Translating eHealth Visions from Strategy to Practice – a benefit management approach

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Abstract. The municipalities and the Regional Health Authorities in Central Norway have been assigned a mandate to implement a shared electronic health record, Helseplattformen, reflecting the visions set out in the national eHealth white paper 'One Citizen - One Record'. This study identifies and describe the anticipated benefit streams of clinical decision support in 'One Citizen - One Record' and the user requirement specification documents of Helseplattformen. This study found that the benefit stream of clinical decision support translates from the health policy visions stated in 'One Citizen - One Record' into Helseplattformen. However, business changes, although a critical element of achieving benefits, were not emphasised in either. This calls for the programme of Helseplattformen to pay careful attention to *how* the information system and information technology requirements must be accompanied by enabling changes as well as business changes in order to achieve the identified benefits of 'One Citizen - One Record' and Helseplattformen.

Keywords. Benefit Management, eHealth, Clinical Decision Support

1. Introduction

Just like many other countries with a single-payer health system, Norway has been a pioneer in introducing electronic health records (EHRs) and other information systems as means of assessing quality and improving efficiency of the health system [1]. From the beginning of this decade, practically all Norwegian health institutions and providers document their care in an EHR and use a dedicated national health network for communication and health information exchange. With the release of the 'One Citizen - One Record' white paper in 2011, the Norwegian health authorities set an even more ambitious agenda for the digitisation of the healthcare sector [2]. The main strategic targets are i) to work towards the EHR as a shared information infrastructure for both clinicians and patients to use, ii) to enable care providers to reach out to the patient through a digital interface, and iii) to support the health care services rendered by means of clinical decision support [3]. Several

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countries have introduced citizen access to own health data to respond to the challenges of health care delivery [4]. The Norwegian Directorate of e-health has been assigned the responsibility for realising the national eHealth policies [5] and has built and implemented a national patient portal, a prescriptions repository, and a national summary of care records (*Kjernejournal*). However, the visions of 'One Citizen - One Record' goes even further by suggesting a shared EHR. eHealth policies are usually accompanied by an increased willingness to invest public money on erecting new eHealth infrastructures. The Central Norway Regional Health Authority and municipalities in the region have been assigned a mandate to implement a shared EHR-system. Helseplattformen shall provide benefits for the citizens, the health professionals and the health organisations in the Central Norway Health Region. Helseplattformen represents a significant investment, and therefore realisation of benefits is both expected and necessary in order to ensure a sustainable health service. With the willingness to take expenditures come the duty to build evidence into policy making [6], but also to quantify the anticipated benefits from realising the policies and assessing and taking out the achieved benefits upon achievements of the policy goals. The Norwegian approaches to benefit realisation are consistent with the Benefits management model (BMM) by Ward and Daniel from 2006 (updated in 2012) [7]. Benefit management aims at improving the identification of possible benefits and promotes decisions and actions that support the realisation of achievable benefits thus focusing on the "*purpose of the investment, rather than the means of delivery*" [8]. Realising the value of the investment requires identification of what can be achieved through changes (technological and other) and how to achieve this [8]. When translating policy goals and values into practise, the purpose of the investment should be traceable from national to regional policies an on through to local action- and investment objectives. Therefore, studying the translation of the visions emanating from 'One Citizen - One Record' to the user requirement specification document (URD) of Helseplattformen is of great interest.

When working with BMM establishing the *why*, *what* and *how* – in that chronological order, enables the organisation to create a basis for project management that focuses on achieving the investment objectives.

Table 1. Elements to consider when assessing and planning for benefit management of information systems and technology projects [8].

How			*What*	*Why*
Enabling IT or IS	**Enabling Changes**	**Business Changes**	**Business Benefits**	**Investment Objectives**
IS or IT needed to enable changes and realize benefits	One-off changes necessary to enable business changes or to introduce new technology	Permanent new or different ways of working necessary to obtain benefits.	Advantages on behalf of stakeholders. Benefits are 'owned' by someone	Statements of what is aimed at achieving. A description of the success scenario.

Creating URDs that are purpose-oriented instead of based on highly specific requirements makes the URD resistant to the changes in demand that will inevitably arise due to technological and domain specific advancement [9]. When charting the

why, *what* and *how* (Table 1), a benefit dependency network (BDN) emerges. The BDN connects the investment objectives and related benefits with the technology and organisational changes that are required to achieve the benefits [8]. Organising benefits and related changes into benefit streams becomes beneficial when working with complex projects [8] such as Helseplattformen. Clinical decision support (CDS) is considered an pivotal element of the national eHealth strategy of Norway [3] CDS is in 'One Citizen – One Record' described as functionality supporting health care providers' work processes based on guidelines, instructions, procedures and research based knowledge [2]. The importance of CDSs is emphasised in the URD of Helseplattformen, where the purpose of CDS is described as "*[…] to collect, share and effectively apply knowledge to support clinicians with determining a patient's diagnosis, treatment or care.*" [10]. Since the tender process of Helseplattformen is currently in the dialogue phase, studying the process of translating visions is highly pertinent.

The objective of this study was to identify and describe the anticipated benefit streams of clinical decision systems in 'One Citizen - One Record' and the user requirements specification documents of Helseplattformen.

2. Methods and Materials

To explore how the benefit stream of CDS translates from the national strategies to clinical practice, the white paper 'One Citizen - One Record' [2] and excerpts of the URD of Helseplattformen regarding statement of intent [11] and functional requirements [10] were content analysed based on a deductive approach grounded in the BMM framework of Ward and Daniel [8], see Table 1. 'One Citizen - One Record' was analysed in Norwegian and the URD material in English. The qualitative data software NVivo (NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 11.4.2, 2017) was used to tag statements of investment objectives, business benefits, business changes, enabling changes and enabling information systems or information technologies (IS/IT) cf. BMM [8]. Coding was performed by SV.

3. Results

The notion of decision support was only mentioned explicitly three times in 'One Citizen - One Record'. Therefore, the values and benefits usually attributed to CDS were extracted and condensed into themes and categories, thus creating the BDN in figure 1.

When following the same benefit stream of CDS through the URD of Helseplattformen, a more defined benefit stream was apparent, as would be expected of documents describing the statement of intent and detailed functional requirements of an EHR system, see figure 2. The functional requirements contain detailed specifications of the IS/IT enablers needed to reap the benefits and meet the investment objectives, whereas the BDN of 'One Citizen – One Record' only describes the enabling changes at a general level (i.e. 'Alterations in health register laws' and 'Access to necessary information at all times').
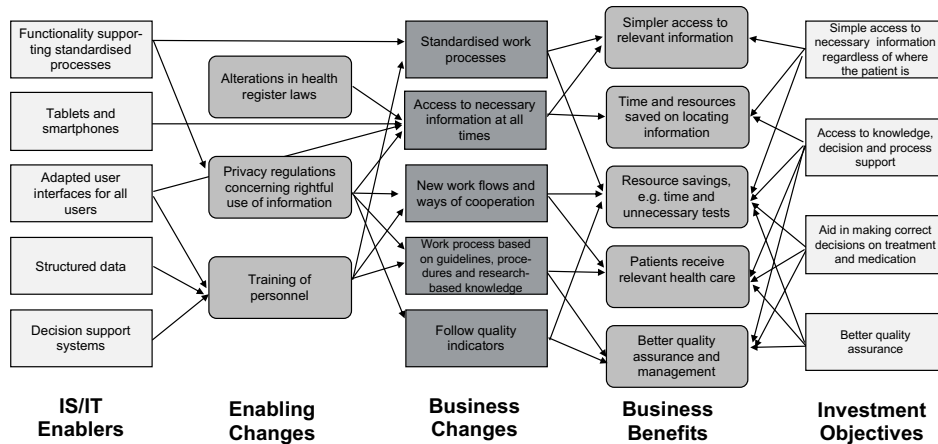
Figure 1: Benefit dependency network of the clinical decision support benefit stream in 'One Citizen - One Record'

In order to analyse the dependencies between the detailed requirements of the URD and the anticipated benefits, breakdown into further, more detailed benefit streams would be warranted.
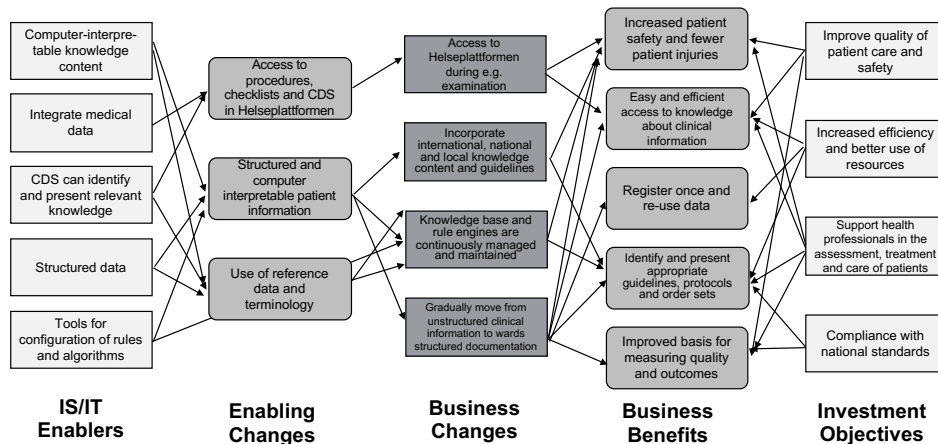

Figure 2: Benefit dependency network of the clinical decision support benefit stream in the Statement of Intent and Functional Requirements for Helseplattformen

4. Discussion and Conclusion

The CDS benefit streams were not clearly identifiable in 'One Citizen - One Record', as the term was used very scarcely. However, the basic assumptions usually attributed to CDS were present in more general terms. When looking at the URD, CDS was much more explicit. This would be expected as the URD intends to specify a solution and not merely a vision, as in 'One Citizen - One Record'. The investment objectives were similar, with a strong focus on the grounding pillars of CDS (sup-

port of decision making regarding assessment, treatment and care), but the description of objectives where different; 'One Citizen - One Record' describes the investment objectives as a future scenario (i.e. access and aid), whereas the URD focus' more on outcome of the investment (i.e. increase and improvement). Helseplattformen categorises benefits into groups related to clinical outcome, process efficiency and cost reduction and aims at the procured EHR solution supporting benefit realisation from first day (go-live) [11]. Interesting to note is that studies of successful information system investments have shown that the business cases of less successful projects tended to focus on process improvements and cost savings, whereas focus on elements such as knowledge sharing and collaborative working were more common in projects with higher success [8]. 'One Citizen - One Record' actually explicitly mentions the need for new ways of cooperation, see figure 1, Business Changes. Succeeding with making the business changes required to achieve the identified benefits is necessary in order to meet the investment objectives. However, the necessary business changes were neither very well defined nor their impact on the success clearly stated in either 'One Citizen - One Record' or the URD of Helseplattformen. This study found that the benefit stream of CDS does translate from the eHealth policy visions stated in 'One Citizen – One Record' into the URD of Helseplattformen. However, business changes, although a critical element of achieving benefits, were not emphasised in either 'One Citizen - One Record' or the URD. This calls for the programme of Helseplattformen to pay careful attention to *how* the IS/IT requirements must be accompanied by enabling changes as well as business changes in order to achieve the identified benefits of Helseplattformen. This conclusion is supported by the study of citizens' access to their digital health data in 11 countries [4] recommending a shift in focus from questions about access, adoption, and use, to more challenging measurement of benefits and impacts.

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