municipalities. Here, the intention was to examine school digitalisation in relation to the importance of municipal size and provide insights from a context which seldom seemed portrayed in research – the rural context (see e.g. Nyhlén & Gidlund, 2022; Wagg & Simeonova, 2022). As touched upon above, empirical data from the first and second study suggested that the size of municipalities was important in school digitalisation. In other words, it was found that small and rural municipalities in Sweden run the risk of being disadvantaged, having a limited capacity to engage in school digitalisation, and being somewhat marginalised in relation to national education policy processes. For instance, Paper I reports how national policymakers, when discussing the #skolDigiplan process, argued that

rural municipalities were hard to reach and involve in the work at national level. In Paper II, the superintendents of the larger municipalities (A2, B3) suggested that small and rural municipalities had a disadvantaged position. In contrast, it can be noted that the superintendents representing these contexts in Paper II, while acknowledging their disadvantages in terms of organisational size, also argued for their competence and ability to enable a transformative process of school digitalisation.

This third study, hence, delved deeper into school digitalisation in Swedish rural municipalities (C8 in Table 5.2). The study was designed as a phone interview study (Farooq & De Villiers, 2017) with additional data collected from local policy documents retrieved from the research persons. In total, data from 36 out of 40 Swedish rural municipalities (C8) were included in the study, and local policy documents could be collected from 21 of these. The rural municipalities were contacted through phone operators at city hall who were asked to redirect the call to the person they identified as the most knowledgeable regarding the work on school digitalisation in the municipality. Thereafter, the person recommended by the phone operator was asked whether this description was correct and if not, they were asked to recommend a further contact. However, if the description was believed to be accurate, this person was considered a key informant, and they were asked whether they could provide a brief summary of the work with school digitalisation in their municipality. In the majority of municipalities, the final respondent was the local school superintendent. However, in some municipalities somebody else was described as more knowledgeable, such as a retired superintendent still working part time at the local education office, a person at the IT office, or a teacher (e.g. now working as an ICT coordinator). Based on the previous findings in Paper II, the ambition was to recognise the capacity and competence of how the rural municipalities approached their work with K–12 school digitalisation. The growing interest in rural municipalities and how they handle issues of capacity and competence guided me towards the concept of rural resilience (Roberts et al., 2017a, 2017b), which was found relevant and supportive in the analysis.

Conducting the study of rural municipalities by initiating phone interviews (Block & Erskine, 2012; Farooq & De Villiers, 2017) made it possible to collect data from most Swedish rural municipalities (C8). The benefit of this design was hence the possibility of exploring school digitalisation in a contextual setting argued to have been overlooked in education policy and research so far (Nyhlén & Gidlund, 2022; Salemink et al., 2017; Wagg & Simeonova, 2022).

School level – Paper IV

The fourth and final empirical study examined the school level by focusing on ICT coordinators. From the findings reported in Papers I–III, it was learned that ICT coordinators seemed to be key in the local work with school digitalisation. Based on the findings reported in Paper II in particular, this study paid attention to how the municipality's approach (i.e. general or specific) potentially could influence ICT coordinators' work as well as the local translations of policy on school digitalisation. Combining the interest in investigating municipalities' approaches with the interest in various municipal contexts (such as different categories of municipalities), this study was designed to specifically target the role of ICT coordinators in K–12 school digitalisation. Continuing and expanding on the comparative cross-case study reported in Paper II, ICT coordinators from these four municipalities were asked to participate in the study first. Additionally, ICT coordinators were sought in four municipalities suggested to be similar to the first four municipalities investigated in Paper II in terms of municipal category (i.e. A2, B3, C6, and C8) and also geographically spread in the north, south, east, and west of Sweden. What was to distinguish the previous from the added municipalities was their approach to school digitalisation. The added municipalities were to have taken the opposite approach to school digitalisation than the first ones in Paper II.

These four additional municipalities for the study in Paper IV were identified through the following procedure: first, all municipalities from the municipal categories of A2, B3, C6, and C8 were plotted on a map over Sweden, each category in a separate colour, and the case study municipalities (Paper II) were marked out. Second, additional suitable municipalities were sought through extensive searches of municipal web pages, reading local policies and documents about strategic local work with school digitalisation. This work included a search for people who could be identified as ICT coordinators, acknowledging the fact that this profession, according to previous research, could be named in different ways (see e.g. León-Jariego et al., 2020). Eventually, four opposing and geographically spread-out municipalities were identified. As previous research suggests that ICT coordinators may mostly work in schools or the local education office (see e.g. Devolder et al., 2010; Woo, 2015), research persons were sought to represent both schools and local education offices. The interviews would show, however, that this way of dividing the workplaces of ICT coordinators was related to the organisational structure of the municipality and therefore not applicable overall. In total, 13 ICT coordinators agreed to participate in the study. Six of them represented municipalities that had taken a specific approach to school digitalisation and seven of them represented municipalities taking a general approach (see Table 5.3).

The benefit of this study's design is that the focus on ICT coordinators made it possible to explore a particular role argued to increasingly become influential in school digitalisation policy translations and hence also important at every organisational level in the K–12 education system (Milman & Henderson, 2021). For this thesis' aspired contribution to knowledge, the combination of studying contextual diversity and municipal approaches towards school digitalisation was moreover considered particularly relevant.

Table 5.3 *ICT coordinators by approaches taken in their municipalities.*

Case study municipalities	A2 – General	B3 – General	C6 – Specific	C8 – Specific
	Two ICT coordinators – one at the local education office and one in schools	Two ICT coordinators – one at the local education office and one in schools	One ICT coordinator working in school assisting the local education office	Two ICT coordinators – both working at the local education office and in schools

Additional municipalities	A2 – Specific	B3 – Specific	C6 – General	C8 – General
	Two ICT coordinators – one at the local education office and one in schools	One ICT coordinator working both at the local education office and in schools	Two ICT coordinators – one at the local education office and one in schools	One ICT coordinator working at the local education office and in schools

The empirical studies – methods and data analysis

As described above, four different organisational levels in the decentralised Swedish K–12 education context are empirically researched and presented in the four included papers (Papers I–IV). Each paper consists of a separate empirical study with its own scope, aim, and/or research questions. The empirical data for the different studies were gathered from interviews and documents. An overview of the studies and the empirical data collected in relation to the overall research design was provided in Table 5.1. In this part of the chapter, the methods for data collection and data analysis in the empirical studies will be described and discussed in more detail.

Interviews

Interviews are proposed to be the most widely used method in qualitative research (Clark et al., 2021). In this thesis, interviews were used in all four studies and contributed to a flexible and dynamic collection of empirical data in which research participants were able to share insights with less constraints. The interviews were semi-structured, which also contributed to the provision of rich and detailed data for analysis in the studies (Brinkmann & Kvale, 2017). The interview guides (see Appendices I–IV) contained questions structured into themes. This allowed for a dynamic interview situation, open for follow-up questions when interesting topics would arise, staying within the contexts while being relevant to the aims and/or research questions of the studies (see Bryman, 2012). The interviews were conducted either as video calls or as telephone calls. I conducted all of the interviews personally.

Interviews by video call

Empirical data reported in Papers I, II, and IV were collected through video calls for which Zoom was used as the main video-conferencing tool. For Paper I, this choice was based on the geographical distance to the research persons, combined with the ambition of limiting the intrusion in the national policymakers' schedules (see Clark et al., 2021). Moreover, as data collection for Papers II and IV took place during the COVID-19 pandemic, face-to-face interviews were not an option. In the literature, the benefits of video calls compared to face-to-face interviews have been described in terms of their flexibility (Edwards & Holland, 2013) when for instance researching people with busy schedules or heavy traveling patterns (Creswell, 2017). What is also suggested is that online interviews might change the power dynamics and that the research persons may experience it as a more open form of communication characterised by a mutual exchange (Salmons, 2014). All research participants were rather familiar with online video meetings, which is why these interviews in line with Creswell (2017) were considered to provide data similar to what could have come out of face-to-face interviews.

Phone interviews

The empirical data reported in Paper III were collected through phone interviews. In the literature, strengths of phone interviews are that they are cost efficient and enable studies to include a larger number of research persons in the empirical dataset (see e.g. Block & Erskine, 2012; Farooq & De Villiers, 2017). In addition, phone interviews are described as taking up less time from the research participants and as supporting the possibility of ending up with a solid response rate from the targeted group. The interviews were conducted in a conversational style, which meant that K–12 school digitalisation was talked about in a more relaxed atmosphere and with the goal of understanding the views and experiences of the interviewees (Farooq & De Villiers, 2017). Furthermore, and maybe a bit

unconventionally, it was decided not to record the interviews. Instead, detailed notes were taken during the interviews and afterwards combined with additional reflective notes about the interview as such.

A drawback of phone interviews compared with face-to-face interviews or video calls has been argued to be the emotional distancing (Farooq & De Villiers, 2017); this is, however, suggested to not always necessarily be a disadvantage (Block & Erskine, 2012). For instance, for people in disadvantaged positions or who wish to raise critique, the phone interview is proposed to contribute to conversations being carried out more freely and with greater ease (Clark et al., 2021). In the third study, this proposition became real when several interviewed research persons opposed to being recorded. This is one reason why the decision was made not to record any of the interviews. The decision was also in line with Bryman (2012), who argues that research persons not willing to be recorded may in fact be the ones with particularly interesting and important information.

Organising and analysing data from the interviews

The procedures of organising and analysing the interview data were similar for Papers I, II, and IV. As described above, these interviews were conducted and recorded as video calls. The video recordings made it possible to revisit the interviews which is said to strengthen the possibilities of conducting thorough analytical work (Clark et al., 2021). To identify, analyse, and report patterns in the data, it was considered convenient to work with interview transcripts (Braun & Clarke, 2006; Boyatzis, 1998). Hence, the interviews in Papers I, II, and IV were transcribed verbatim and thereafter uploaded in NVivo12®, a software used to organise and structure qualitative research data (see Bryman, 2012). Using NVivo12®, the interviews were thematically analysed (Boyatzis, 1998; Braun & Clarke, 2021; Clarke & Braun, 2017) through manual coding and categorised into themes. The process of this analysis was inductive and allowed patterns and interrelations to be explored continuously throughout the analytical work (Heck, 2004). For further details, see Papers I, II, and IV.

The interviews reported in Paper III were, as touched upon above, documented by writing down detailed notes during the interviews and additional reflective notes afterwards. For each interview, the reflective notes were written down in the same document as the detailed notes during the interview. The complete sets of notes were then organised and analysed using a large Microsoft Word® spreadsheet, with each municipality placed in a separate row. Organising the data, each row was divided into a number of columns in which Selwyn's (2018) way of describing four types of policy activities for digital technology in schools stood as a model. The types suggested by Selwyn were (i) technology resourcing, (ii) use of digital tools for teaching and learning, (iii) curriculum concerns, and (iv) issues of organisation and governance. Paper III also reports data in terms of

local policy documents collected from the research participants (N=21). Information from these documents was added to the spreadsheet in the form of bullet points. More information about the documents is presented in the next part of the chapter. For further details about the analysis in this study, see Paper III.

Documents

Freeman and Maybin (2011) describe the unthinkable, impracticable, and unfeasible in the practice of governance without text documents. Following that, the empirical studies reported in Papers II and III include local municipal policy documents on K–12 school digitalisation. Recognising the normativity in such documents, yet once again acknowledging the arguments provided by Freeman and Maybin (2011), they were still considered to have the potential to provide information relevant to these two studies. The local policy documents on school digitalisation were also considered to confirm the extent to which a particular national education policy seemed to be considered relevant (such as the national strategy). For Paper II, the documents collected were mainly local municipal policy documents and minutes of local education committee meetings. While most of these documents were provided via email from school superintendents, additional information was collected from public online sources on the municipalities' websites. For Paper III, the documents collected were local policy texts on K–12 school digitalisation in the municipalities as well as drafts and working materials. However, before adding them to the dataset for analysis in each study, all documents were evaluated using the following questions (see Morgan, 2022; Weber et al., 2022): does the document seem to be (i) genuine (authenticity), (ii) error-free (credibility), (iii) following a typical format (representativeness), and (iv) including important content (meaning)? However, no document was found irrelevant based on this evaluation, and therefore all of them were added to the dataset.

Organising and analysing data from documents

When organising and analysing the local municipal policy documents reported in Papers II and III, the approaches used were quite similar. In Paper II, the documents were first printed out and text sections of importance for the aim and research questions were marked up manually. These sections were then thematically coded (Boyatzis, 1998; Clarke & Braun, 2017) and added to a paper spreadsheet, one for each case municipality. In the four spreadsheets, information found through the municipal websites that was considered relevant for the study was also added. For Paper III a similar approach was taken, with the exception that this study was facilitated entirely by the use of digital software (cf. Clark et al., 2021). Two spreadsheets were constructed – one as a table in Microsoft Word® and one in Padlet®, a digital clipboard where I used digital sticky notes. The latter approach allowed for data to be organised and reorganised by a

drag and drop feature, which was considered particularly beneficial for the analysis.

Combining multiple sources

The use of multiple sources of data is argued to improve the trustworthiness of qualitative research (Bowen, 2009). In Paper II, this was acknowledged in the comparative cross-case study approach on the municipal political and local education office organisational levels. The themes identified in the interviews were extended by adding the findings of the document analysis and thereafter analysed together through the lens of Ball et al. (2012). In Paper III, the interview data and the information from the local policy documents was combined in the spreadsheets. Thus, this study additionally had a two-step thematic analysis in which the first one used Selwyn's (2018) four types of policy activities for digital technology in schools. The second step was conducted by analysing each of the four policy activities through the lens of three forms of rural resilience suggested by Roberts et al. (2017a) (see also Chapters 3 and 4).

In sum, the findings of this thesis are based on data collected and analysed from a total of 61 interviews and some 200 local documents. An overview of the complete dataset for the four studies is provided below in Table 5.4. The next section will offer some ethical reflections related to this thesis.

Table 5.4 *The complete set of empirical data reported in Papers I–IV.*

Organisational level	**Paper**	**Documents**	**Interviews**
National level	I		Online interviews with national policymakers (n=8)
Municipal political and local education office level	II	Local policy documents (n=7) and meeting minutes (n=154) from local education committees, and information collected from the webpages of the four studied municipalities	Online interviews with school superintendents (n=4)
Local education office level	III	Local policy documents (n=62) from 21 municipalities	Telephone interviews with municipal key informants (n=36)
School level	IV		Online interviews with ICT coordinators (n=13) from 8 municipalities

Ethical reflections

Ethics in research may be considered both from a researcher and a research perspective. Regarding the former, this thesis has aspired to follow the codex of All European Academies (2023). This codex addresses researchers' responsibilities to the research community in reliability (in research), honesty (unbiased and transparent), respect (for people, society, nature, and cultural heritage) and accountability (for research from idea and onwards). In short, research should be able to claim robustness and be trustworthy. I reflected on researcher ethics during the entire thesis process, delving into matters such as how to initiate research, how to collect and safely store data, how to do the analysis and make analytical interpretations with full respect to the research participants, and finally how to write up and publish research findings in a transparent and good ethical manner. Reflections were also continuously made on the proposal that people tend to consider themselves favourably in comparison to their actions (Edling, 2009) and that people are most likely to see perspectives and patterns which already are familiar rather than those previously unconsidered (Edling, 2009; Kahneman, 2011). These two proposals both argue for the importance of continuous reconsiderations of a researcher's mindset, which I over the years as a PhD student have done my best to do.

Considering research ethics, this thesis has followed the recommendations laid out by the Swedish Research Council (2017). This means thoroughly weighing the possible benefits of research in relation to the personal costs for its research participants. Fransson (2017) suggests that research ethics should be considered socially constructed and connected to individual perceptions, where dilemmas, uncertainties, and ambivalence towards research may change over time. In that way, ethical conduct can be considered a relational process that may be addressed proactively through communication and dialogue and encouraged through self-reflections before, during, and after the research process. In this thesis, Fransson's words and suggestions have for instance been acknowledged in terms of transcribed interviews being open for edits by the research persons and that they have been encouraged to stay in contact with me in case of further questions or comments. Moreover, summaries of the findings have been distributed to the research persons, and I have organised online seminars with some of them to discuss the findings per se, explore whether this research may contribute to their practice, and create networks among them. Taken together, this is how ethical conduct in this thesis has been upheld in the best possible way.

The next chapter will provide a summary of the papers included in this compilation n thesis.

6. Summary of Papers

In this chapter, brief summaries of Papers I–IV are provided. Each summary includes key findings that taken together reflect the knowledge contributions of this thesis.

Paper I

Gustafsson, U. (2021). Taking a step back for a leap forward: policy formation for the digitalisation of schools from the views of Swedish national policymakers. *Education Inquiry, 12*(4), 329–346. doi:10.1080/20004508.2021.1917487.

Paper I focuses on Swedish school digitalisation policy with the aim of exploring the perspective of non-traditional national school policymakers. The interest of conducting this study stems from the fact that a management group of non-traditional policymakers were appointed to produce the national plan of action for the digitalisation of schools, the so-called #skolDigiplan (SALAR, 2019). The #skolDigiplan was primarily intended for the education providers (such as municipalities) and supplemented the national strategy. The Swedish government assigned the work of developing #skolDigiplan to SALAR, a powerful Swedish not-for-profit organisation. In this paper, the following research questions were posed: (a) How do non-traditional Swedish national policymakers view the policy formation work of #skolDigiplan? and (b) What do they consider challenging for the projected policy outcome? In this interview study, 8 out of a total of 13 appointed group members agreed to participate.

The findings reveal the #skolDigiplan group members' views on challenges of national school digitalisation. Particularly, the members raised the lack of knowledge and engagement among key education stakeholders (such as school politicians) and the current polarised public debate on school digitalisation in Sweden. School digitalisation in the public debate was described as discussions of piecemeal aspects of digital technology (such as mobile phones in the classroom) rather than being discussed from a societal perspective on what school digitalisation should mean for education in a K–12 context. According to the group members, the work on developing #skolDigiplan was therefore laying the ground for a more balanced and initiated discussion, designed as a collaborative project to which a broad variety of stakeholders were invited to participate. The general idea was to fuel the process of school digitalisation by initiating dialogues with various education stakeholders. These dialogues were sought, for example, through members participating in school digitalisation events and by roundtable discussions on pre-set topics. Activities were also made transparent through

social media by continuous updates on accounts set up specifically for this purpose and a frequent use of the advertised hashtag (#skolDigiplan).

The interviewed group members also considered challenges in the process of national school digitalisation in relation to teacher education, in which future teachers could develop only a limited professional digital competence. Nevertheless, digital competence in K–12 schools and among professional teachers was recognised to be high. At the same time, however, a concern among the group members was that school digitalisation seems to have become a practitioner's issue alone instead of being addressed as a question for the entire national K–12 education system. Yet another challenge raised concerned the limited resources in already disadvantaged and remote (i.e. rural) municipalities. Such municipalities were talked about as difficult to approach in the ongoing work with the #skolDigiplan, and this was partly due to the tight time frame for finalising this policy document.

This paper also brings forward the interviewed group members' wholehearted support of the final outcome of #skolDigiplan as well as tensions between SALAR and SNAE in the process of making this policy. SALAR was said to be pushing for clearer directives for the municipalities while SNAE was promoting more general suggestions or directives. The explanation here provided by the members was that clearer directives would imply the need for financial support from the national level, which they believed was not wanted by the government. This was also suggested to be a major reason for appointing SALAR to lead this national policy process. The paper supports the argument in favour of policy on school digitalisation involving other actors than traditional education stakeholders (see Selwyn, 2018; Williamson et al., 2018) and speaks of changes in the balance of power over school policy. The findings suggest that the challenges of national policy on school digitalisation were considered best met by the #skolDigiplan group members through a well-developed dialogue and coherent understanding among all involved education stakeholders. This is something that according to previous research (e.g. Ward & Parr, 2011) so far has been undervalued in school policy efforts on digital technology.

Paper II

Gustafsson, U. (2022). Size matters: contextual factors in local policy translations of National School Digitalisation Policy. *Education and Information Technologies, 27*, 11741–11758. doi:10.1007/s10639-022-11009-4.

Paper II focuses on national school digitalisation policy from the perspective of Swedish municipalities by exploring local policy translations. Four municipalities were researched in a comparative cross-case study (Simons, 2009) representing

four nationally diverse contextual settings, ranging from urban to rural. The work on school digitalisation policy at the municipal governance level (i.e. the political level of the education committee and the local education office) was considered a case delimiter for each municipality. Interviews with four superintendents representing four different municipalities in Sweden were together with local policy documents and minutes of education committee meetings collected as empirical data for this study.

The aim of this paper was to examine the ways local contextual differences may affect policy translations and thereby develop an understanding of how national school digitalisation policy is shaped. The following research questions were posed: (i) How do municipalities translate national school digitalisation policy into actions based on local context? (ii) What similarities and differences can be found in these translations between different local contexts? (iii) Do contextual differences affect the local translations of policy concerning the digitalisation of schools, and if so, in what ways?

The findings in this study suggest two approaches to national policy on school digitalisation, in which differences were found within all four of the interlinked contextual dimensions suggested by Ball et al. (2012) – *material contexts*, *professional cultures*, *situated context*, and *external contexts*. The two approaches were conceptualised as either a *general approach* or a *specific approach* to school digitalisation policy. The general approach was characterised by (i) supplying schools with a large variety of digital tools (e.g. programs and apps); (ii) a large supportive organisation and local network with specific competence managing particular issues of both technological and pedagogical concern; (iii) a relatively close relation to national authorities; (iv) local competitive goals set in relation to other municipalities; and (v) a forwarding of responsibility for policy translation and school digitalisation to the individual teacher professionals, arguing for their competence and agency.

The specific approach was characterised by (i) a sparser 'toolbox' to which each new tool is added after being requested and tried out by a teacher or a smaller group of teachers; (ii) a well-structured local policy addressing a minimum of what, when, and by whom digital technology should be used; (iii) an acknowledgement of the variety of competence among teachers, and a view of school and education equality from a perspective of unified efforts; (iv) close cooperation between local school stakeholders (e.g. politicians, local officials from educational office and IT-office, teacher professionals) and a development of small, collaborating municipal networks often mediated by digital technology; and (v) a high confidence in being true national frontrunners in rethinking school and how schools could improve through a developed digital practice, thus experienced as being unnoticed by national authorities.

This paper argues on the complexity of translating national school digitalisation policy at this organisational level due to context and interlinked contextual dimensions (Ball et al., 2012). Moreover, as the general approach was found in the larger and more urban municipalities while the specific approach was found in the smaller and rural municipalities, this paper raises the point that size matters in how municipalities may approach national policy on school digitalisation. Based on this study, it seems reasonable to suggest that the differences between the two described approaches in their distribution of translational power of policy may affect both the experience of policy among teacher professionals and the policy outcome itself.

Paper III

Gustafsson, U., & Olofsson, A. D. (2023). 'This is how we do it!' – Rural resilience in local translation work on national school digitalization policy. In S. Willermark, A. D. Olofsson, and J. O. Lindberg (Eds.), *Digitalization and Digital Competence in Educational Contexts: A Nordic Perspective from Policy to Practice* (pp. 28–38). Routledge.

Paper III focuses on school digitalisation in the context of rural municipalities. This context has been overlooked in both policy (Wagg & Simeonova, 2021) and policy research studies concerning digital technology (Salemink et al., 2017). The aim of this paper was to contribute with knowledge on rural municipalities' ability to respond and adapt to national school policy and change in the digital age. In this paper, the concept of rural resilience was used to capture notions of support for local agency and school policy ownership in rural municipalities (Roberts et al., 2017b). Two research questions were posed: (i) How do rural municipalities translate national school digitalisation policy into local and contextual actions? (ii) How can this work be understood from a rural resilience perspective? The empirical data collected consisted of interviews with representatives from 36 Swedish rural municipalities, such as school superintendents, teachers, school leaders, or the head of the local IT office, combined with 62 local policy documents collected from a total of 21 of these municipalities.

The findings in these rural municipalities suggest a view in favour of school digitalisation as relevant for modern society and a strong support for the national strategy. In the local translations of school digitalisation, work with this policy was viewed as a means to enable education equality between schools and between students and hence crucial for the rural municipal context. One third of the municipalities took what Gustafsson (2022) refers to as a *specific approach* to the national policy (cf. Paper II). This approach involves closely aligning local translations of school digitalisation to promote local equality while additionally

developing network collaborations. Local school policy on digital technology expressed a 'lowest bar' principle for all municipal schools. Another third of the municipalities delegated the policy translations of school digitalisation to lower organisational levels (such as head teachers and teachers), following a *general approach* to national school digitalisation policy. The final third of the municipalities had not yet started their local translations of the national policy or had initiated this work only recently (e.g. due to constraints related to resources), and most of them were drawn to taking on a specific approach locally.

A key contribution of this paper is how school digitalisation in rural municipalities can be understood through the concept of rural resilience (Roberts et al., 2017a, 2017b; Young, 2019). For example, the analysis showed signposts of rural resilience in terms of local policy activities on school digitalisation in relation to technology resourcing, the use of digital tools for teaching and learning, curriculum concerns, and issues of organisation and governance (see Selwyn, 2018). Distinguishing between multi-scalar, normative, and integrated resilience (Roberts et al., 2017a), this study suggests that the process of school digitalisation may contribute to and support rural resilience building. Specifically, building integrated resilience through individual engagement among local education stakeholders and normative resilience by promoting collective efforts to reduce inequality among rural students. The challenges of school digitalisation as a process strengthening rural resilience were primarily seen when applying a multi-scalar perspective, given that support from the national organisational level was limited. Consequently, considering the intended or desirable outcome of the national strategy, its applicability to the contexts of rural municipalities is discussed in this paper.

Paper IV

Gustafsson, U., Olofsson, A. D., & Bergström, P. (2024). In service of school digitalisation in Sweden – a study on ICT coordinators' conditions for work in a local municipal context framed by national educational policy. *Education and Information Technologies*. doi.org/10.1007/s10639-024-12581-7.

Paper IV focuses on school digitalisation from the perspective of ICT coordinators working in Swedish municipalities. According to previous research, these municipal officials often take part in the process as mid-level policy translators in that they are supposed to bridge national demands on school digitalisation with the possibilities offered by the local contextualised conditions in the local school. The aim of this paper was to explore, analyse, and critically discuss conditions for Swedish ICT coordinators working on school digitalisation in a local municipal school context framed by national educational policy. This included developing an understanding of the position of ICT coordinators within local governance and

further exploring the implications of the diverse local approaches to national policy on school digitalisation based on different municipal contexts.

To do so, a total of 13 ICT coordinators from eight Swedish municipalities were interviewed in this study. Each of the eight municipalities followed either a *general approach* or a *specific approach* to school digitalisation. The general approach emphasises individual within-school accountability, while the specific approach involves detailed local policies and collaborative efforts led by municipal officials.

The findings reported in this study suggest that the two approaches seen in Swedish school digitalisation locally creates distinct working conditions for ICT coordinators. In the general approach, ICT coordinators faced challenges as a result of, for example, less structured policy implementation and greater reliance on individual accountability. In contrast, in the specific approach the ICT coordinators were provided a more supportive environment through detailed local policies and collaborative efforts. However, more structured expectations were imposed on the ICT coordinators in the specific approach. This study concludes that the role, function, and responsibilities of ICT coordinators should align with the level of support, resources, and authority they receive. This is especially important for ICT coordinators in municipalities with a general approach, which in this study were described in terms of organisational instability and more frequent reorganisations.

Next, in Chapter 7, the collected findings of Papers I–IV will be analysed and discussed.

7. Analysis and Discussion

Over recent decades, the increasing trend of school digitalisation with the goal of turning K–12 education into a more digitalised organisation and practice has been seen internationally (Voogt, 2018; Vuorikari et al., 2022). Following this trend, countries in the Western world have according to Eickelmann (2018) been influenced by organisations such as the EU, OECD, and UNESCO in developing their national policy. In research, the process of increased school digitalisation is often described as transformative and encompassing systemic changes (Sosa-Díaz et al., 2022; Timotheou et al., 2023). For K–12 education, such systemic changes are said to include both reformed policy processes and a redefinition of school leadership practices (Jarke & Breitner, 2019; Karseth et al., 2022), which are suggested to pervade all organisational levels (Hartong et al., 2022). From this point of view, the governance of school digitalisation can be understood from a dual perspective: both how education governance is affecting school digitalisation policy and, vice versa, how school digitalisation policy is affecting education governance (cf. Lewis, 2021; Hartong, 2022).

This thesis explores the school digitalisation process of Swedish K–12 education by following the trajectory of the National Digital Strategy for the School Sector launched in 2017. The empirical studies reported in Papers I–IV explore policy translations and related actions at and between four organisational levels of the Swedish school system as conceptualised by Lindensjö and Lundgren (2014). These explorations spotlight the influence of contextual diversity within the decentralised Swedish K–12 education setting. Furthermore, the thesis digs deeper into the view of school digitalisation as transformative by highlighting how this trend may be affecting K–12 education governance.

In light of the empirical findings reported in Papers I–IV, this thesis contributes to an informed and nuanced understanding of (i) Swedish school digitalisation as a process of national education policy translations (RQ1), (ii) how context influences the translation of school digitalisation at various organisational levels (RQ2), and (iii) how the process of national school digitalisation in Sweden can be understood through the analytical lens of education governance (RQ3). The first research question is analysed and discussed by following the trajectory of the national strategy across different organisational levels. The four papers report empirical findings from the contexts of the national level of policymakers (Paper I), via the local level of municipalities and school leaders, and down to the school level. This trajectory illuminates the variation in the contextual settings of Swedish municipalities, ranging from urban to rural (SALAR, 2016). Drawing on this selection of municipalities, Papers II–III provide additional empirical contributions on the process of national education policy translation in terms of

municipalities either taking a *general* or a *specific* approach to school digitalisation. The second research question concerns the contextual influence, in which small and rural municipalities are given attention (Papers II–IV). The third research question highlights school digitalisation and the process following the national strategy as acts of education governance. Using education governance as an analytical lens enables discussions on the transformative aspects of the process following the national strategy within the Swedish K–12 education system.

This chapter will end with some concluding remarks on the findings of this thesis and its knowledge contributions. Moreover, some practical implications for the future work with digitalisation in Swedish K–12 education as well as some suggestions of future research will be provided.

The process of school digitalisation in Sweden

In this part, research questions 1 and 2 will be answered: how Swedish school digitalisation can be understood as a process of national education policy translation, and how context influences the translation of school digitalisation. In other words, I will return to the empirical studies reported in Papers I–IV by bringing up key findings which explore and highlight the school digitalisation process. Hence, this part adds insights on the implications of context in policy translations at the four organisational levels within the decentralised Swedish K–12 education system. Moreover, the transformative aspects of the approaches adopted in this process will be highlighted.

National level

Although there have been previous national policy initiatives in the Swedish history of school digitalisation (such as ITiS and PIM), the government launch of its national strategy in 2017 seems to have pushed the development of this process forward (Fransson et al., 2018). The ambitious goal set in the national strategy – for Swedish schools to become the best in the world at utilising the opportunities of digitalisation no later than 2023 (Ministry of Education, 2017) – demanded significant efforts. Nevertheless, few clear recommendations were provided on, for instance, what kind of digital technology should be implemented, what additional knowledge should be taught, or how this national policy should be approached and enacted at the various organisational levels (Olofsson et al., 2020). The vagueness in national policy guidance could, in line with Dexter and Richardson (2020), suggest that a bottom-up approach to school digitalisation was aspired to. This visionary nature of the national strategy was, however, not vague in the sense that it in fact called for immediate actions at all organisational levels (cf. Hanell, 2018).

To provide support for the policy translations of the national strategy, the Swedish government commissioned a national plan of action for school digitalisation (#skolDigiplan). The #skolDigiplan was developed through an agreement with the Swedish Association of Local Authorities and Regions (SALAR), which was tasked with producing national guidelines for school digitalisation in accordance with the national strategy. As shown in Paper I, the decision by the government to let SALAR rather than SNAE take on the development of #skolDigiplan suggests intentions of reforming the national policy process on school digitalisation. This intent was proposedly confirmed by SALAR's design of developing #skolDigiplan in broad collaboration with a wide range of education stakeholders and initiating collaborative activities, meetings, and roundtable discussions, and additionally participating at school digitalisation events in various geographical contexts in Sweden. Paper I also highlights the transparency of the design and development of this plan, which was displayed via social media and by the use of the hashtag #skolDigiplan. For example, social media accounts were set up specifically for #skolDigiplan, and continuous updates during the development process were made by the group of national policymakers and other participating education stakeholders while using the promoted hashtag #skolDigiplan.

Discussing the national organisational level, the transformative aspects in the process of developing the #skolDigiplan may be brought up (cf. Sosa-Díaz et al., 2022; Timotheou et al., 2023). For one, there is the reformed leadership practice in SALAR's role in #skolDigiplan and the way in which education stakeholders were let into the policy process by the national policymakers (i.e. the #schoolDigiplan group members). Paper I describes a design and a way of working in terms of stepping back, although it could alternatively be considered as stepping up to let others into this school digitalisation policy process. This leads to the second transformative aspect hereby suggested: the reformed policy process. The findings in Paper I, more specifically, highlight the way in which the design of developing #skolDigiplan was considered important. The design aspired to reach out to a broad set of education stakeholders, from public to private interests, located at different organisational levels (cf. Lindensjö & Lundgren, 2014) and representing various geographical contexts in Sweden. These stakeholders were then to participate in translating the national strategy through a process of co-creation and negotiation. However, Paper I also raises the concern among the group of national policymakers that the national strategy would risk becoming a teacher's issue, a finding that is in line with the trend identified internationally (see Consoli et al., 2023; Granić & Marangunić, 2019; Msafiri et al., 2023; Pettersson, 2018; Wohlfart & Wagner, 2023) as well as nationally (see Godhe, 2019; Lisborg et al., 2021; Olofsson et al., 2020). Paper I, moreover, reports on the national policymakers' awareness of the flaws of the model they designed for #skolDigiplan. An example is the difficulty throughout

the process in reaching small and rural contexts in Sweden, which implied that these contexts might be overshadowed by the presumably better represented education stakeholders in larger cities and adjacent municipalities (see also Gu & Lindberg, 2021; Nyhlen & Gidlund, 2022).

Municipal level

The importance of local contexts in school digitalisation in Swedish K–12 education is raised in this thesis particularly in relation to the autonomy of municipalities. Hence, the range of the translational options of education policy (cf. Clarke et al., 2015) and the local influence on national policy relate to the decentralised K–12 education in Sweden (cf. Lundahl, 2002). The findings of Papers II–IV report on contextual conditions present in school digitalisation processes in K–12 education in Sweden. One finding from these three papers taken together is how municipalities seem to approach school digitalisation differently and how this is linked to local contextual conditions in the municipalities examined here. For example, in Paper II the two approaches found were described in terms of a *general approach* as well as a *specific approach* to school digitalisation. The municipalities representing either of these two different approaches were considered to feature some opposing signifiers within their local contexts. While such features were not always mutually exclusive, this conceptualisation of a general or a specific approach enabled an analytical differentiation of the municipal translation processes of the national strategy and the local responses to school digitalisation.

General approach

In Paper II, the general approach to school digitalisation is described as shown within four contextual conditions (i.e. situated context, professional cultures, material contexts, and external contexts; Ball et al., 2012). The findings suggest that municipalities adopting a general approach benefit from being comparatively larger, as they are more closely involved in the national policy process and better positioned (e.g. financially) to support school digitalisation by for example purchasing digital technologies and hiring external expertise. The findings in Paper II also suggest that within these larger municipalities, schools and teachers have greater individual responsibility for translating the national policy into actions reflected in teaching and learning. In Paper IV, the ICT coordinators working in municipalities adopting a general approach also raised concerns about the individual teachers' responsibility in this process (cf. Shamir-Inbal & Blau, 2022). These ICT coordinators were concerned that local school digitalisation is incoherent and slow, and that it increases local educational inequalities. The ICT coordinators also seemed to be challenged by high demands from the political and educational office levels regarding the expected outcomes of school digitalisation (cf. Moreira et al., 2019; Woo, 2023). However, they

described having limited authority over the local implementation of the work with school digitalisation. Additionally, the ICT coordinators highlighted a major challenge in their efforts, namely municipalities' continuous reorganisation of the supportive structures intended to assist schools and teachers.

Specific approach

The alternative to the general approach also described in Paper II is the specific approach to school digitalisation. The findings in Paper II suggest that municipalities adopting a specific approach are primarily found in small and rural contexts in Sweden. These municipalities furthermore appear to be comparatively distant from the national policy process and struggling financially with providing for school digitalisation in terms of purchasing digital technologies or hiring external expertise (Nyhlén & Gidlund, 2022; Salemink et al., 2017; Wagg & Simeonova, 2022). Hence, the material conditions (such as access to digital technologies) are here more controlled by the local political and education office organisational levels. Findings reported in Papers II–IV also suggest that in municipalities adopting a specific approach, translational work permeates all local organisational levels of K–12 education. For instance, this was observed in policy documents which were developed by groups of politicians, local education office staff, principals, as well as teachers who had various competences. In these municipalities, local policy documents were described as providing specific instructions on how the local translations of the national strategy should be enacted in the local K–12 school organisation. To continue, findings in these three papers further show that a core focus in municipalities adopting a specific approach concerns networking activities carried out at different organisational levels (Loukis et al., 2016; Williamson, 2019). For example, at the municipal political level, collaborations were sought with other municipalities to inform and develop local work on school digitalisation. Similarly, school superintendents from the local education office connected with colleagues at their own organisational level, while at the school level, teachers initiated and engaged in networking activities to discuss and advance the question of how to integrate and use digital technology in teaching and learning.

In Paper IV, findings specifically highlight the high demands on the ICT coordinators also in the specific approach. However, here the role of the ICT coordinator seems more consolidated. The responsibility attached to this role primarily involves coordinating policy work on school digitalisation within and across the organisational levels in a municipality, maintaining networking activities, and overseeing the local progress of the K–12 education digitalisation process (Dexter & Richardson, 2020; Sosa-Díaz et al., 2022). Hence, school digitalisation in the specific approach is mostly addressed as a collective process for a municipality rather than an individual responsibility for any specific municipal organisational level. What also stands out in the specific approach is

the emphasis on educational equality. In Paper IV, this was observed in the close supervision of the progression of the school digitalisation process and in the continuous evaluations within and across municipalities' organisational levels.

Approaches to school digitalisation and organisational transformation
Comparing the general and the specific approach, some similarities in the local work on school digitalisation may be suggested. First and foremost, the national strategy has been acknowledged as a national policy for K–12 education and has initiated processes in municipalities geographically located from north to south and from east to west in Sweden (see Papers I–VI). Second, the local policy work seems to have been translated into a need for additional expertise in the form of ICT coordinators (see Papers II–IV). It can be noted that ICT coordinators in previous research have been described as increasingly important in the work with national school digitalisation processes in local settings (León-Jariego et al., 2020; Milman & Henderson, 2021; Tømte & Wollscheid, 2024). A recurring argument in this research is that the role, function, and responsibility of the ICT coordinator is crucial when bridging the gap between national educational demands and local school practices. However, McGarr and McDonagh (2015) here suggest that this gap can be difficult to delineate in practice. As reported in Paper IV, such difficulties are present in the different expectations of ICT coordinators in both the general and the specific approach. For example, in the former, ICT coordinators are involved in more individual teacher support, while in the latter, they seem to take a more strategic role as coordinators of the municipal process of school digitalisation for the entire K–12 school organisation.

To continue addressing the divides between the general and the specific approach, one finding here concerns how municipalities adopting a specific approach seemed to use a more transformative process in school digitalisation (cf. Sosa-Díaz et al., 2022; Timotheou et al., 2023). For example, within the specific approach the changed leadership practices involved not only a new role (i.e. the ICT coordinator) but also that the municipalities reformed the local education policy process in a more systemic way. Put differently, within the specific approach, new networks seemed to develop at all organisational levels in these municipalities (cf. Lindensjö & Lundgren, 2014; Loukis et al., 2016). Moreover, such networks were connected in a way that linked the translational work within each organisational level to the translations developed at the same organisational levels in other municipalities.

Here, this thesis proposes that parallels may be drawn between the specific approach with its transformational aspects and the understandings of rural resilience according to Roberts et al. (2017a, 2017b). Hence, findings in Paper III, which highlight how rural municipalities are drawn towards adopting a specific approach to school digitalisation, may illustrate the municipalities' previous

experiences of being in a disadvantaged position in relation to national policy. From a rural resilience perspective, these municipalities may be considered competent in collectively adapting to the challenges of school digitalisation. For example, they do so by showing normative rural resilience and building on ability through collective efforts, or through integrated conceptions of rural resilience in which local competence and visions are encouraged and recognised. In Paper III, this was reported as a concern for the rural municipalities in their strife for education equality, which also echoes findings reported in Papers II and IV. In other words, among municipalities using the specific approach, education equality in K–12 school digitalisation processes was emphasised and moreover acknowledged as an important aspect in municipal policy translations as well as in the strife for coherent work with school digitalisation processes. In contrast, for municipalities using the general approach, the concern for education equality was mainly addressed by the ICT coordinators reported on in Paper IV, who described that the municipalities they worked in often failed to properly address this issue.

As touched upon above, Paper III reports on rural municipalities for which the national strategy with its rather normative content and conditional formulations seemed to be a stretch. In some municipalities, it was even challenging to such an extent that engagement in the process of school digitalisation was not yet raised as a priority at the time of conducting the empirical study. This non-existence or toning down of priority appeared to be attributed to other locally pressing K–12 education issues in the rural municipalities (such as school closures, financial issues). These findings suggest disadvantages in the process of school digitalisation that some Swedish rural municipalities seem to experience and are similar to previous research on digitalisation policy and rural inclusion in many advanced countries (e.g. Salemink et al., 2017; Wagg & Simeonova, 2022). However, in relation to engagement in school digitalisation processes, Paper III suggests that most rural municipalities were either already adopting or would choose a specific approach. Based on this, it may be argued that municipalities in rural contexts should not have to rely on their capacity of rural resilience but instead receive increased national support and recognition for their work, which in turn could enable new insights on how school digitalisation processes could be designed, carried out, and implemented in practice (cf. Kormos & Wisdom, 2021). Such insights may not have come to light previously (Nyhlén & Gidlund, 2022).

A transformative process in two versions

Looking into the trajectory of the national strategy and the findings in Papers I–IV, two versions of a transformative process may be projected in Swedish school digitalisation. These two versions may furthermore be connected to a municipality's approach to the national strategy (i.e. general or specific).

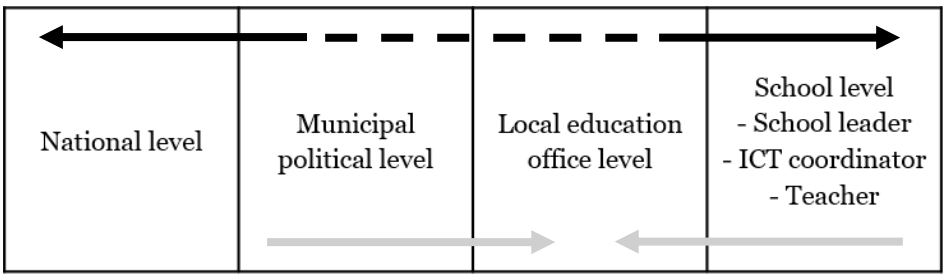

Figure 7.1 *The transformational process of school digitalisation – two versions.*

Figure 7.1 illustrates the suggested placements of both versions of the transformative process, and how these are situated within the four organisational levels of Swedish K–12 education (Lindensjö & Lundgren, 2014). The arrows illustrate the proposed directions in which these transformative processes might move.

First, the black line illustrates the version of the transformative process that may be experienced by a municipality close to the national level. This version may be the one most apparent in municipalities adopting a general approach (i.e. mainly more populated/urban contexts). Here, the school digitalisation process might be centred at the national level, to which stakeholders are drawn in the transformative movement. This process is initiated nationally and supposed to be stretching out to all the different levels. Based on the findings in this thesis, however, there seems to be a gap in the extension of this process, and schools and individual teachers are expected to take a large portion of the responsibility for the outcome of this process. Second, the grey line at the bottom of Figure 7. illustrates the second version of the transformative process. This version may be experienced by municipalities remote from the national level and thus most apparent among those which have adopted a specific approach (i.e. less populated/rural municipalities). Here, the transformative process could be considered more of a multi-levelled process and a local concern, largely separated from the national level.

The two versions illustrated in Figure 7.1 show how the school digitalisation process may be considered transformative in two ways and moreover reflect the difference in how this process may be experienced depending on what approach a municipality has chosen to adopt. This figure also illustrates the influence of context in how policy translations may move within this process (Clarke et al., 2015).

Continuing to analyse the school digitalisation process using these insights on the divide in the translation processes, the next part of this final chapter will discuss some of the main findings through the analytical lens of education governance

(Ozga, 2012). The idea behind adopting such a lens was to deepen the analysis of the findings in Papers I–IV and add to the understanding of the role of education policy in this field of research, illustrating both how governance influences school digitalisation policy and how school digitalisation policy influences governance (see Gulson et al., 2017). Previous research on school digitalisation suggests that education governance may be affected in various ways at different organisational levels in different countries (Hartong et al., 2022; Selwyn, 2018; Williamson & Piattoeva, 2019), which is echoed in Papers I–IV included in this thesis.

Education governance and the process of school digitalisation

This part of the chapter will answer the third research question on how education governance of the process of national school digitalisation in Sweden can be understood. The systemic and transformative aspects of school digitalisation (Ozga, 2020; Selwyn, 2018; Williamson & Piattoeva, 2019) will be highlighted from a holistic perspective when discussing education governance in the decentralised Swedish K–12 context. The analytical lens of education governance is inspired by Pierre and Peters (2020) and two models; governance as (i) collaborative governance or (ii) network governance. These two models will below be put into work in further analyses and discussions of school digitalisation by addressing how this process is seen in education governance. In addition, returning to concepts and terminology drawn from the field of policy sociology (Ozga, 2019; Savage et al., 2021), this part of the chapter will also apply van Dijk's (2006, 2013) concept of network structures to highlight the moves in education governance seen in school digitalisation processes in the decentralised K–12 education context in Sweden.

Collaborative governance in the policy translational process

As touched upon above, Paper I projects a translation process led from the national level (coordinated by SALAR) that is characterised by being inclusive, transparent, and collaborative. Yu (2022) has described national digitalisation processes in Sweden in which national authorities are seen at the centre of collaborative initiatives on policy in terms of collaborative governance. Pierre and Peters (2020) have furthermore described collaborative governance as based on a strife for a democratic policy process that recognises the importance of participation, negotiation, and co-creation.

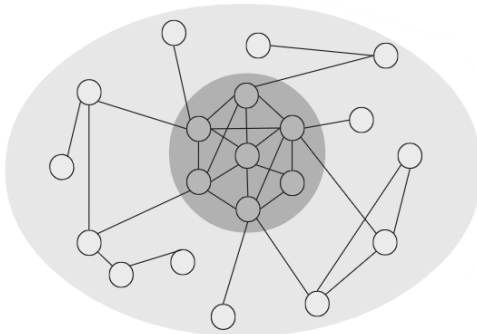

Figure 7.2 *The structure of a national policy translation process as collaborative governance (adapted from van Dijk, 2013).*

Figure 7.2 illustrates how in collaborative governance, according to Pierre and Peters (2020) as well as Yu (2022), the intent is to connect all stakeholders in the policy process. In this thesis, it appears that parallels may be drawn between this model and the design of #skolDigiplan. The findings in Paper I suggest that the national policymakers (i.e. the #skolDigiplan group members) wished to bring together all K–12 education stakeholders and for policy on school digitalisation to be collaboratively developed in a co-creational and negotiative translational process. Hence, this represents a vision to move the national strategy forward in a joint action that connects educational stakeholders from all organisational levels in the Swedish K–12 education context. It is thus a governance model which, if applied to van Djik's conceptualisation of network structures as illustrated in Figure 7.2, situates all stakeholders close and connected to each other in the advantaged core in the darkened grey area.

The collected findings of Papers I–IV would suggest that although collaborative governance was sought, some stakeholders were left distant from this process. This is a challenge which Pierre and Peters (2020) denote under concerns of participation and remoteness in the collaborative governance model. Applying van Dijk's (2013) conceptualisation of network structures to illustrate this further, this thesis would suggest that despite carrying democratic intent, from a governance perspective school digitalisation in Sweden held advantages for some stakeholders but not for others. Some of these stakeholders are moreover found among small and rural municipalities.

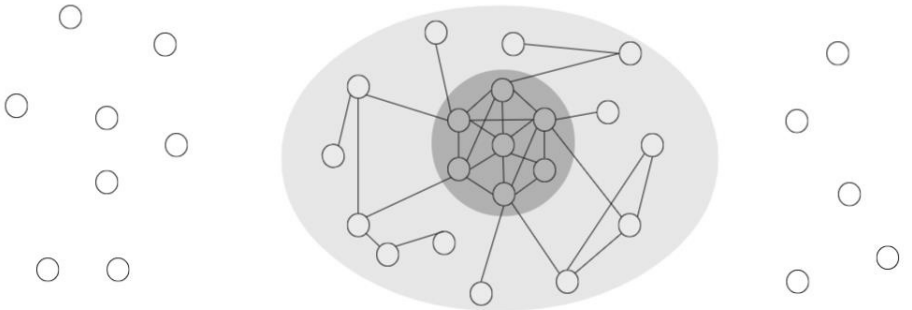

Figure 7.3 *The structure of the national policy translation process – peripheral municipalities (adapted from van Dijk, 2013).*

Figure 7.3 illustrates the hidden hierarchies of network structures in which the advantaged collaborative core is placed at the darkened centre. Placed peripherally, outside the advantaged core, are the unconnected and disadvantaged in these structures. In this thesis, it appears as though larger municipalities in urban settings may be more involved in national collaborative governance of school digitalisation (i.e. the policy translational process of the national strategy). Thus, they are situated at what van Dijk (2013) would describe as the advantaged core. This implies that larger municipalities also could be more advantaged in influencing the national translations of school digitalisation. The advantages include pushing for advocacy or negotiating in questions found particularly relevant or interesting for their context and being more well informed on this topic (cf. van Dijk, 2013). What moreover emerges in the findings of this thesis is the remoteness which some municipalities in small and rural settings seem to experience in relation to the national strategy and the national process of school digitalisation. This has also repeatedly been highlighted in previous research on digitalisation policy and rural contexts (see e.g. Nyhlén & Gidlund, 2022; Salemink et al., 2017; Wagg & Simeonova, 2022). Drawing on van Dijk (2013), this remoteness could be described in terms of these municipalities being situated at the periphery of the network structure and hence distant from collaborative governance (Figure 7.3). According to van Dijk, having a peripheral position implies a limited influence over the policy translation process. Such restrictions were illustrated above where small and rural municipalities experienced disadvantages in restricted access to the collaborative core.

Van Dijk additionally puts forth the accumulative dimension of remoteness, arguing that being in a peripheral position entails a risk of becoming increasingly remote. Being continuously less informed and with limited possibilities to voice opinions, he argues, leads to the disadvantaged becoming farther and farther removed from the collaborating core. Hence, van Dijk suggests that a disadvantaged position in a network eventually will become permanent.

Considering this 'inclusion–exclusion challenge' in Swedish education governance, one should recognise the efforts put into the work of developing the #skolDigiplan shown in Paper I. Additionally, it might be beneficial to consider the aspiration towards a more participatory and collaborative governance and the gap between different municipal contexts in relation to national governance of school digitalisation from a historical perspective on the governance of Swedish K–12 education since the decentralisation of the school system (e.g. Lundahl, 2002). Furthermore, it should be recognised that inequality between municipalities in this matter has been found in national reports on school digitalisation ever since (SNAE, 2009, 2013, 2016).

Based on the 'inclusion–exclusion challenge' of collaborative governance in school digitalisation reported in this thesis, it appears as though the organisational structure of K–12 education in Sweden in different ways could benefit from further consideration. For example, one may consider how to improve the outreach to more remote contexts, such as small and rural municipalities, and convey this outreach in a way that might draw Swedish municipalities of all categories (SALAR, 2016) closer to the national translation process of school digitalisation. Hence, to invite municipalities from all geographical contexts in Sweden to participate in the collaborative, co-creational, and negotiated processes of national school digitalisation and thereby strengthen the overall democratic intent of collaborative governance with education equality in sight.

Network governance in the policy translation process

In this thesis, according to the findings in Papers II–IV, it seems typical among small and rural municipalities in Sweden to experience some remoteness in relation to the national governance of school digitalisation. Furthermore, it appears as though self-organised networks in the work on school digitalisation are particularly important among these municipalities. Inspired by Pierre and Peters (2016), this thesis has chosen network governance as a model to spotlight the divide in school digitalisation of Swedish K–12 education between national authority and local autonomy. This divide is considered similar to what Pierre and Peters (2016) describe as the divide between the public and the private in network governance.

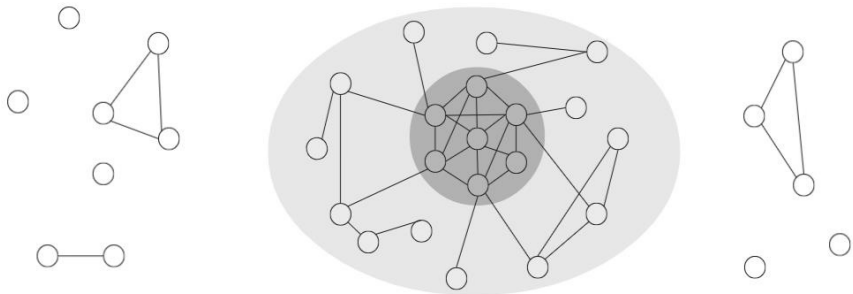

Figure 7.4 *The structure of the municipal school digitalisation process – network governance (adapted from van Dijk, 2013).*

Figure 7.4 illustrates how initiatives on network governance are seen in Papers II–IV. According to Pierre and Peters (2020), network governance is to be considered as self-organised structures that focus on a unifying area of interest. For this area of interest, the network provides a trusted community in which the network participants may find support in their work. In this thesis, the national strategy and the translation of school digitalisation is considered such a unifying area of interest. In Papers II–IV, it appears as though the school digitalisation process instigated a move towards network governance in some municipalities (cf. Loukis et al., 2016). When the translation process of the national strategy was taken up, these network structures developed and were found to be stretching across all organisational levels – from political to school level – as well as extending beyond the individual municipality.

Findings furthermore suggest that the municipal networks primarily linked together municipalities in a similar context. Hence, small and rural municipalities primarily built their trusted communities among others that were similarly challenged by the responsibility of providing school digitalisation in K–12 education. Within these networks of municipalities with similar organisational sizes and financial resources, experiences were shared, ideas discussed, and considerations raised regarding the different local translations of school digitalisation. The findings furthermore suggest that networking was occasionally sought to connect with larger and seemingly more resourceful municipalities (i.e. more populated/urban). Such connections, however, seldom appear established in the more permanent network structure. Hence, one could here suggest that small and rural municipalities, in their lack of contact with national governance, are self-organising their work on school digitalisation, expanding into network governance as illustrated in Figure 7.4. Additionally, according to the findings of Papers II–IV, these networks seem to form small collaborative clusters of municipalities with a similar contextual setting.

The findings project the skills which these municipalities seem to possess in both networking and finding leverage in the advantages of being comparatively small and having a close-knit organisation. These findings align with previous research recognising the capability within rural contexts (Roberts et al., 2017b; Young, 2019). This may additionally be considered from the perspective of their comparatively disadvantaged position in the education governance structure.

Two trends in Swedish education governance

Building on the findings, two trends in education governance of school digitalisation emerging from the national strategy can be described. First, there seems to be a move towards a strengthened state-centred collaborative governance in which national policy translations are sought through a collaborative process aiming to reach a broad representation of education stakeholders (Pierre & Peters, 2020; Yu, 2022). Second, there seems to be a move among small and rural municipalities remote from national governance to form their own governance structure, moving towards the development of separate clusters of networks translating school digitalisation (cf. Loukis et al., 2016). What appears to be the common ground for these moves is the strife for a more collaborative and coherent school digitalisation process and increased similarities in the translations of the national strategy. Hence, the complexity of the governance of school digitalisation appears to have been recognised (cf. Bottino, 2020). What also should be highlighted when it comes to trends in education governance is that several municipalities investigated in this thesis seem to be struggling with the process of school digitalisation. Some appear to be challenged by even starting this process. What also is spotlighted is the particularly disadvantaged position of small and rural municipalities that neither are included in the sought-after national collaborative governance nor have the resources to self-organise in network governance and find support in a trusted community. For these municipalities, the benefit from being involved in a K–12 school digitalisation process could be the highest (cf. Salemink et al., 2017).

Next, I will make some concluding remarks to answer the research questions stated in Chapter 1. Thereafter, I will present some practical implications emanating from the findings in this thesis. Finally, I will provide some suggestions for future research in the area of school digitalisation, policy, and education governance.

Concluding remarks

The overarching purpose of this thesis was to explore Swedish K–12 school digitalisation after the launch of the national strategy and contribute to an informed and nuanced understanding thereof. The focus was set upon policy translations at four different organisational levels investigated through four

separate empirical studies. Furthermore, following the trajectory of the national strategy, the goal was to provide insights on education governance in school digitalisation by highlighting the influence of contextual diversity within the decentralised Swedish K–12 education system. The work to achieve the thesis' purpose was guided by three research questions.

First – how can Swedish school digitalisation as a process of national education policy translations be understood?

Based on the collected findings from Papers I–IV, the answer to this question is that school digitalisation can be understood as a transformative process characterised by new leadership practices and reformed policy processes. This thesis has contributed with knowledge on the growing influence of different education stakeholders at the various organisational levels of Swedish K–12 education translating school digitalisation. Furthermore, it contributes with knowledge on how national policymakers reason about the importance of using an inclusive and nationally relevant design in policy production and that the policy has the potential to provide support for school digitalisation processes in all Swedish municipalities. The thesis has additionally contributed to knowledge on ICT coordinators in the Swedish K–12 context, including their role, function, and responsibility as local mid-level policy translators.

Second – how does context influence the translation of school digitalisation at various organisational levels?

To answer this question, this thesis has shown through its empirical studies that Swedish municipalities' choices in how they approach school digitalisation are influenced by contextual conditions. Based on the notion of the decentralised Swedish K–12 education context, this thesis in more detail provides novel insights on two somewhat overlapping approaches toward school digitalisation. First, a *general approach*, which was found primarily in large populated urban municipalities. This approach projected a close relation to the national organisational level. Adopters of this approach additionally saw the importance of providing relatively large resources for school digitalisation (such as digital technologies, additional external support and competence), whereafter the responsibility for translating the national strategy was placed on local schools and teachers. Second, a *specific approach*, which was found primarily in small and rural municipalities. These municipalities projected a remoteness from the national organisational level. Having limited resources to provide for school digitalisation, adopters of this approach translated the national strategy within networks representing all organisational levels of the municipality. Support for the school digitalisation process was also found among other contextually similar municipalities with similar conditions and resources. Further, by providing

insights on the rural municipal context, the thesis has contributed knowledge on how school digitalisation may be understood in relation to rural resilience. In other words, the ability of small and rural communities to adapt to challenging changes that follow school digitalisation processes.

Third – how can the process of national school digitalisation in Sweden be understood through the analytical lens of education governance?

To answer this final research question, this thesis chose to use the analytical lens of education governance in general and the concepts of collaborative governance and network governance in particular. First, this thesis suggests that the school digitalisation process in Sweden may partially be understood as a form of collaborative governance. This model of governance has in previous research been suggested to characterise Swedish national work on digitalisation and been linked to efforts for a more democratic, negotiated, and co-creational process (Yu, 2022). Hence, collaborative governance could be understood as part of an ambition at the national level to move towards a more nationally coherent translation of school digitalisation. This ambition is also seen in the national strategy and in statements concerning digital competence for all as well as equal access and use of digital technology in Swedish K–12 education.

The thesis furthermore considers the school digitalisation process a form of network governance. In scholarly work, network governance has been described as drawing a distinction between the public and the private (Pierre & Peters, 2020). In this thesis, a parallel distinction is made regarding the remoteness of local levels in relation to the national level as a result of the autonomy of municipalities in Swedish K–12 education. The knowledge contribution concerning network governance is that small and rural municipalities may be drawn to this form of governance due to their seemingly disadvantaged position in relation to national policy. Furthermore, these municipalities may develop networking clusters to translate school digitalisation within a trusted community.

Based on the theoretical understanding of network structures (van Dijk, 2013), this thesis moreover raises the understanding of some municipalities being advantaged in the school digitalisation process while others are not. The ones in the core structures, which in this thesis are found among larger (more populated and urban) municipalities, seem to have an advantage over the more peripheral ones, which in this thesis are found among small and rural municipalities. In theory, this is also suggested to accumulate over time, which means that the already advantaged municipalities are assumed to become increasingly advantaged while the disadvantaged municipalities would become increasingly disadvantaged. What speaks against this kind of development is the trend of network governance. However, these kinds of self-made structures may in the

long run also create tensions in back-and-forth struggles in national governance (Pierre & Peters, 2020) if the translations of school digitalisation between municipal contexts start to differ exceedingly. Hence, the engagement in networks may also be a challenge for many disadvantaged municipalities to muster.

Practical implications

This thesis is written within the discipline of educational work and the field of applied educational sciences, which point out the importance of also providing some practical implications. The first practical implication refers to the contextual diversity in which school digitalisation is approached and translated. Considering the decentralised organisation of Swedish K–12 education the findings in this thesis point at the importance of having a national strategy that may pull together the translations of school digitalisation and transcend visionary work throughout the organisational levels of the K–12 school system. Hence, returning to the initial post on the current state of national policy on school digitalisation, Swedish K–12 education would benefit from a continuation of the recently terminated follow-up of the national strategy.

A second practical implication emanates from findings pointing at small and rural municipalities seemingly being particularly disadvantaged in the school digitalisation process that followed the launch of the national strategy. A possible scenario here, if this issue is not attended to, is a further decline in educational equality in Swedish K–12 education. Such an outcome would be opposite the goals set within the national strategy and would need to be addressed further nationally. To continue, findings point towards some disadvantaged municipalities developing small local networks in their governance of school digitalisation in K–12 education. These network structures then offer an alternative to the seeming lack of a national organisational structure, a situation which these disadvantaged municipalities seem accustomed to. Making use of these insights, national authorities such as SALAR and SNAE should consider increasing their efforts on how to acknowledge and support small and rural municipalities in their work and invite education stakeholders in such municipalities to co-create, collaborate, negotiate, and participate in national policy processes concerned with school digitalisation.

Painting the picture of the importance of context in school digitalisation in combination with the decentralised Swedish K–12 school system raises questions as to whether this process would benefit from being approached more holistically and systemically from a national level. Although this thesis refrains from further investigation of this question, the third and final practical implication is formulated as a wish to encourage more research-based and inclusive thinking

on how school digitalisation should be structured and organised, as Swedish K–12 education would benefit from a governance process with less of a gap due to remoteness. This line of thought recognises the goals of the national strategy stating that Swedish K–12 education should provide digital competence for all as well as equal access and use of digital technology.

Future research

Based on this thesis, several issues of importance for Swedish K–12 school digitalisation have been identified that could benefit from being researched further. In no order of priority, three particularly relevant areas of research will be suggested. First, research that brings further attention to contexts, organisational aspects, as well as transformational processes in school digitalisation; for instance, looking into municipal network structures and how school digitalisation is translated and negotiated within these governance structures. Second, research concerning emerging technologies in school and local municipal approaches; for instance, studying local education policy on AI and the use of learning analytics. Third and final, research that on four organisational levels further addresses the question of progress in the process of school digitalisation in a decentralised Swedish K–12 education context.

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