

DOCTORAL CONSORTIUM

DESIGNING STRATEGIC PLANNING FOR HIGHER EDUCATION TO COLLECTIVELY SHAPE DIGITAL TRANSFORMATION

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Educational institutions are exposed to a rapid changing environment, including digital transformation (DT). As digital transformation is a complex societal problem this can't be navigated by a single institution. Often organisations collaborate in networks to address wicked problems. However, a better understanding is needed about mechanisms for coordinating and planning activities in collaborative networks, especially for the development of shared understanding regarding a wicked problem like DT. This research intends to prototype and test interventions for networks by conducting participatory action research with multiple-case studies.

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1 Introduction

The rapid pace of social, technological, economic, ecological and political developments leads to describing the Zeitgeist as volatile, uncertain, complex and ambiguous (Taskan et al., 2022). A few events, for example, in the education sector are the COVID-19 pandemic that forced virtual classrooms, large language models (LLMs) that became accessible to students, and (inter)national politics that cut budgets (UNL, 2025). Such events have raised the question: could we have seen this coming? Is it possible to collectively foresee and prepare for a changing context in the digital transformation?

The DT is a distinct and multifaceted process with different phases (Brooks & McCormack, 2020). To be more resilient and adaptive, a handful of Dutch educational institutions strengthened their strategic organisational capabilities to develop outside-in perspectives and long-term (strategic) planning (e.g. Delft University of Technology). However, DT isn't a straightforward process that can be addressed by a single institution. To navigate the complexity of IT and DT, there are collaborations between knowledge institutions, e.g. vocational education and training, higher education and university medical centres. To manage such collaborations, networks are established in the Netherlands, such as SURF (a collaborative IT organisation for education and research) and Npuls (a national initiative by the education sector).

Asking the question 'what is digital transformation (DT)?' results in divergent interpretations and inconsistencies among vision, policy and implementation in the absence of a well-defined digital vision (Singun, 2025). DT is an ongoing journey that drives increasingly significant organisational changes over time (Singun, 2025). So, the complexity of DT, along with the absence of a shared vision on digital transformation (or digitalisation), causes the risk of being an ineffective collaborative network (Brunetti et al., 2020). To understand what makes network management efficient and effective, further research is necessary. The know-how on how to collaborate is needed, and especially a better understanding of mechanisms and interventions in the network (Verhoest et al., 2024, p.241).

Therefore, this study proposes to investigate the following question: **How can strategic planning for digital transformation be facilitated by a collaborative network in an educational ecosystem?**

In the following sections, key concepts and perspectives are explored and scoped based on an initial literature review. Hereafter, a research design and methodology are presented for this research, including steps in the forthcoming years.

2 Literature review

In this literature review, an initial scoping is provided of the key concepts as articulated in the research question: digital transformation, (collaborative) network management, and strategic planning process. After the key concepts, a synthesis is provided, followed by a conceptual framework.

For the initial scoping and for future research, the following search strategy is applied to the literature review, as listed in Table 1.

Table 1: Search strategy literature review

Keywords	Network (manager OR governance) OR orchestration) AND (“strategic*” OR plan* OR vision*”) AND (Digital (trans* OR innovation))
Database	EBSCO, ACM digital library, AIS eLibrary, Web of Science, Google Scholar, Wiley, Sage, IEEE
Search criteria	English/articles/full text/peer reviewed journals/open source
Period	2022 - 2026 & seminal works
Inclusion	All keywords mentioned in abstract, # citations
Exclusion	DT limited to single organisations; short-term innovation; commercial organisations;

2.1 Concept: Digital Transformation

This section does not provide an all-encompassing investigation of what Digital Transformation (DT) entails but provides some streams of thinking relevant for this research. A clear trend in the number of article publications in Elsevier journals covering DT can be observed across time (see Figure 1). Based on a set of definitions, we define a working definition suitable for this research.

Digital Transformation is referred to in various ways across studies. For an initial scoping, four definitions are identified. First, Gong and Ribiere (2021, p. 12) defined DT as “a fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity and redefine its value proposition for its stakeholders”. A second definition, according to Verhoef et al. (2021, p. 890), refers to DT as a multidisciplinary character that is inherently linked to changes in strategy, organisation, etc., due to the implementation of a digital technology. A third definition by Dąbrowska et al. (2022) refers to DT as “a socioeconomic change across individuals, organisations, ecosystems, and societies that is shaped by the adoption and utilisation of digital technologies”. These three definitions emphasise the complexity of DT and highlight the interplay between digital technologies and the adoption rate (resource and capability) by an entity (individual, organisation and/or ecosystem) to change or improve. Another perspective, fourth, is also provided by Verhoest et al. (2024, p. 242), who refer to DT as “a complex process of mutual shaping between different actors and technologies, institutions, and economic, political, and socio-cultural factors”.

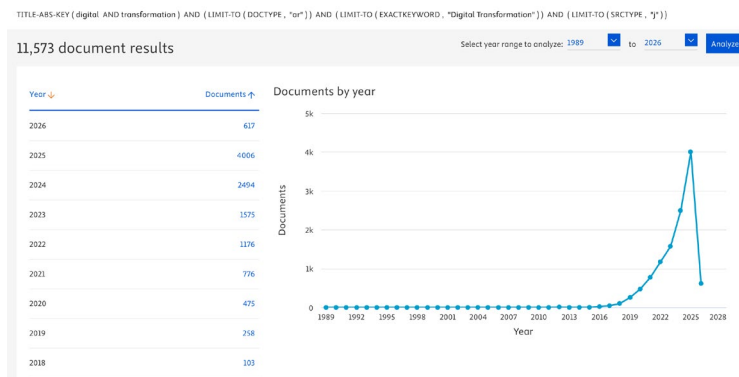


Figure 1: # article publications in journals with the keyword ‘digital transformation’

Source: Scopus.com

Although this is a small overview of perspectives for defining digital transformation, we can observe a common denominator for DT as a socioeconomic change driven by the adoption and use of digital technologies. However, we can also identify two perceptions: 1) DT as a change in society due to the use of technology, and 2) DT that is shaped mutually by actors and factors, resulting in a socio-economic change.

As the complexity around DT is derived from the socioeconomic change and the interplay of multiple (f)actors, it is not the technology that makes this process complex, but rather the human in the loop and how culture, attitude and behaviour shift with digital technology. The definitions by Dąbrowska et al. (2022) and Verhoest et al. (2024) imply an active role for actors (entities) to influence how digital technology is adopted and used. Therefore, for this research, **DT will be referred to as a socioeconomic change driven by the adoption and use of digital technologies.**

In the context of higher education, DT can be distinguished into two challenges. First, education needs to rethink the teaching and learning processes that are aligned with the socioeconomic change to cater for the digital natives through knowledge and technical skills, and being digital, through the incorporation of skills, mindset, and digital attitudes (Oliveira & De Souza, 2021) as well as the economy that requires new c.q. different skills. Second, education as an organisation also requires a significant shift in culture, workforce dynamics, and technology that facilitate the implementation of innovative educational and operational frameworks, influencing an institution's operations, strategic objectives, and value proposition (Singun, 2025). This transformation encompasses a comprehensive rethinking of processes, pedagogies, and institutional cultures, therefore confirming the complexity of DT. To navigate the complexities of DT, higher education must adopt a holistic approach and create a shared vision for digital initiatives with stakeholders (Singun, 2025).

To summarise, DT in higher education (HE) is a complex topic as it touches on the business model: rethinking the teaching and learning process, the value of knowledge and operational processes like IT.

2.2 Concept: (Collaborative) network management

In this section, we provide an initial scoping of the concept to identify a working definition. First, a collaborative network refers to a network that comprises autonomous yet interdependent organisations collaborating for a common goal and/or a complex problem (Klijn et al., 2025). According to Provan & Kenis (2007), in large networks, often more than eight organisations, it is most likely that a network administrative organisation (NAO) fulfils the network management role. A collaboration of organisations benefits from better orchestration and the

identification of the (shared) value proposition (Pouru-Mikkola et al., 2023). Therefore, network management plays an important role in how a network is steered (governance). Beyond orchestration, network management also influences decision-making with mechanisms and interventions (Cristofoli et al., 2015). As an example of influential network management, sometimes the collective decision-making is steered to discuss non-controversial items first and push the controversial ones to the end. This is done on purpose to stimulate deliberations early, to build trust and cooperation by the time more controversial topics are addressed (Doberstein, 2016).

As a network has a purpose, we briefly explore network effectiveness to clarify what is expected from network management before defining ‘network management’. Turrini et al. (2010) identified effectiveness on the network-level as: 1) ability to achieve stated goals; 2) sustainability and viability; and 3) ability to innovate and change. However, Bayne et al. (2017) identifies network effectiveness as the achievement of outcomes/goals and value gains. As effectiveness can mean different things depending on the maturity of the network and/or per (organisational) actor. Based on Bayne et al (2017), here network effectiveness relates to value gains as effectiveness is a matter of perceived value per actor.

For this initial scoping, a few definitions of network management are identified. According to Klijn et al., (2025), network management is “to deliberate strategies aimed at facilitating and guiding interactions and/or changing the features of the network with the intention to collaborate further in network governance”. The motivation per actor can vary, and therefore, the perception of an effective network. Another perspective on network management relates to the design of mechanisms for active, balanced, and continuous interaction or the achievement of efficient coordination (Verhoest, Hans Klijn, et al., 2024). Reducing costs through the coordination of activities and resources is considered a main advantage (Bayne et al., 2017). Therefore, network management needs to be efficient (Verhoest, Hans Klijn, et al., 2024). To expand on the definition by Klijn et al. (2025), the suggested definition of network management is the **facilitation and guidance of interactions through interventions and mechanisms to create value in the network.**

2.3 Concept: Strategic planning

The last key concept for the initial scoping is strategic planning. In the literature, multiple signals have been identified regarding the importance of achieving goals and value gains. According to Turrini et al. (2010), network management should focus on establishing clear mission statements of the network. The importance of this process is also highlighted by Bayne et al. (2017). According to Bayne et al. (2017), visioning brings the different organisational actors' views towards a common trajectory. This convergence of views fosters a shared understanding, vision, or goal. Having a vision means having an outlook on what the network aims to achieve in the future and is also known as a strategic intent. To achieve the vision, a strategy that describes the course of action is formulated (Wit, 2018). Foreseeing outcomes will be impossible, but gaining insights for better sense-making of what is happening will prevent a short-sighted exploitation of digitalisation (Brunetti et al., 2020).

This phenomenon does more than produce a vision. Having a shared vision is suggested to create reciprocity in a collaboration (Ansell and Gash, 2007, p. 560), and, therefore, makes organisational actors more comfortable to adapt to different and multiple goals as long as it is consistent with the perception of the vision (Bayne et al., 2017). Ansell & Gash (2007) refer to the process of establishing a clear mission, vision or problem as '**shared understanding**' in their collaborative governance model. They identify various descriptions of this cyclical process in the literature¹. Shared understanding implies an agreement on a definition of the problem or the relevant knowledge necessary for addressing a problem. Another perspective is provided by Bayne et al. (2017). They refer to it as '**collective sensemaking**' on the individual level rather than the network level. Common understandings, as defined by Ansell & Gash (2007), are relative as each actor will hold different perceptions of their own and others' aims. Therefore, Bayne et al. (2017) consider shared understanding and the "collective mental processes" that lead to similar, overlapping knowledge among individuals to constitute a group.

To compare, Ansell & Gash (2007) and Bayne et al. (2017) approach the process on a relational level. In contrast to Ansell & Gash (2007), Bayne et al. (2017) emphasise individuals' engagement and the development of a mindset to work as a group. Here,

¹ "common mission", "common ground", "common purpose", "common aims", "common objectives", "shared vision", "shared ideology", "clear goals", "clear and strategic direction" and "alignment of core values"

Bayne et al. (2017) bring in the perspective that individual actors, representatives of organisations, hold their own perspectives and interests that could lead to conflict. Bayne et al. (2017) suggest further research on the relationship between collective sensemaking and network performance. A third perspective in literature is provided by Turrini et al. (2010). Turrini et al. (2010) refer to the same phenomenon as the **steering of network processes** and identify these processes as part of network management. In addition to the process, three abilities for network management are identified as critical: 1) decision-making processes and styles, 2) activating actors, gaining trust and building consensus, and 3) the ability to patch and reposition the network objectives according to changes in the external environment.

Thus, based on the three perspectives, there are variations in strategic planning processes by network management. A common understanding, based on the three perspectives, is that strategic planning in the context of network management requires steering of the collaborative process for a shared understanding through collective sensemaking. For this research, **strategic planning is referred to as a strategic capability on a network level for developing shared visions that involve decision-making**. Since visioning and imagining the future state lead to reciprocity, better integration and cohesion in the network, this is a critical mechanism for network management that requires abilities as suggested by Turrini et al. (2010).

2.4 Conceptual Framework

Digital transformation is an environmental change to which a network needs to adapt through strategic planning processes that depend on the ability of the network management of a NAO, which is responsible for fostering collaboration in the network to create value gain. For this study, the concepts of a network and network management are separated.

From the literature and the suggested definition, a few relationships between the concepts can be identified for this research:

1. Digital transformation is identified as the contextual c.q. environmental change to which a network needs to respond through strategic planning processes that are steered by network management.

2. Steering strategic planning processes requires certain abilities from the network management to develop a shared vision regarding digital transformation.
3. Network management benefits from a shared vision on digital transformation to foster collaboration within a network

These suggested relationships lead to the following initial conceptual framework to guide the study (see Figure 2).



Figure 2: Conceptual framework

3 Methodology

To conduct the research, certain design choices are applicable given the research context. In the following sections, the approach and research strategy are explained. This also includes how research integrity and ethics are addressed.

3.1 Approach

This study aims to conduct the research through a professional doctorate (PD) trajectory. A PD² is an equivalent of a PhD with a focus on applied science. During the PD, the expectation is to combine research and innovation activities to design interventions for professionals to improve a practice. Given the research question and the knowledge gap, this trajectory provides a foundation to explore, design and assess interventions for network management, network effectiveness, and the

² currently a pilot by the Dutch Ministry of Education, Research and Culture

strategic planning to navigate digital transformation. Given the aim of developing interventions for and with professionals, a (participatory) action research strategy will be deployed as it is an emergent and iterative process that focuses on resolving real organisational issues (Saunders et al., 2016).

In the pre-research phase, actors in the context of networks have been consulted in the identification of the problem statement. The same actors (and their organisations) have expressed their interest in participating in this research trajectory. As the aim is to resolve real organisational problems with and for professionals, multiple organisations c.q. professionals will be part of the research to analyse and develop actionable and transferable results. Therefore, networks focusing on DT in the educational sectors will be treated as multiple case studies.

3.2 Research strategy

The research strategy entails a multiple-case study design with an iterative approach to facilitate the development and testing of an intervention. The research contains a few phases: 1) selection, 2) collection & analysis, 3) prototype & testing, and 4) conclusion & implementation.

In the first phase (selection), attention will be paid to the selection criteria of case studies (see Table 2), assessment of individual cases, and the onboarding of the participants. For the multiple case studies, NAOs will be assessed and selected based on the selection criteria: network management, digital transformation and strategic planning (see Table 1). Our first criterion is a NAO fulfilling network management activities. A second criterion requires that a network should focus on digital technologies in/for education. And thirdly, strategic planning activities that are already deployed, or the desire to do more, by the network management.

Table 2: Case selection criteria

Key concepts	Criteria
Network management	A network administrative organisation (NAO) managing a network comprising more than eight organisations
Digital transformation	Digital technologies in/for education
Strategic planning	Activities related to vision building, shared understanding of mission, problem, etc.

Based on these criteria, a few NAOs in the Netherlands, Germany and the United Kingdom have already expressed their interest in participation. Next to the further definition of the case selection, a data collection protocol will be developed to inform all participants and the reliability of the research. In addition, the participants (organisation or individual) will have the option to remain anonymous.

In the second phase (collection & analysis), data will be collected via interviews, documentation and, where possible, by observation. To collect data, employees from NAOs will be approached, who potentially can provide archival records that are not available online. In addition, per case, actors who are part of the network will be invited for an interview. The interviews and documentation provided by participants and interviewees will give insight into the current situation regarding strategic planning and DT, and the perceived value of current activities. Observations provide additional insights in a real-world setting (Yin, 2018). The reports of interviews and observations will be shared with the involved actors for review and validation. Moreover, in this phase, attention will be paid to the chain of evidence and the case study database. Part of this phase is also the analysis of the collected data. Case-based visualisations of current processes related to the deployment of strategic planning activities and DT will be made, e.g. input, throughput, output and outcome. This includes the analysis of the governance structure and a stakeholder mapping per case. A second analysis technique is a synthesis c.q. comparison of the cases to identify patterns across cases (Yin, 2018) and insights for the transferability and sustainability of the to-be-prototyped interventions by the professionals. For the analysis of the qualitative data, coding for the key concepts will be defined based on a literature review.

In the third phase (prototype & testing), together with the professionals, the findings will be discussed to collectively identify and develop prototypes of intended interventions (tools, mechanisms, processes, etc.). The developed prototypes will be tested and evaluated within the networks. Where possible, an observation will be done. The involved professionals and actors will also be interviewed again to gain insights regarding the evaluation. This is an iterative process of multiple prototypes and testing of interventions. As this phase also includes data collection, similar techniques will be applied to analyse the data. As each network might have a slightly different approach, this analysis (visualisation of processes) might lead to (new) insight. The analysis will (again) be used to discuss, co-design, develop and assess

mechanisms with professionals. Per case and cross-case, a comparison of the situation ‘before’ and ‘after’ the intervention is to be made to identify the impact.

In the fourth and last phase (conclusion & implementation), the results of the research activities will be concluded. The conclusions will be reported c.q. presented to each case. There will also be an overarching report prepared that captures the deployed research activities, the outcomes and overall insights gained from this study. Additionally, the co-designed interventions that contribute to strategic planning in a NAO will be handed over to the professionals. Part of this phase is also to identify how the interventions (deliverables) can be embedded in the NAOs as part of change (improvement).

3.3 Research integrity

To ensure the integrity of the research and the researcher, a few measures will be taken regarding validity, reliability and ethics (see Table 2). As mentioned in the research strategy, several measures are taken to ensure validity: multiple sources of evidence, review of drafts by participants and co-designing with the participants. The involvement of the participants in the data analysis minimises the risks regarding the validity of the research. For the reliability of the research, a protocol, case study database, and chain of evidence will be established. Ethics are also taken into account by providing options for anonymity, defining a code of conduct (e.g. Chatham House rules), review of external (science) communication and attention will be paid to inclusion and equity of participants in the co-design and co-creation activities.

Table 2: Validity, reliability and ethics

	Measures
Construct validity	Multiple sources of evidence, review of drafts by participants, co-design with participants
Internal validity	Co-designing the visualisation of workflows with participants
External validity	Patterns via cross-case synthesis
Reliability	Case study protocol, development of case study database, chain of evidence
Ethics	Anonymity options, review of science communication, code of conduct

Source: (Yin, 2018)

4 Future development

Over the next year(s), the literature review and research strategy will be further expanded. Activities will be deployed to kick off the multiple-case study research in combination with the co-design process with professionals. Whilst collecting data, the analysis and interventions will be done iteratively and in parallel.

The expected research outputs are peer-reviewed articles, a data management plan, a set of designed and assessed interventions for professionals, and a portfolio of deliverables (reflections on research activities).

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