



Anchor practices that guide horizontal performance measurement: an interventionist case study of the financial aspect of new technology implementation in healthcare

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Abstract

With the demand for elderly care increasing in many countries, digital technologies offer the potential for organising such care while also increasing value for money. However, public administrators need tools to make sense of their own complex environment and the possible impacts of new technologies. The current paper examines this issue by applying horizontal performance measurement, where practitioners can give financial value to issues that span across many functions and thus avoid sub-optimisation. We use an interventionist case study to illustrate a situation in which a Nordic city attempted to calculate the financial impact of introducing new digital technologies into elderly care. As our contribution to the literature on horizontal performance measurement, we show how economic (financial) and wellbeing anchors influence horizontal performance measurement in a healthcare digitalisation project. We also contribute to the development of our method theory, i.e., anchor practices, by providing evidence of the usage of multiple simultaneous anchors and make a methodological contribution by showing that interventionist researchers can support operationalising anchor practices.

Keywords Performance management · Healthcare · Digitalization · Value for money · Technology · Social sustainability

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1 Introduction

This study examines how performance can be managed horizontally in a situation in which a new digital technology is introduced for public service provision. New technologies are often aimed at supporting service integration and can be linked to the collaboration movement in the public sector that attempts to improve performance in health and social services (e.g., Kurunmäki & Miller, 2011; Tiitola et al., 2022). However, conflicting and ambiguous goals are a well-known challenge in the public sector (Speklé & Verbeeten, 2014). Moreover, increasing inter-organisational cooperation and integration in service provision indicates that performance management at the single-organisation level is not sufficient to ensure high performance at the system level (Sacchetti & Borzaga, 2021). To support this development, managers need extensive information on performance (e.g., Callender, 2011) with a *horizontal* approach to information gathering as well.

Notably, a shift towards this horizontal approach is indeed taking place. While healthcare organisations in many countries have undergone reforms, with an emphasis on functionally and vertically controlled forms of organisation (Pettersen & Solstad, 2015), the horizontal approach to performance is also being acknowledged in recent times. Several types of actors (public, private and the third sector) participate in the provision of healthcare services (Rajala et al., 2021), making it necessary to understand the overall performance of this public service provision. In response to this need, process and lean approaches for improving healthcare operations have been implemented to bridge silos between units and actors and to apply a more horizontal approach to performance management (Reponen et al., 2021). Nevertheless, in spite of the necessity for understanding accountability horizontally in the context of public service provision (Rajala & Kokko, 2022), the horizontal approach to performance, which involves several organisational entities, has received surprisingly little attention in academic literature (Bititci et al., 2012; Johnsen, 2005; Jääskeläinen & Laihonen, 2014). This knowledge, as suggested by Mauro et al. (2017), is essential in supporting the utilisation of performance information in a productive manner.

However, there are some existing scholarly approaches for assessing public services at the service management level—one notable perspective being the *economic* one (Drummond et al., 2015; Brazier et al., 2007). The key motivation for conducting economic or *financial* analysis is its ability to examine different alternatives of service provision. In practice, analysis in financial terms, such as a business impact analysis, an investment calculation or a retrospective evaluation report (Laine et al., 2016, 2020), can provide a relatively stable, commonly understandable and comparable anchor point for actors (Laine et al., 2016) to understand how a change in one sub-section of a public service can influence (or has influenced) the wider context of public service provision (cf. Callender, 2011). In particular, financial calculations can offer a horizontal viewpoint that should not be forgotten in the case of public service provision because of resource scarcity—the taxpayers' money needs to be utilised in such a way that the society acquires value for money (e.g., Malmlose, 2019; Lindholm et al., 2019) across different sub-sections of public service to ultimately benefit from this provision as a whole.

Since the financial aspect is an anchor point for people to understand how public service provision can be made more cost-efficient or cost-effective, it might overshadow other values that could also be important. For this reason, understanding the financial aspects of change in public service provision could become an *anchor practice*. An anchor practice can be defined as one that becomes more influential in guiding action compared to some other practices in a certain situation (Swidler, 2001); it is “the fundamental principle of orientation in practice” (Equi Pierazzini et al., 2021, p. 1262). Indeed, there are certain issues, aspects or viewpoints that seem stronger when compared to other *values* in most decision-making situations—for example, it can be money, ecologic sustainability or social aspects (Saukkonen et al., 2018; Campanale et al., 2021; Kuperstein Blasco et al., 2021; Ritala et al., 2021). The theoretical concept of anchor practices, derived from the general understanding of human behaviour (by Swidler, 2001), has recently been introduced to studies on management accounting and control that aim to understand how management control systems influence action (Ahrens, 2018; Carlsson-Wall et al., 2020). Hence, the concept of anchor practices offers an opportunity to understand how certain aspects of horizontal performance measurement overshadow others when new digital technology is introduced as a public service provision, especially in healthcare. Such an aspect has not yet been adequately studied, since we do not sufficiently understand how the analyses of value become focused on certain aspects while overshadowing some others when introducing new technology into the complex, multi-actor healthcare context (Tiitola et al., 2022).

We wish to address this gap in the literature on horizontal performance measurement from a financial performance measurement perspective by asking the research question: *How do financial performance measures function as anchor practices to support the effort to digitalise public healthcare service provision horizontally?* To answer this research question, we require empirical insight. Since digitalisation changes the real-life processes of service provision, we first need to examine how it takes place (Korhonen et al., 2021; Ruggeri et al., *In press*). Considering this context, interventionist research (IVR) is an effective method for examining performance management in the digital age and capturing its consequences for human actors and their roles in organisations (Lyly-Yrjänäinen et al., 2017). In this paper, we use IVR to examine how a city in the Nordics attempted to digitalise its elderly home care services to gain higher value for public money. The interventionist researchers’ task was to build a model for estimating the financial impact of introducing new digital technologies into healthcare, thus increasing the visibility of their benefits to the wider service provision of the city. The researchers’ role was not normative; rather, it was to support healthcare service management and decision-making regarding technology implementation.

This paper uses the concept of anchor practices as a method theory (Lukka & Vinnari, 2014) to understand the domain-theoretical area of this study—the use of performance management in healthcare services (Rajala & Kokko, 2022; Pettersen & Solstad, 2015) and horizontal performance measurement (Bititci et al., 2012; Johnsen, 2005; Jääskeläinen & Laihonen, 2014). As its main contribution to the domain theory, this study reports how economic (financial) and wellbeing anchors influence horizontal performance measurement in a healthcare digitalisation project. Alto-

gether, we aim to bridge the gap between the theory and practice of performance management in the public sector (Mauro et al., 2017) by employing the concept of anchor practices, since they enable a practical yet theoretically intriguing understanding (Lukka & Suomala, 2014; Lukka & Wouters, 2022) of *value dynamics* in the public management context (Campanale et al., 2021; Kuperstein Blasco et al., 2021).

The rest of the paper is arranged as follows: First, we review the relevant literature on healthcare digitalisation, financial measurement of performance in healthcare (economic effectiveness), knowledge gap in the domain theory, i.e., horizontal performance measurement and the concept of anchor practices, which we use as our method theory. Next, we present our IVR methodology and its empirical findings. Finally, the paper ends with a discussion and presents the conclusions of this study.

2 Literature review

2.1 Contextual background: healthcare and digitalisation

The changing age structure of the population, characterised by the growing number of ageing people, is a worldwide phenomenon plaguing several countries (Weck et al., 2018). This development has raised both social and healthcare costs in the public management sphere and increased the demand for new types of services that utilise novel technologies, including the digital transformation of services. (Skelcher et al., 2013; Lapsley & Miller, 2019). Indeed, digital technologies are promising tools for increasing the performance of public services. Since the mid-twentieth century, the adoption of digital technologies has affected the healthcare sector, with digital transformation in the sector receiving increasing attention from both academia and practitioners (Kraus et al., 2021). However, information technology (IT) and new digital services have no inherent value. The value creation of digital services implies changes in operational processes, i.e., employees' everyday work (e.g., Jussila et al., 2017). Thus, it is important to understand the preconditions for value creation, especially the changes required in processes, competences, etc., to create value (e.g., Pèpèpard et al., 2007; Askedal et al., 2017; Tiitola et al., 2022).

Traditionally, research on digital transformation has primarily focused on its technological aspects, often neglecting its management applications and business impacts on various stakeholders in the sector. Kraus et al. (2021) applied a multi-stakeholder perspective to properly understand how various stakeholders in the sector exploit digital transformation to increase value creation and quality of care, among several other managerial aspects. According to Kraus et al. (2021), the operational efficiencies of healthcare providers are affected by organisational factors (e.g., size, performance measurement, bottom-up approach, motivation, value-based management), workforce-related factors (e.g., collaboration, control and autonomy, visibility of management, communication) and consumer-centred healthcare models, including participatory technology designs. From the research point of view, the question of how digitalisation changes the ways in which individuals work and the viewpoint of managers towards their subordinates' actions are areas that require further scrutiny (Jussila et al., 2016; Nørreklit et al., 2019; Korhonen et al., 2021). Furthermore,

despite the abundance of research on management accounting in the public sector (Argento et al., 2019; Arnaboldi & Lapsley, 2010; Lapsley et al., 2010; Czarniawska, 2010; Brorström, 2018), little attention has been paid to the influence of digitalisation on the use of financial performance measures and measurement of the financial impacts of digitalisation (Argento et al., 2019; Kraus et al., 2021). Therefore, there is room for further enquiry into this matter.

2.2 Financial measurement in the healthcare sector

In public healthcare services, a fundamental managerial task is to make an informed decision about the methods to provide effective services to clients with scarce resources. This is the focal dilemma that practitioners and researchers from different fields of study are trying to solve. The importance/need of financial information in public services, including healthcare, in the forms of performance measurement and economic evaluations have increased along with developments in New Public Management (NPM) (e.g., Lapsley and Miller, 2019; Malmrose, 2019; Vartiainen, 2008). Performance measurement literature focuses on measurement as a managerial activity in organisations, including the motivation and practices of performance measurement and the use of performance measurement information (e.g., Nurudupati et al., 2011; Behn, 2003).

Various models of economic evaluation have been used to assess public services (e.g., Drummond et al., 2015; Rossi et al., 2019; Vedung, 2004). Among these, the role of *financial evaluation* is crucial, especially in assessing healthcare programmes (Bertram et al., 2021; Drummond et al., 2015; Brazier et al., 2007). The key benefit of conducting a financial evaluation is its ability to provide decision makers with systematic analyses of different alternatives in service production. Financial analyses seek to identify and affirm a set of criteria that are useful in decision making regarding the different uses of scarce resources.

The key feature that distinguishes one technique of financial evaluation from another is the way in which the consequences of interventions are measured and valued (Drummond et al., 2015). Cost analysis acknowledges the costs related to an intervention but not its consequences. Thus, such an analysis is usable only in comparing the costs of programmes or interventions without assessing its outcomes. Meanwhile, the key feature of cost-benefit analysis is its attempt to value all the consequences of programmes or interventions in financial terms (Drummond et al., 2015; Rossi et al., 2019). While this approach may ascertain whether the beneficial consequences of an intervention justify its costs, problems in valuing the intangible aspects of consequences (like changes in well-being) require case-specific considerations (Drummond et al., 2015; Laitinen, 2013).

Indeed, when the outcomes of an action are analysed, its measurement becomes more difficult. Measuring effectiveness entails a profound understanding of the context in question, such as the particular stakeholders and services involved in different situations (before–after) and their anticipated impacts. To understand when expected impacts become measurable, the time perspective for the realisation of impacts needs to be specified (Flatau & Zaretzky, 2008; Kujansivu & Lönnqvist, 2009; Vuolle, 2011). One benefit of the financial evaluation approach is its ability to provide a

systematic process for comparing the costs of an activity with its outcomes, thereby sparking necessary discussions around possible costs and their drivers (Laine et al., 2016).

However, in terms of the healthcare sector, it is necessary to realise that optimising a single organisation might not optimise the whole system (cf. Callender, 2011). In international studies (e.g., Polisena et al., 2009; Seto, 2008; Upatising et al., 2015), cost-benefit assessments of digital remote monitoring services have used the cost variables of healthcare systems, such as hospital costs, outpatient care, outpatient care, nurses, home visits and direct costs related to the implementation of the remote service (such as equipment rental costs, user charges, internet access). To be able to realise the benefits of electronic services, it is necessary to identify the preconditions for implementing a new model at the operational level and the costs associated with these changes, in addition to direct costs (Sillanpää, 2013; Askedal et al., 2017; Korhonen et al., 2021). Our domain theory, i.e., horizontal performance measurement, addresses this exact concern, as explained in the next section.

2.3 The domain theory: horizontal approach to performance measurement

Notable scholarly attention has been paid to performance measurement in the public sector (Greiling, 2010; Johnsen, 2005; Van Helden et al., 2008), which also represents one of the principles of NPM. Many previous studies on performance measurement have concentrated on the *vertical* aspect, emphasising the existing organisational structures and hierarchies (Adcroft & Willis, 2005; Bititci et al., 2012). These studies have investigated the implementation of strategy through performance measurement (Grafton et al., 2010; Kaplan & Norton, 1992), reflecting the top-down direction in communication. Earlier research has extensively discussed the challenges of conflicting organisational goals and excessive focus on the internal performance of a single organisation (Tangen, 2005; Thorpe & Beasley, 2004; Vakkuri & Meklin, 2006; Wisniewski & Stewart, 2004). Notably, poor coordination between organisational actors is a specific challenge in health service provision (Pettersen & Solstad, 2015). Despite these issues, the viewpoint of performance measurement for improving *horizontal* processes and services has gained scarce attention in the literature (Johnsen, 2005; Jääskeläinen & Laihonen, 2014).

The need for a horizontal approach arises from the increasing number of public services produced by the collaboration of several actors (Axelsson & Axelsson, 2006; Rhee & Rha, 2009) through cross-functional networks (Provan & Milward, 2001) and collaborative public management (McGuire, 2006). This is quite common in the healthcare sector, which is often characterised by complex interconnections between organisational actors (Argento et al., 2019). At the same time, public programmes introducing new technologies typically involve several organisational entities (Argento et al., 2019), thus challenging the traditional vertical organisation-specific approach to performance measurement. Indeed, these smart initiatives should be measured in social, economic and environmental terms (Cretu, 2012). However, they are difficult to manage through a vertical approach to performance measurement, which possibly sacrifices overall system benefits to optimize its separate entities. The customer, however, is often not the beneficiary of separately optimised entities.

A customer is typically interested in the efficiency and effectiveness of the whole network providing the service, not of the individual organisations participating in the service provision (Lönnqvist & Laihonen, 2012). In fact, the need to become more customer-oriented characterises several ideas of the NPM movement (Hoque, 2008; Jansen, 2008). This often indicates that little attention is paid to the outcomes and outputs rather than the inputs of public services (Van Dooren et al., 2015).

Increasing interest in the customer orientation of public services has promoted the application of the horizontal approach to management control (Bouckaert & Halachmi, 1995; Linden, 1993; Sanderson, 2001). In healthcare, this has been evident in patient focus (Reponen et al., 2021). This approach may also be considered an answer to the challenges in the management and coordination of inter-organisational activities (Hansson et al., 2010; Qvretveit et al., 2010; Wistow & Dickinson, 2012) that characterise the discussion on how networked actors should perform consistently with their coordinated goals. Hence, apart from vertical performance (of single organisations), horizontal performance (of networks of organisations) also needs to be measured, analysed and evaluated (Almqvist et al., 2013; Klijn, 2012).

Jääskeläinen and Laihonen (2014) presented two viewpoints on horizontal performance measurement—benchmarking and the service process. The service process approach has the potential to address the challenge of measuring the introduction of new technological solutions in the public sector. Each service process is measured using tailored metrics that highlight the outputs, outcomes and synergies between organisational entities. However, this approach is time-consuming, challenging and has rarely been reported in the literature. Therefore, a more simplified model for assessing horizontal performance could be productive. Besides, several technical problems in horizontal performance measurement, such as the definition of measures satisfying the actors involved and integrating information systems, have been identified (Jääskeläinen & Laihonen, 2014). It should be noted that these are not merely technical issues, they also lead to changes in accountability (Michels & Meijer, 2008).

Notably, accountability is also closely related to effectiveness. In recent years, value-based healthcare (VBHC) has become a widely approved method for providing and developing more effective healthcare services (e.g., Kokko & Kork, 2021; Porter et al., 2017). In VBHC, achieving high value for patients is considered the overarching goal of healthcare delivery, while value is defined as the health outcomes achieved per dollar (or any other currency) spent (Porter, 2010). According to Value-Based Health Care Delivery (VBHCD), for different types of medical conditions, healthcare provider organisations need to measure and manage patient-level costs and outcomes over complete cycles of care, i.e., the patient's journey across the healthcare system (Kaplan & Witkowski, 2014; Porter et al., 2017). In effect, the implementation of VBHC necessitates the measurement of all costs related to a patient's journey in various organisations across the healthcare system, which may also be noted as horizontal measurement.

Horizontal performance measurement may possess the characteristics of informal control (e.g., Chenhall, 2003), since it does not follow the traditional forms of accountability that are related to organisational structures and managerial responsibilities. However, the formalisation of horizontal accountabilities may also emerge (Rajala & Kokko, 2022). In addition, such a measurement might involve less estab-

lished methods and practices compared to the traditional vertical approach to performance measurement.

As a concrete and topical example, the measurement of city digitalisation programmes is an embodiment of horizontal measurement. However, academic research on the implementation of measurements for such programmes is still far from robust (Argento et al., 2019). Effectively, further research is required on horizontal measurement, which explains how performance measurement has evolved and met the changing information needs of public management and policy making (Sanderson, 2001; Johnsen, 2005; Korhonen et al., 2013; Yigitbasioglu, 2017; Stormi et al., 2019). Particularly, knowledge about how digitalisation, as a megatrend, influences the use of financial performance measures (Argento et al., 2019) and how certain measures then become more decisive than others in introducing technology into the complex health-care sector is still scarce (Tiitola et al., 2022). Thus, formulating a method theory is necessary to contribute to this domain theory. As a result, the next section discusses our method theory—the concept of *anchor practices*.

2.4 The method theory: anchor practices

The literature on management control systems (MCS) proposes that controls can be used in the form of different combinations of their kinds (e.g., Malmi & Brown, 2008; Ahrens, 2018). The concept of *anchor practices* “speaks directly to the problem of how MCS may work in combinations in which some practices control others in pursuit of specific strategic agendas” (Ahrens, 2018, p. 59). That is to say, not all controls used within such combinations are equally significant. Ahrens’ (2018) notion of anchor practices is borrowed from the works of Ann Swidler (2001), who developed the concept.

Originally, Swidler (2001) studied the emergence of culture in the social environment. She studied the composition of practices and asked, “whether among all these various kinds of practices we can distinguish some that are more central, more controlling, more determinative than others—in given kinds of situations” (p. 90). To concretize her ideas, Swidler exemplified that practices associated with capitalism and owning a house are likely to be more constitutive towards guiding how people behave than those practices that concern, say, kitchen fashion (ibid., p. 90). Swidler (ibid.) then proposed that anchoring practices are more “enduring” and “influential” when compared to other practices—they are “central” (pp. 95–96). Interestingly, Swidler also pointed out that such practices might become more firmly anchoring when they “are at the center of *antagonistic* social relationships” (p. 96, emphasis added). This means that these practices might trigger passionate debates for and against the ideas they represent; in turn, it might be because of these debates that anchor practices become stronger and enduring in nature.

Ahrens (2018) addressed this issue by proposing that anchor practices create negotiations between individuals or groups that have different interests and are surrounded by “antagonistic relationships” (Swidler 2001, p. 96). Ahrens (2018) also affirmed some of Swidler’s (2001) initial ideas, such as the notion that anchor practices are highly *visible*, due to which actors consider them as constitutive practices that are fundamental, central and widely accepted. In summary, “practices that enact

the rules can anchor, or structure, other practices thereby creating hierarchies of practices.” (Ahrens, 2018, p. 66). Subsequently, Ahrens (ibid.) analysed a longitudinal case study using the theoretical lens of anchor practices to observe that cost cutting is an anchor practice that shapes other practices: “Quality was treated as an ideal only insofar as it could be pursued within existing budgets or give rise to cost savings” (p. 78). In Ahrens’s case, the cost management practices were highly bureaucratic and formal, leaving the process of how informal controls become (be used as) anchor practices unstudied. This is an interesting area for further studies, because not all organisations function bureaucratically (Ahrens, 2018). Moreover, Ahrens’s study implies the existence of multiple anchors (quality and costs) and the presence of contradictions among them. This, again, is an aspect that requires further enquiry.

Bureaucracy, however, is a trait that is often linked to the public sector. Initiatives such as NPM offer a possible change regarding this trait. In this sense, NPM offers a possibly fruitful context for applying the concept of anchor practices and contributing to the stream of literature within accounting that was initiated by Ahrens (ibid.). A particularly interesting question concerns antagonism in the public sector—although this sector intends to create value, resources are scarce, leading to conflicting interests among different groups or individuals (Hoggett, 2006; Rainey, 2014). Conveniently, earlier research has indicated that the concept of anchor practices can be easily applied to the public governance context (Ahrens et al., 2020). Some studies have already conducted this to find that management accounting systems certainly structure the wider context of management in the public sector (Laguecir et al., 2020). However, there is still inadequate knowledge about “how actors make sense of and combine different institutional pressures in their practices” (ibid., p. 13). The concept of anchor practices offers a very interesting method theory for examining this dynamic. However, though potentially very productive, the concept of anchor practices has sparked only a few studies that have explicitly used the concept. In fact, many studies that cite Ahrens’ (2018) article do not build on the concept or develop it further. In any case, the literature presents ample evidence to substantiate that accounting and control practices structure other practices (Brusset & Zouhair, 2016; Laguecir et al., 2020).

However, a notable exception is the paper by Carlsson-Wall et al. (2020), which presents an in-depth case study of anchor practices in the new product development (NPD) context. Their paper also makes a significant contribution to the literature on management control anchor practices. In their article, anchor practices deny the “excessive proliferation” of controls (ibid., p. 22) that could hamper the formulation of strategies that are viable in the long term:

“Considering the dynamics between a long-lasting constitutive rule and more dynamic and adaptive strategies used to enact this rule, we argue that management control anchor practices play a crucial role in avoiding situations where strategies are formed merely based on opportunism or short-term contingencies.” (ibid., p. 3).

Carlsson-Wall et al. (2020) showed how certain practices might become anchor practices in a complex operational environment consisting of “actors with different views,

interests and accountabilities” (ibid., p. 18). A practice might not be an anchor when it is first initiated, but it might become one over time and, in effect, be noticed as such when examined longitudinally. In their case, Carlsson-Wall et al. (ibid.) noticed that the constitutive rule became an anchor—it became a source of *antagonism* and was highly *visible* (Swidler, 2001; Ahrens, 2018). While the findings of Carlsson-Wall et al. (2020) found support in other studies that resonate with the idea that some practices might become anchors and guide the formation of other practices (see also, e.g., Laine et al., 2020), we consider the development of the concept of such practices as a (method-theoretical) point of contribution:

“we see the need for further research that focuses on how anchor practices actually come about, whether and how they evolve or if they are replaced by ‘new’ anchor practices. In this context, it seems also relevant to study whether and how multiple anchor practices can co-exist and function.” (ibid., p. 22).

To sum up, based on our literature review, we find that the available knowledge on the influence of digitalisation on healthcare management and the use of financial horizontal performance measures is insufficient. Furthermore, we have yet to properly identify the kinds of developments that lead to the emergence of new anchor practices and their role in shaping the introduction of new technologies in the healthcare context. Therefore, the next section explains the kind of methodology employed in this paper to explore the issues mentioned above.

3 Methodology

We use an interventionist (IVR) qualitative case study to understand how financial performance measures can be utilised to shape the introduction of new technologies in healthcare service provision (cf. Tiitola et al., 2022). At the same time, in a more general sense, we try to understand how digitalisation influences the utilisation of financial performance measures in healthcare management (cf. Argento et al., 2019). The use of the interventionist approach is justified, since this paper studies changes in real-life processes. The IVR approach has been considered a particularly useful method for drawing insights from the ways in which digitalisation changes how actors work (Argento et al., 2019; Korhonen et al., 2021). This approach allows us to “closely observe the possibilities and limitations” (Argento et al., 2019, p. 212) of applying performance measurement. Effectively, the IVR approach enables researchers to take a more active role (involvement in performance measurement development in the case of this study) instead of being passive observers, thus helping them gain access to unique data (Suomala & Lyly-Yrjänäinen, 2012; Suomala et al., 2014). This access is useful not only to reach interesting findings from the practitioners’ viewpoint, but also to make meaningful theoretical contributions (Lukka & Suomala, 2014; Suomala et al., 2014; Lyly-Yrjänäinen et al., 2017). It is important to note that the validity of the findings from an interventionist case study might be particularly high, since it might be possible to provide valid ideas about how and why things actually develop from within the action itself in such a case (Maxwell, 1992). How-

ever, the IVR approach also has its drawbacks: especially it is difficult to stay fully objective and independent if one spends time with an organization. Also competing interests and agenda might hinder research activities, as practitioners' interests might draw attention to different directions than those of the academic community and theory development (Suomala et al., 2014). Altogether, in our study we acknowledge that doing interventionist research is not absolutely without problems (Jönsson & Lukka, 2006), even if it is a methodology that has the potential to grant access to unique real-life datasets.

The requirement for close proximity to the field is also significant with regard to our method theory. Fieldwork is highly suggested for studying the constitutive rules of an organisation (Ahrens, 2018). Indeed, "one cannot identify an organisation's constitutive rule and management control anchor practice before entering the field" (Carlsson-Wall et al., 2020, p. 7). Based on this viewpoint, we claim that the field study methodology, particularly the IVR approach, is effective for gathering relevant data to answer our research question (*How do financial performance measures function as anchor practices to support the effort to digitalise public healthcare service provision horizontally?*).

The qualitative data in this study were gathered from a Nordic city that was organising and producing healthcare services, alongside many other public services. The city was reorganizing its healthcare services through a city digitalisation initiative, pseudonymously called "DigiCare". DigiCare is a technological platform that enables the utilisation of client-related data by connecting various digital applications to a single platform. The interfaces of the platform are standardised, enabling different types of service providers to connect to the platform (from public organisations to small enterprises). DigiCare is considered a scientifically interesting case because, in addition to its anticipated impacts on service provision (cost saving, quality of care), its standardised interfaces enable new types of co-operation between the public and private sectors in terms of service provision. In the long run, the platform may also be utilised in other contexts.

Table 1 presents our interactions with stakeholders, in which data were gathered along with the dates and purpose of each event in the case study. The data collected were recorded when possible and detailed meeting notes were taken to supplement the recordings. The researchers had access to many classified internal documents of the city (project plans, process descriptions, technology specifications). Our interventionist case study particularly focuses on the digitalisation of services for heart failure patients within a wider digital transformation initiative undertaken for the city's elderly care services. This paper covers the timeline ranging from the beginning of the initiative until the calculation of the first pilot with heart failure patients, since these were the only data that could be acquired during the course of this study. Examining the later pilots would have required a longer timespan for conducting this research.

To support this digitalisation initiative, the interventionist researchers were asked to help the city in their initiative to introduce (a variety of) new digital technologies for the provision of homecare, while possibly decreasing costs and increasing the quality of care. The IVR approach was necessary to help healthcare administrators understand how digitalisation could impact the costs of their service provision. To

develop such an understanding, the researchers had to create a calculation template (a spreadsheet file) containing pertinent profitability elements (i.e., relevant) that were adequately easy for practitioners to understand (i.e., simple) and efficiently usable in different kinds of technology cases (i.e., generalisable).

To familiarise themselves with the healthcare problem at hand, the interventionist researchers began by collecting information about the possible procedural changes that could take place once a new digital healthcare service process was initiated, i.e., they started building the basis for the calculation. To this end, the researchers first organised participatory workshops aiming to identify the desired benefits of DigiCare for relevant practitioners, which helped them identify and concretise DigiCare's goals from the perspective of the processes and employees, determine the preconditions for achieving the goals and find out the changes required to identify the benefits and costs of the new operating model. After the workshops, the researchers conducted expert interviews with the aim of summarising and refining the results of the workshops.

The main part of the data was acquired by developing a way to calculate the potential financial impact of introducing digital process to elderly care for the heart failure pilot. Extensive participatory workshops and interviews were used as research methods to gain insights into the different customer segments. The interviews were conducted as semi-structured thematic ones.

We utilised the studied case as an empirical illustration in which data were collected using IVR. During the IVR process, the researchers took notes from the participatory observations, meaning that the dataset was relatively rich. These data were then collectively discussed (first among the two interventionist researchers at the detailed level, and then among the complete author team at a more generic level) from the theoretical point of view. These discussions were conducted from the viewpoints of both horizontal performance measurement and anchor practices. These theoretical concepts enabled the identification of certain parts of the dataset that were particularly interesting, due to which they were included in the empirical part of the paper. The following section discusses our empirical findings.

4 Empirical findings

4.1 Background of the DigiCare Case in [the city]

“At [the city], we have acquired experiences about the use of remote and/or wellbeing technology and thereby grown understanding about how to develop activities and technologies so that the potential benefits will be realized” (A city presentation, 31.10.2018, Development manager).

The interventionist research project described in this article is related to the digitalisation project named ‘DigiCare’ conducted in a Nordic city, whose strategic goal is the extensive use of digital services by home care customers by 2025. This project is a part of a larger digitalisation initiative at [the city]. At the time of the study,

Table 1 Data collection events within the interventionist case study

<i>Date</i>	<i>Type of event and attendees</i>	<i>The purpose of the event</i>
3.9.2018	Project meeting: researcher, development manager of the city, project manager of the city	Specifying the needs and preconditions of the project.
8.10.2018	Project meeting: researchers, development manager, project manager, accounting specialist	Specifying the research setting: familiarisation with the context, managerial needs and recent developments related to the digitalisation of homecare services and performance measurement practices, identifying necessary informants.
30.10.2018	Participatory workshop: researchers, project manager, assistant head nurse, paramedic, nurse specialising in diabetes	Identifying targeted benefits related to DigiCare in the care paths of diabetes patients and preconditions for the realisation of these benefits, learning how these changes could be illustrated in financial terms.
5.11.2018	Participatory workshop: researchers, technical expert, 2 nurses from homecare, nurse from geriatric hospital, head nurse from geriatric hospital	Identifying targeted benefits related to DigiCare in the care paths of homecare patients, focusing on support for living at home and integrated continuum of care between homecare and geriatric hospital. The purpose was also to identify the preconditions and changes required for the realisation of these benefits (financial, quality of care).
8.11.2018	Participatory workshop: researcher, project manager, head nurse from cardiology ward, chief physician of a healthcare centre	Identifying targeted benefits related to DigiCare in the care paths of heart failure patients, focusing on support for self-care. The purpose was also to identify changes needed for the realisation of these benefits.
21.11.2018	Findings of the workshops: researchers, development manager, project manager, accounting specialist	Communicating the interventionist researchers' tentative findings back to [the city].
28.11.2018	Participatory workshop: researchers, nurses, chief physician, project manager	Continuing development work regarding treatment for diabetics.
10.12.2018	Expert interview: researcher, administrative chief physician, administrative statistician, project manager, development manager	Specifying the data collected on service use and costs related to the services under study.
21.2.2019	Expert interview: researchers, service manager of homecare and housing services	Identifying a number of potential users of DigiCare in [the city], illustrating the 'typical' care path of a heart failure patient in the case of hospitalisation, targeted operational and process changes related to DigiCare, identifying potential cost impacts, finding the performance measures in use and those that are affected by DigiCare.
4.3.2019	Expert interview: researcher, foreperson of homecare	Identifying the same topics as in the previous interview—value created for the individual patient (e.g., better care, taking care of the overall situation of patient at home) was underlined.
5.3.2019	Expert interview: researchers, chief physician in geriatrics	Identifying the same topics as in previous interviews—challenges in knowledge management were underlined (incompatible patient data systems, uncertainties related to monitoring data and taking action based on the same).

Table 1 (continued)

<i>Date</i>	<i>Type of event and attendees</i>	<i>The purpose of the event</i>
8.3.2019	Expert interview: researchers, head nurse from cardiology ward	Identifying the same topics as in previous interviews, especially focusing on specification of the phases of repetitive hospitalisation and preconditions for the use of DigiCare from the patients' perspective.
8.3.2019	Project closing: researcher, development manager, project manager	Deciding how to further develop the cost model and proceed with reporting the findings.
17.5.2019	Aging seminar: researcher (presenter) as audience project manager, service manager of homecare and housing services	Presenting the findings and suggestions for [the city] concerning further action.

it was observed that providing digital services more widely to the home environment of different customer groups was essential to improve the quality of social and health services, curb cost growth and increase elderly care customers' autonomy and self-direction.

According to a previous study (Lumio, 2015), the number of days spent in a hospital, per home care customer and thus the costs were many times higher than for those treated in a nursing home or enhanced supported housing. If the days spent in a hospital could be reduced by three days per customer per year, i.e., avoid becoming an in-patient, huge annual savings could be achieved. This is because hospital care is far more expensive than home care. Using a technology that monitors the customers' wellbeing and increases their feeling of safety could possibly reduce the number of hospital days, since customers' symptoms could be noticed earlier before their condition gets worse and an ambulance becomes necessary:

"We, at [the city] aim to develop preventive, proactive, safe services to support living at home. The platform allows us to acquire centralized knowledge and it enables, e.g., round-the-clock duty for outpatient services." (Smart [city] website, 1.3.2018)

Therefore, the aim of this study was to understand the digitalisation of healthcare from the financial and wellbeing aspects of performance. The wellbeing of citizens is a necessity, and since financial terms can be used as a universal language to compare different alternatives for reorganising processes, the wellbeing and financial aspects were both constitutive (anchors) to practice. To provide an understanding of how digitalisation would change wellbeing and costs, the interventionist researchers were asked to construct a financial calculation that would model changes in service provision. [The city] hoped that this calculation could also be utilised to evaluate other new policies and/or technologies, apart from those considered in this study.

The key challenge in the IVR project was to identify the costs and benefits related to virtually any new service model, i.e., to understand how the use of services, service paths, as well as the organisation's operations could change on switching to the new (more digital) service model, i.e., on introducing new healthcare technology. In addition, the evaluation of cost-benefits would entail consideration of investments needed

for implementing a new service. Thus, the focal challenge was to identify the costs of different services and other relevant factors that would be affected by changes in the process. These financial aspects will then be discussed with experts with regard to aspects of wellbeing.

4.2 The pilot case—care digitalisation of heart failure patients

In this research project, a pilot process for the DigiCare platform was selected for in-depth examination—relating to the self-care of heart failure patients. The aim of this pilot was to support the preventive treatment of heart failure patients using the new digital platform. The digital service—the “DigiCare” solution—included remote weight monitoring of patients. In this new operational mode, patients would have digital scales at their homes, which would enable healthcare personnel to remotely monitor each patient’s weight and take action if it exceeded a certain limit. The problem with weight increase is crucial to heart failure patients—their condition gets worse very quickly if their body starts gathering fluids. Therefore, these patients have, among other restrictions, clear limits for drinking water. A patient who suffers from heart failure might become severely ill if his/her fluid balance is skewed, especially during warm summer days, often resulting in an expensive and possibly inconvenient visit and stay at the hospital. A typical patient pathway (a process) can be described as a situation in which a patient with heart failure has accumulated fluid in his/her body, which is a usual indication of imbalance of care that manifests itself as an increase in weight. In such a situation, the client’s nurse (community nurse) would contact the home care doctor, who would then assess the situation—whether dehydration medication is sufficient, if the patient needs to be shifted to the ER (by ambulance) or calling a mobile nurse to visit the patient at his/her home is necessary.

The central pursued impact in the case of heart failure patients was to avoid the phenomenon of returning to hospitals over and over again, since only the symptom would possibly be treated—not the reason for the symptom. As a normal part of care, according to the experts interviewed, patients with heart failure symptoms are referred from the Emergency Room (ER) to ward care and possibly to follow-up care to the rehabilitation ward, as needed. A typical process of hospitalisation proceeds as follows—an ambulance transports the patient to the emergency room. Emergency services in the patient’s own health centre or ER include laboratory tests and imaging, among other things. Next, the patient is taken into the emergency department for monitoring, from where the patient is transferred to a medical ward. In the final phase, home care is activated (again) when the patient returns home. Although the average length of a treatment period is 6 days, the period in the medical ward can extend to 10 days or even 18 days, on average, for heart failure patients. Patients with heart failure are hospitalised in various wards and hospitals in the city. This is highly expensive and, quite evidently, not an optimal way of operation for the patients themselves, as well as for the healthcare workers.

With systematic remote weight monitoring of patients and well-timed treatment interventions, it would be possible to identify crises in a timely manner and, in turn, reduce hospitalisations that are expensive. From the professionals’ point of view, the advantage of remote monitoring is that it provides up-to-date and better information

about a patient's condition. This information would facilitate the medical examination of the patient in a healthcare centre, where the weight development data over time could be easily observed (from a log). This would make it possible to better identify the causes of weight gain and make better treatment guidelines, thereby achieving both wellbeing for the patient and savings for [the city]. Furthermore, real-time patient data could also save the time spent on visiting the healthcare centre and on other such activities (e.g., laboratory tests).

In addition, a discussion was conducted on the potential user groups and management indicators that changes brought about by DigiCare would be expected to have an impact on. However, it was difficult to define DigiCare's target group, as most patients also suffered from diseases other than heart failure. Remote monitoring works best for clients who do not have a high-level memory disorder and are interested in their own care. If there is a deficit in one's own activities, support should be available to carry out remote monitoring. Experts have estimated that about a third of heart failure patients in the city would be suitable for using the solution offered by DigiCare, suggesting about 500 potential users of remote weight monitoring in the city.

4.3 Increasing antagonism: debates on the elements of effectiveness

During the pilot process, the interventionist researchers witnessed some puzzling and contradictory situations that exhibited the *antagonistic* characteristics of anchor practices. Although the patient is weighed if the doctor prescribes it ad hoc, earlier data on weight development may not be available in this case. Regular weight monitoring (and clear guidelines in case of anomalies) could prevent such issues. From a financial viewpoint, potential savings could include fewer home doctor consultations, ER visits, mobile nurse visits, and use of emergency care transportation (ambulance). However, inadequate accountability for the days spent at the hospital was noticeable—it somehow fell between accountabilities and became a bit of a surprise¹. The cost for each day spent at the hospital was a minimum of 400 Euros per day for a patient (even more in the case of specialised care) (21.11.2018).

Another source of concern was the information technology (IT) systems, some of which were even called “dadaist” (28.11.2018). People at the workshops expressed their skepticism about IT, which stemmed from previous problems with such systems. Another possible antagonistic voice from healthcare practitioners was heard when the concept of digitalisation and costs were raised. For instance, it was expected that when “the big brother is watching” (30.10.2018), the patient might feel more secure as they know someone is monitoring their health. As noted by a physician, the possibility of providing safety could be a clear service improvement stemming from remote monitoring (28.11.2018). However, the fact that someone is “watching” you could easily be interpreted by the patient as a negative aspect. An IT system would still provide unquestionable improvements, for instance, in situations characterised by a sudden collapse in the patient's wellbeing. Data (logs) gathered by a

¹ Further information regarding the cost of hospitalisation can be found in an earlier report by Lumio (2015).

digital system could adequately serve the healthcare professional in a standardised form, for example, by administering first aid even when the patient is unconscious (30.10.2018). At the same time, proactive care, which could be enabled by the new digital solution, was seen as desirable (30.10.2018). Effectively, contradictory viewpoints were evident, as digital services were likely to have both clear benefits and challenges.

Some scepticism was also expected with regard to nurses' behavioural changes and how patients would perceive new technological devices in their homes (5.11.2018). Since new technologies might increase the complexity of providing a service, a nurse could be hesitant to take responsibility for both the technology and the patient's health outcomes. As indicated by a chief physician, the nurses could be thinking:

"I'm not going to be responsible for this, the physician needs to take the responsibility." (28.11.2018).

Also, the beneficiary and effectiveness of each healthcare intervention seemed to be difficult subjects to address—a patient in her forties becoming permanently unable to work because of an illness is naturally undesirable for the patient as well as for society, as the latter loses its working force. However, no one can accurately measure the effectiveness or payback for preventing such a development from taking place. The public service provider only looks at the costs incurred by physicians for treating illnesses—none of the savings from the same can be measured. (28.11.2018) However, the reason for developing public services (8.3.2019) was observed to stem from a horizontal perspective towards healthcare service provision.

Overall, the above discussions on the wellbeing of patients and financial measures of performance indicate that both have become *anchor practices*. The use of these anchors was triggered by digitalisation. Once triggered, these anchors provided a hierarchy, following a fundamental set of principles, to properly orient a practice (cf. Equi Pierazzini et al., 2021) when attempting to understand the financial effects of digitalisation on the provision of healthcare services. The cost elements were balanced with the wellbeing aspects. As the next section will illustrate, although the calculation sought from the interventionist researchers needed to allow *visibility*, the whole discussion on the possible financial benefits of DigiCare triggered *productive antagonism* from those responsible for the daily care given to the patients. This indicates that discussions on problematic issues were also important to understand the possibility of implementing new digital services while considering both the patients' wellbeing and financial aspects of the service provision. Although increasing antagonism had not been the purpose, the project became a subject that was critically contemplated over by opening the floor for discussions on the prerequisites for the success of these new modes of service. This was necessary to eventually calculate the financial impact, because antagonistic debates over patients' health and quality of life, practical boundaries of nurses' work and financial resources available at [the city] had laid the foundation for a more detailed financial calculation.

4.4 Increasing visibility: making stakeholders understand the impacts of digitalisation

Although *visibility* of the financial impacts was sought, it was not easy to increase the same by including aspects of the patients' daily lives and wellbeing, the professionals' work, and the costs incurred for the city. However, it seemed evident that the workshops, not only as a way to collect information but also to increase the visibility of the DigiCare project itself, had made the nursing practitioners more involved, giving them something to think about and provide valuable criticism. As explained above, the workshops provided a forum for constructive antagonism. Naturally, practitioners could understand the concept of financial savings on, for example, hospital visits, as a result of which the justification for a new operational mode could be easily communicated to them. However, at the same time, they could inform whether they thought the expected savings would be applicable to only a certain customer segment or otherwise, which was a very important aspect from an administrative point of view. The administrators could not know whether they would see the (costs of) days spent at the hospital for all customer segments equally (21.11.2018)—they only possessed bundled statistics that indicated (a) remarkable yearly costs and (b) a clear blind spot for (horizontal) measurement and accountability.

To address this, the interventionist researchers constructed the calculation to particularly increase the visibility of the financial anchor. Regarding weight monitoring, a workshop identified various operational changes that were required to achieve the targeted benefits or impacts related to the new technology. As a prerequisite for the benefits related to DigiCare, stakeholders emphasised the real-time knowledge of home care workers about a patient's medication in a situation in which the patient is returning from a hospital period (5.11.2018). If there was no information about the new medication, or if it was difficult to understand, the patient might continue to take medication according to the previous instructions and, therefore, end up in the ward within a relatively short time, leading to another period of hospitalisation.

Adequate skills of home care workers' and support received from other staff groups were seen as prerequisites for home care to be able to respond to challenging situations and avoid unnecessary alerts and ER visits. Thus, it was found that the nurses needed training and homecare staff using remote monitoring technology needed to first acquire sufficient expertise. An effective data management process was also observed as one of the prerequisites for the success of remote monitoring—knowing where the information produced by the customer would be collected and who would be monitoring it and taking action, if needed, based on the information were considered essential. To meet this condition, 24/7 response duty involving highly skilled professionals would need to be initiated, while the on-call staff should include experienced healthcare professionals, preferably a physician-nurse pair. Furthermore, regarding responsibilities, the patients' real-time wellbeing monitoring would require someone to take responsibility when a symptom is spotted. It would be ethically impossible to have a system that sets an alarm (24/7) when a patient starts suffering from a symptom if a 24/7 response service is not available. In other words, an alarm does not work if no one is listening. Such alarms would also give the patient a false sense of security. Hence, a number of ethical problems emerge.

Effectively, a response service centre would have to exist before the alarm service is implemented—without the provision of 24/7 response duty, technical solutions to implement remote monitoring would reach a bottleneck. This discussion provided the stakeholders with a visibility of the order of implementation of the different parts of the DigiCare service entity, informed by the economic and wellbeing anchors.

The identified technological requirements included reliable, timely and easy-to-use devices that can be designed to fit into the customers' homes and a mobile application that would enable professionals to easily transfer data to the patient information system. Many of the identified preconditions were related to operational processes or the integration of patient information systems, such as having a common patient information system, common procedures, similar guidelines and clear treatment paths. Moreover, the implementation of DigiCare would involve a number of operational changes, such as decisions about processing the data generated by the remote monitoring devices (decisions regarding who would monitor the data and what they could do with it), that would need to be resolved before the benefits could be realised. The stakeholders of homecare would change as well. The key operators of the new service would be the homecare service organisation, a technology provider for the software platform and a supplier of the remote monitoring technology. In this case, a *remote scale for weighing a heart failure patient* was selected to spot rapid variations in their weight basically in real time.

Table 2 summarises the factors identified in the workshops and interviews that would be affected by DigiCare. In this way, the interventionist researchers were able to formulate an *ex ante* calculation of the financial impacts. A simple yet easy-to-visualize calculation would be exhibited to show whether changes in these elements could be significant when compared to the huge savings potential per year for days spent at the hospital. In addition to the targeted measurable impacts related to DigiCare, the table includes the operating conditions (investments) related to the new service model. By inspecting these factors, it was possible to begin assessing the cost items on which the new operating model would have an impact and start increasing the visibility of the financial effects of digitalisation in healthcare.

As explained in Table 2, financial savings can be expected especially if days spent at the hospital decreases (yearly savings of up to 648,000 Euros at the level of service provision, i.e., horizontally). However, according to professionals, the largest savings from digitalising the care of heart failure patients would come from preventing a person from becoming a patient in a nursing home, i.e., making it possible for patients to stay at their own home for as long as possible in a way that is good for the patient as well (10.12.2018). This is certainly a type of effect that would require further horizontal measurement, and not only from the financial point of view. However, the financial benefits from such a prevention of becoming an in-patient could also be seen at the bottom line of the city's financial result (though bundled with everything else, so with no explanation of causality). However, further antagonism may be expected: would it be ethical or good nursing practice to treat a patient at home if he/she was feeling better in a facility. Alternatively, realising that they could no longer live in their own homes would be traumatising for many patients.

In the end, there would be a service platform with mostly potential benefits that are not necessarily measurable in a simple manner. However, anchor practices concern-

Table 2 Identified impact elements for the digitalisation of home care: an illustrative calculation (based on estimates by professionals and researchers' interpretations)

<i>Cost element</i>	<i>A general model identified through the workshops</i>	<i>An illustrative estimate of heart failure patients' home care cost changes (Exact figures are masked for confidentiality)</i>
Investments related to the new service model	Software platform (investment and/or yearly fee)	Yearly cost increase of 50,000 Euros
	Multi-professional 24/7 emergency duty (permanent employees)	+0 Euros per year for physician consultations, since they are only calculative costs that are included in ongoing service agreements. After all, emergency duty was thought to be organised as part of the 24/7 ER available at the local university hospital. Thus, it should be considered an indirect cost rather than an investment.
	Remote monitoring devices and connections	Yearly cost increase of ca. 10,000 Euros.
	Equipment replacements (when broken)	Yearly cost increase of ca. 500 Euros.
Direct cost impacts/savings	Equipment operation training (staff, customers), commissioning and continuous training	+ 0 Euros per year, since they are only calculative costs included in ongoing service work.
	Customer training	+ 0 Euros per year, since they are only calculative costs included in ongoing service work.
	Possible fees received from customers	Not considered, though a change fee of ca. 500 Euros/customer in a year would make the investment profitable. However, including a fee would not serve the overall purpose of the project—decreasing the amount of days spent at the hospital (see indirect costs below).
Indirect cost impacts/additional costs	Hospitalisation (including potential savings) - Visits to a heart failure clinic - First aid (ambulance transport) - ER - Healthcare centre	Overall, the difference in costs was estimated to be ca. 10,000 Euros/year per 100 customers with a remote scale. This sum consisted of changes in mobile nurse visits, ER calls*, ER visits*, ambulance rides and extra work for nurses. (*The emergency duty was considered to be conducted along with the ER of the university hospital in [the city].)
	Hospital days (in various departments, in internal medicine emergency department, heart hospital, and other hospitals in the city)	The complete savings potential could not be reached. Rather, it was observed to be proactively prevented, as weight monitoring could potentially reduce the likelihood of hospitalisation. The city statistics claimed that there were 90 ER visits per year (regarding this group of patients), averaging to approximately ca. 18 days spent at the hospital. Thus, preventing the symptoms from getting worse and decreasing hospital stay could yield a yearly saving of 90 visits × 18 days/visit × 400 Euros/day = 648,000 Euros. This is already remarkable, considering that this calculation considers only one type of patient group. Further savings could be acquired, e.g., from diabetics or home care customers (by using different technologies).

ing performance in financial and wellbeing terms made it possible for the city, along with the help of the interventionist researchers, to start understanding the impacts of healthcare digitalisation.

5 Discussion and conclusions

In summary, the new and relatively simple measurement model presented in this study enabled the continuous evaluation of costs and benefits related to a new service model in a network of many organisations, which is essential for horizontally managing these services to provide public value (Drummond et al., 2015; Brazier et al., 2007; Laitinen, 2013; Jääskeläinen & Laihonen, 2014; Van Dooren et al., 2015; Rossi et al., 2019). However, as the paper claims, little research attention has been paid to how digitalisation influences the use of financial performance measures (Argento et al., 2019). We also argue that new insights into this aspect could be acquired by examining performance measurement horizontally (Johnsen, 2005; Jääskeläinen & Laihonen, 2014). To understand how such horizontal performance measures support healthcare managers in introducing new technologies (Tiitola et al., 2022), we used the method theory of anchor practices (Swidler, 2001; Ahrens, 2018; Carlsson-Wall et al., 2020), which made it possible to understand the “constitutive rules” of an organisation. In the current case, there were two such rules—*cost-effectiveness* of horizontal service provision and *wellbeing* of the workers and customers.

5.1 Horizontal financial performance measures as anchor practices

This paper asked the research question, “*How do financial performance measures function as anchor practices to support the effort to digitalise public healthcare service provision horizontally?*” Drawing on the above discussions, the answer to this research question is that horizontal performance measures serve as anchors to guide, inform and direct actions that might otherwise be divided into vertical silos and yield sub-optimisation. The first contribution of this paper to its theoretical domain lies in showing that digitalisation can drive the inclusion of horizontal performance measurement in terms of combining financial examinations with the necessary wellbeing aspects. While, on the one hand, increasing digitalisation in healthcare can cause and benefit from the *antagonistic* debates around financial performance, on the other hand, the preconditions of action guided by the different anchors (such as wellbeing) require scrutiny and localisation of practices on the part of the practitioners (Ruggeri et al., *In press*). Based on these viewpoints, we claim that increasing the *visibility* of the performance in financial terms is likely to lead to a situation in which actors become more aware of the digitalising efforts around them and, in turn, influence even wider outcomes of the action (Laine et al., 2016; Korhonen et al., 2021).

The case of “DigiCare” examined in this study represented an example of horizontal performance measurement, where the implementation of a new technology was supported by financial performance measures. In this case, the new technology supported the service provision of several actors: first aid, ER, health centre, homecare and various medical wards related to care for heart failure patients. The optimisation

of this system according to the point of view of any of these actors would have been unproductive for the whole system (Callender, 2011). Moreover, despite the extensive *ex ante* performance considerations of the organisations involved, the horizontal service operation needed a new performance measurement model—a tool that practitioners could use for increased visibility of the financial impacts of health service reorganisation as well as for allowing discussions of these impacts in comparison to expectable wellbeing impacts. This was considered in the empirical study as an anchoring to balance worker and customer wellbeing and also support the emergence of a new *informal* type of performance management anchor (Ahrens, 2018), i.e., a calculative tool that could help practitioners decide whether implementing a new healthcare technology would be economically and socially justifiable.

The case study revealed that anchor practices might be a valid theory for explaining the value dynamics that guide action in the public sector (Ritala et al., 2021; Campanale et al., 2021). In our examination of the dynamics of different values in healthcare, it was noted that these values caused conflicts in decision-making and daily working practices. A balance needed to be established, and it was the anchors that facilitated this balancing act. Although public administrators needed to ensure high-quality services, the economic aspects set some boundaries for their actions owing to a value dilemma (Hoggett, 2006; Vakkuri & Meklin, 2006; Rainey, 2014; Speklé & Verbeeten, 2014; Laguecir et al., 2020), which was partially solved by the anchor practices used. However, further research is required to assess the applicability of this finding—that anchor practices explain public sector value dynamics and even help resolve its related conflicts—in different contexts, e.g., in hybrid organisations that cater to multiple values (Campanale et al., 2021), and in public decision-making (Kuperstein Blasco et al., 2021) in which a horizontal approach to accountability is necessary (Rajala & Kokko, 2022; Pettersen & Solstad, 2015).

Since the city used calculation tools to create *visibility*, we interpreted this attempt as creating an *economical anchor*. According to our interpretation, this visibility was accompanied by increased *antagonism* that sparked debates that helped identify the practical preconditions for the new service model to become successful, representing the *wellbeing anchor*. These findings could be reached due to the use of the method theory of anchor practices (Swidler, 2001; Ahrens, 2018; Carlsson-Wall et al., 2020). Although the economic framing for the action was already present, it was not necessarily visible to nursing practitioners, managers or chief physicians since their expertise lies elsewhere than in economic impacts, namely in the quality of care that produces wellbeing. Thus, another anchor was needed, from the administrative point of view, to make sure the provision of public healthcare would be significant in terms of financial performance as well.

Indeed, as already noted, there must be more than one constitutive rule at times. This finding leads to the second contribution of this paper—a direct contribution to the method theory used (cf. Lukka & Vinnari, 2014): to *anchor practices*, especially to Carlsson-Wall et al.'s paper (2020), which specifically calls for research on multiple simultaneous anchor practices, and Ahrens' (2018) paper that implies such a possibility. Our case study shows that using two anchors is productive in the sense that they focused the antagonistic debate on two particularly important aspects. This finding can be further examined by studies on multiple anchor practices and can also

be challenged by enquiries into the possible negative effects of multiple simultaneous anchors.

Our third contribution is methodological in nature—the interventionist researchers involved in the case study may be seen as vehicles for the organisation to operationalise anchor practices, as they would be “hired” to increase visibility of the economic aspects of the impact of a public service. The practices aimed at increasing service quality and customer wellbeing would be the anchors, as would be the financial implications of service. It may thus be interpreted that the interventionist researchers were hired to help operationalise the economic anchor and to create foundations for horizontal performance measurement to function properly. The economic viewpoint was thought to be necessary, but there were not enough internal resources to make it an anchor practice to accompany the other meaningful viewpoints (e.g., work and customer wellbeing). This finding, in particular, indicates the possibility for our methodological contribution—the IVR approach to be a possible vehicle either for strengthening, removing or changing existing anchor practices, or installing new ones. Thus, interventionist researchers must be aware of this and use this capability ethically.

Finally, it is also worthwhile to mention that using a practice-relevant approach for academic research, such as IVR, helps provide knowledge that can be highly usable for practitioners. This is not always the case with academic research (Baldvinsdottir et al., 2010). In the current paper, which adopts a financial perspective, the simple measurement model developed by the interventionist researchers enabled the evaluation of costs and benefits. However, it may be contemplated whether the active role of the interventionist researchers influenced the results of the entire study. Indeed as a possible disadvantage, with IVR it is difficult to stay fully independent from the objects of research, as brought up as a drawback of IVR in our method section. While this risks is a real one in this study as well, we have tried to mitigate it by careful theoretical contemplation of our findings within the author team. Actually, one of the members of the author team was not involved in the research interventions and could thus offer a more objective viewpoint to analysing the studied case afterwards. Hence, active participation merely opened the doors for us to witness this interesting theoretical phenomenon in practice. Moreover, it was not the researchers who introduced the economic anchor either. The IVR approach was merely required to operationalise the anchor according to what the city considered central. The city, by themselves, had already identified that the hospitalisation of homecare patients incurs a huge amount of costs yearly, which they wanted to avoid with the help of new digital technologies. The city then needed support to justify the financial reasonability of making the decision to implement new digital technologies and asked the researchers to help them. Therefore, there was no need for the researchers to be normative with the calculation either. Instead of that, we felt that our obligation is more in developing new theoretically meaningful knowledge, based on the dataset of our IVR case study; fortunately, there seemed not to be contradiction there with practitioners’ intentions since the interventionist work could also support them in their practical needs (Suomala et al., 2014; Lukka & Suomala, 2014; Lukka & Wouters, 2022).

5.2 Concluding remarks

This study contributes to the literature on performance management in health services by presenting the process of designing a new horizontal performance measurement system that supports the implementation of novel (digital) technologies. The study elaborated on the different levels of examination and the elements of relevant cost impacts, which may also be considered in other kinds of technology implementations.

The study is unique, as it advances the current understanding of horizontal performance measurement in the public sector by linking it to anchor practices. Conflicting and ambiguous goals due to multiple actors and stakeholders are common challenges for performance measurement in the public sector (e.g., Hoggett, 2006; Rainey, 2014; Speklé & Verbeeten, 2014; Vakkuri & Meklin, 2006). Functional control systems and horizontal control in healthcare reflect that current in-patient treatment processes are inadequately connected, while horizontal control might not formally exist at all (Pettersen & Solstad, 2015). This calls for anchor practices to guide the prioritisation and alignment of goals (Carlsson-Wall et al., 2020). In this study, anchor practices were considered facilitators of the horizontal approach to performance measurement, enabling the identification of synergies between the actors involved in the digitalisation initiative.

From the viewpoint of managerial implications, this study illustrates how the value creation of a horizontal service system can be demonstrated by performance measurement, which visualises how investments in the preventive elements of a system create savings for the overall service provision. Building upon this thought, a parable might help clarify the issue: If a ship lowers its anchor to only one shore of a river, the stream will eventually take the ship towards this shore. However, if the ship uses two anchors—one for each shore—it will stay in between the two shores without drifting towards either of them. Furthermore, increasing (decreasing) tension of either of the anchor ropes, the ship can be steered towards (away from) that shore respectively, if needed for instance momentarily.

Finally, this study also has certain limitations that need to be acknowledged. As a single case study, its external validity is naturally limited. Moreover, healthcare services are organised differently in various countries; this study represents only one Nordic model of organising these services. Nonetheless, many organisations are facing similar challenges as those addressed in this study and are seeking the means to support the implementation of digital solutions with performance measures. Similarly, implementing a shift towards sustainability easily leads to difficult decisions and balancing different values (Saukkonen et al., 2018; Kuperstein Blasco et al., 2021). Hence, different forms of economic, ecologic and social sustainability (Ritala et al., 2021) offer enormous potential for further enquiries about balancing different control and measurement anchors as well (Campanale et al., 2021; Beusch et al., 2022). For instance, circular economy pilots could be an interesting area to examine (anchoring) practices that guide decision-making and the quest for profitable operations. Furthermore, this study is limited to analysing the design phase of the new measurement. Therefore, further studies should focus on the long-term experience of using such systems. Further research is also encouraged on the general role of anchor practices in horizontal performance measurement. Finally, although this

study revealed the complexity of using anchors, they possibly take different roles in the design, implementation and use phases of performance measures—all of which should be explored further.

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