Original Article

Drivers of expectations: Why are Norwegian general practitioners skeptical of a prospective electronic health record?

Morten Hertzum (iD)
University of Copenhagen, Denmark

Gunnar Ellingsen (iD)
UIT The Arctic University of Norway, Norway

Line Melby
SINTEF Digital, Norway

Abstract

While expectations are well-known drivers of electronic health record (EHR) adoption, the drivers of expectations are more elusive. On the basis of interviews with general practitioners (GPs), we investigate how the early implementation process drives their expectations of an EHR that is being implemented in Norway. The GPs' expectations of the prospective EHR are driven by (a) satisfying experiences with their current system, (b) the transfer of others' experiences with the prospective EHR, (c) a sense of alignment, or lack thereof, with those in charge of the implementation process, (d) uncertainty about the inclusion of GP needs, and (e) competing technological futures. To manage expectations, starting early is important. Mismanaged expectations produce a need for convincing people to reverse their expectations. This appears to be the situation in Norway, where the GPs are currently skeptical of the prospective EHR.

Corresponding author:
Gunnar Ellingsen, UIT The Arctic University of Norway, IHO Tromsø 9037, Norway.
Email: gunnar.ellingsen@uit.no

Introduction

Electronic health records (EHRs) aim to make patient information accessible across healthcare sectors,[1,2] thereby providing a unified record and facilitating communication among caregivers. To fulfill this aim, EHRs must be adopted by general practice, hospitals, home care, and nursing homes, although these healthcare settings differ in many respects, including their EHR requirements. Whereas expectations, such as perceived usefulness, are well-known drivers of adoption,[3–7] the drivers of expectations are more elusive yet equally important. This study focuses on general practitioners (GPs) and investigates how the early implementation process drives their expectations of a prospective EHR.

GPs provide primary healthcare to citizens through clinics that are run by one GP or a small group of GPs. In Norway (the context of this study), the Central Norway Regional Health Authority has acquired a unified EHR, Epic, for the entire healthcare region and is preparing its implementation through the regional Health Platform program.[8] Epic was selected through an extensive bid-and-tender process and will replace a number of existing systems with one unified EHR, thereby reducing information fragmentation and facilitating cross-sectoral coordination. The regional hospitals and the health services in Trondheim municipality will be in the first round of implementation, scheduled for 2022. Subsequently, the rest of the 84 municipalities in Central Norway will have the option to adopt the solution. This option is offered to, among others, the GPs. As private businesses, GP clinics individually decide whether to adopt the EHR. The GPs' expectations of the EHR are central to their decision. Knowing what drives their expectations is also central to understanding what the Health Platform program must deliver to create conditions conducive of positive expectations.

Expectations influence the adoption and use of technology in multiple ways. For example, the technology acceptance model[6] shows that performance expectancy (e.g. perceived usefulness) and effort expectancy (e.g. perceived ease of use) explain a sizable portion of people's intention to adopt technologies. The expectation–confirmation model[9] shows that people's satisfaction with a technology is determined by whether it surpasses, meets, or fails to meet their expectations and that they continue to use the technologies with which they are satisfied. Response expectancy theory shows that expectations tend to be self-confirming, thereby, for example, creating placebo effects.[10] Thompson and Suñol[11] propose to distinguish among four types of expectations: ideal (i.e. the preferred outcome), predicted (i.e. the anticipated outcome), normative (i.e. the prescribed outcome), and unformed (i.e. absent outcome expectations). In this framework, expectations can also be disconfirmed by gaps among expectations, in particular gaps between ideal and predicted expectations.

Hossain and Quaddus[12] assert that "the fundamental limitation about using [models and theories such as those mentioned above] is the 'expectation generation' processes." A bewildering array of both personal and social factors contributes to generating expectations, including attributions, group pressures, information, intentions, moods, needs, prior experience, roles, social norms, socio-demography, task requirements, and values.[11] For example, computer self-efficacy and openness to change are, unsurprisingly, driving positive expectations of EHRs.[13] In contrast, excessive information, fear of making the wrong decision, and substantial time and capital costs may have a paralyzing effect by prolonging the period during which GPs have unformed expectations regarding EHRs.[14] The expectations of a certain technology may also be shaped by "numerous competing innovation futures," which may lead to contestation and conflict.[15]

Furthermore, expectations are patterned over time. Somewhat inflated expectations may be necessary early on to attract interest and get going.[15] In this way, some measure of subsequent disappointment seems almost built into the way expectations evolve in implementation processes. Borup et al.[15] argue that the early, inflated expectations are often driven by a focus on the

technology as such, thereby implying that the later disappointment comes with the increasing recognition of the many organizational and situational factors on which technologies depend.

Background

The Health Platform is a regional program run by the Central Norway Regional Health Authority and Trondheim municipality. It aims to implement Epic throughout the region, including all its hospitals, GP clinics, nursing homes, and home-care services. To promote Epic, the Health Platform program management has had several meetings with the GPs in the Trondheim area and with the union election forum in Trondheim. The Central Norway region has 40,000 healthcare professionals and an approximate population of 720,000 citizens. The cost of the Health Platform program amounts to NOK 2.7 billion (EUR 270 million).[8]

The GPs interviewed in this study currently use CompuGroup Medical (CGM) and System X. These systems are dedicated to GPs, whereas Epic is an integrated EHR suite for hospitals and other healthcare providers. CGM and System X can exchange selected information with current hospital EHRs, but this information is limited and does not provide a unified view of the patients' medical history. The GPs are generally very satisfied with their current systems and the support they receive from the system vendors. Nevertheless, there is some uncertainty about the market situation, which is characterized by acquisitions, shutdowns, and the emergence of new vendors. For instance, in 2018, the company PasientSky acquired System X by purchasing Hove Medical, meaning that PasientSky will gradually replace System X.

Method

To investigate how the early implementation process drove the GPs' expectations of the prospective EHR, we interviewed a convenience sample of nine GPs. Ethical approval for the study and data collection was obtained from the data protection officer at the University Hospital of North Norway and the Norwegian Center for Research Data. The interviewees individually consented to participate in the study.

We chose interviews for data collection because it is a suitable method for capturing people's reflections and expectations.[16] To obtain in-depth data about the drivers of GPs' expectations, nine interviews were conducted; however, we acknowledge that a larger sample would add further nuance and increase generalizability. The interviewees had on average 9 years of experience as GPs and worked in GP clinics that employed 3–6 GPs. All interviewees had some previous experience from specialist healthcare. Four interviews were conducted face-to-face in the GPs' clinics; five interviews were conducted over the phone. The interviews lasted 25–40 min.

The interviews were guided by pre-made questions about (a) which current work situations worked well and not so well, (b) how the prospective EHR could improve or otherwise affect the interviewees' work situation, and (c) what attitudes the interviewees had toward the introduction of new technology in their work. While the questions were informed by the technology acceptance[6] and expectation–confirmation[9] models, the aim was to elicit information about the concrete issues underlying model factors such as perceived usefulness and expectations. The interviews were semi-structured and thus evolved as conversations about the topics outlined in the pre-made questions. Many follow-up questions were asked to obtain additional details and probe about reasons and relations. The interviews were conducted by the third author, audio recorded, and transcribed in full.

We analyzed the interviews using an interpretive approach, described by Kvale and Brinkmann[16] as bricolage. This approach is based on the assumption that in articulating their thoughts, interviewees account for their actions and attitudes by trying to show how they make sense. In so doing, interviewees

cannot be assumed to give a linear account; rather, they must be expected to make frequent references and revisits to previous statements. The analysis aims to bring out the meaning of the interview by unraveling these references and revisits. Consequently, we read through the transcripts to find connections within and across the interviews and to outline themes. We documented the themes by extracting, grouping, and annotating comprehensive quotes from the interviews. This process consisted of qualitative meaning condensation,[16] in which long interviewee statements were compressed into short phrases that captured the meaning of the statements in a few words. On the basis of these phrases, the interviewee statements were grouped and themes started to emerge.

A theme that emerged early in the analysis was the interviewees' skepticism of the prospective EHR. However, in analyzing their skeptical expectations, the focus gradually shifted toward what drove the interviewees' expectations. This shift resulted from discussions among the authors about how the interviewees accounted for their expectations. Rereading the transcripts and themes with this revised focus in mind led to a reorganization of the analysis into five new themes, each about a different driver. Ambiguities in the data were resolved by comparing statements from different interviewees. The analysis was collaboratively conducted by the first two authors in a process that combined scrutinizing the data with discussing the direction and interim results of the analysis. In the following section, we present the five drivers of the interviewees' expectations.

Results

The GPs' expectations of the prospective EHR are driven by (a) satisfying experiences with their current system, (b) the transfer of experience from other settings, (c) a sense of misalignment with the Health Platform program, (d) uncertainty about whether a unified EHR will meet GP-specific needs, and (e) competing technological futures.

Satisfying experiences with current system

Overall, the GPs acknowledge the goal of a unified record across, in particular, hospitals and general practice:

> It'll be very useful in the situations where we need a piece of information that exists in the hospital record only, or vice versa. (GP1)

This expectation echoes the official main argument for implementing Epic, as stated by the Central Norway Regional Health Authority. It expresses a belief about what the technology can deliver and appears to bypass the practicalities involved in using a unified record. The GPs' current systems do not provide a unified record but are nevertheless well-liked by the GPs:

> We already have the best IT system. Thus, it requires a lot for a new system to be better than what we already have. For the hospitals, it'll obviously be better than the system they currently have. (GP4)

Their satisfaction with their current system necessitates high expectations for Epic if it is to compare favorably with the current system. The GPs have confidence in their perception of their current system because they have experience with it. The expectations they have for Epic lack a similarly firm footing and are consequently more makeshift. In addition, GP4 believes that the hospitals will benefit from Epic, thereby suggesting that Epic is to a larger extent for hospitals than for the GPs. Irrespective of whether this belief is correct, it reinforces any reservations the GPs may have against Epic and drives expectations downward.

The GPs' satisfaction with their current systems is partly attributable to their functionality, which enables the GPs to work efficiently:

> As GPs, we feel that we've very . . . really very good computer systems. The workflow support is good and ensures that on good days I may have 30 patients. That says a lot. (GP 3)

With efficient workflows, the GPs provide good service to their patients. Efficient workflows also ensure good business for the GPs, whose income increases with the number of patients they see. The GPs' satisfaction with their current system is also attributable to the system vendor's attentiveness to their needs for support and new functionality:

> I experience that they [i.e., the vendor] are quite good at solving things. (GP9)

Whereas the official channel for obtaining support is a phone hotline, the GPs also mention that informal support is provided via Facebook and involves interactions with the vendor as well as peer-to-peer interactions among GPs. This support is experienced as effective and efficient. Occasionally, suggestions for new functionality are brought up in the Facebook group and the perception is that "if the suggestion makes sense, then they [i.e., the vendor] do it" (GP6). However, the GPs' perception of their current system may be subject to a polarization effect that exaggerates the qualities of their current system because they experience it as the safe choice compared with Epic. Exaggerating the gap between Epic and the current system reduces uncertainty about whether to adopt Epic and thereby makes the decision easier. Even a modest polarization effect may be sufficient to drive expectations substantially toward deciding against Epic. Because the GPs are satisfied with the functionality and support of their current system, the task for the organization set up to implement Epic in the region is to instill high expectations regarding both the functionality and support of Epic.

Transfer of experiences from other settings

In the absence of personal experiences with Epic, the GPs seek out information about others' experiences with Epic. They are particularly attentive to reports on the implementations of Epic in other European countries because they are presumed to be more similar to Norway than implementations in, for example, the United States. The GPs' expectations are to a considerable extent driven by reports on these other Epic implementations:

> I recently made an effort to learn more about it. At those sites in Europe where Epic has been implemented, it has received a lot of criticism. Thus, I don't share the enormous optimism conveyed by those who've purchased Epic in Central Norway. (GP8)

The implementation of Epic in Denmark has received special attention because it is recent, because Denmark and Norway are close neighbors, and because Danish physicians have been quite vocal in their criticism of Epic and the implementation process:

> We've heard some rumors from Denmark . . . and I expect a gigantic chaos, because in Denmark it wasn't okay. So, I hope things aren't rolled out until it's good enough. (GP2)

The GPs have taken experiences from other settings as indicative of how Epic will likely fare in Norway; thus, their expectations are driven by transferred experiences. The transfer is only valid up to a point because the particulars of the foreign and Norwegian settings differ. However, the

transfer is quick and thereby influences the GPs' early expectations. Later in the process, the GPs will obtain additional information, including information specific to the Norwegian setting, and their expectations will evolve. In this way, the transfer of experiences from other settings can be seen as a temporary substitute for more valid, local information. Such substitutions will continue and gradually solidify the GPs' expectations, but their early expectations are important because they are the starting point for the subsequent process.

The starting point has already become one of skepticism. The GPs are not eager to join in; they rather seek to avoid involvement in the implementation process:

> We're usually very energetic, but [when asked about Epic] we get a little . . . we look down and hide [and ask ourselves]: Do we have to do this? (GP3)

Alternatively, they envisage that their expectations may become more positive at a later stage and postpone any commitment until that has happened:

> I'm going to be very conservative. I'll not change system until someone has convinced me that it works. (GP8)

Sense of alignment with the Health Platform program

With an unfavorable starting point for Epic, the GPs' expectations are considerably influenced by whether they experience that efforts to improve matters are underway. Conversely, if the GPs had already been positive about Epic, then it would have been important for them to feel assured that Epic was not about to undergo major changes. That is, the GPs' expectations are influenced by whether the Health Platform program sees the need for change in the same way as the GPs do. This alignment, or lack thereof, drives expectations because it is an indicator of whether the current state of affairs is likely to evolve in ways the GPs deem favorable. The GPs sense misalignment:

> I'm a bit unsure if they've realized the seriousness of doing this [i.e., of implementing Epic]. In the [Norwegian] media, it seems as though it's problem-free. That puts me off. That makes me skeptical because then I'm not sure whether they've really understood how much impact this [i.e., Epic] has had on those who work in the hospitals in Denmark. (GP9)

The sense of misalignment gives the GPs the impression that real problems are not taken seriously. Whereas the GPs assign considerable importance to experiences from other Epic implementations, it appears as if the Health Platform program tends to disregard those same experiences:

> Every time it's pointed out that it [i.e., Epic] doesn't work well in other countries, there is someone in the healthcare region of Central Norway who says: "In Norway, we'll do things much better." I don't believe in that. (GP 8)

The GPs' own experiences tell them that "It's always painful to switch IT system" (GP3). Statements that do not acknowledge these painful efforts appear unconvincing to the extent that the GPs worry that the Health Platform program has become more concerned with "getting it done" (GP8) than with securing the best possible EHR for the region. Once the sense of misalignment has arisen, it is nourished by the GPs' experience of receiving insufficient information:

> The GPs have received fairly little information, I think. We've asked questions. . . but received few answers. It's still anything but concrete. (GP1)

More information could possibly challenge the GPs' sense of misalignment. In the absence of information, the GPs' expectations are not challenged but left to run their course. The Health Platform program likely finds that they work to secure the best possible EHR for the region and that they keep the GPs well-informed. The GPs' expectations are, however, driven by how the GPs perceive the process. The GPs find that they have not received much information about the implementation process, about what the new EHR will look like, and about how using it will improve their efficiency. Without such information, the early drivers of expectations remain influential for a longer period of time.

Uncertainty about the inclusion of GP-specific needs

Although the GPs acknowledge the goal of a unified record (see the section *Satisfying experiences with current system*), they also expect Epic to meet the needs specific to GPs. A unified record does not imply that GPs and hospital physicians have the same needs and can use a unified interface; it merely implies that all information about the patient should be available in one integrated EHR. The GPs emphasize that their needs are not simply a light version of the hospital physicians' needs:

> We're not a hospital light; we've our own needs. The problem with hospital systems is that they're so heavy and dense, while we've a limited need for alternatives. It's more important [for GPs] that it's quick and simple than that it's very advanced. (GP4)

Quick and simple stand in stark contrast to heavy, dense, and very advanced. In the GPs' opinion, hospital EHRs present so much information that "you don't have an overview [and, instead, need to] spend a lot of time looking up information" (GP9). GPs have no time for that. Their expectations are driven by a need for efficiency:

> If the system is very responsive and quick, and you save like half a minute per patient, then that's a good argument for switching [to Epic]. If it becomes more efficient, then it's awesome. (GP6)

The GPs' preoccupation with efficiency may lead to an exaggerated perception of the difference between what they and hospital physicians have time for. Such exaggeration reflects their concern that Epic will be tailored to the hospital physicians' needs at the expense of GP needs. Once the GPs have formed a, possibly exaggerated, perception of the difference between GPs and hospital physicians, this perception drives the evolution of their expectations by making them extra attentive to whether hospital physicians are favored in the implementation process.

By assigning significance to a time saving of half a minute, GP6 also indicates how they would react to a slowdown of just half a minute per patient. The GPs are concerned about efficiency because their income is directly linked to the number of patients they see:

> Without patients, we've no income. So everything that slows us down means less income. And the running costs [still] have to be paid. (GP3)

The direct link to their income also means that the GPs need a smooth and swift transition process from their current system to Epic: "It has to work from day one" (GP1). However, the transferred experiences from other settings make the GPs skeptical as to whether this need will be met. Spending entire days on the transition would amount to a substantial loss of income for the GPs, some of whom voice expectations of being compensated for the time they will have to spend on the transition process. The GPs' uncertainty regarding whether their need for a quick and simple EHR is fully acknowledged in the implementation process drives their expectations downward.

Competing technological futures

Although the GPs have expressed satisfaction with their current systems, they realize that they will need to replace them at some point. Thus, they are expecting changes. This expectation is driven by a growing need for modernizing their current systems:

> We are quite happy with the systems we have; they are nice to work with. But we recognize that the EHRs we use, both CGM and System X, are a bit old-school. (GP4)

The recognition that their current systems are a bit old-school is reinforced by the inevitable replacement of System X with PasientSky within the next 1 or 2 years (see the section *Background*). Although the GPs expect that they will switch to another system, they are skeptical toward switching to Epic. The reason for this skepticism is that they perceive Epic as a closed and heavy system:

> In a strategic perspective, you may question if it makes sense to invest in a closed platform. It seems a bit like going backward in time. [. . .] Perhaps we should rather have several small suppliers that use a common infrastructure. [. . .] To use a metaphor, it doesn't help to drive a gigantic lorry if you don't have bridges where it can pass. (GP8)

The availability of alternatives to Epic makes the GPs aware of different technological options and raises their expectations. Ideally, they want the best elements from all the competing systems. No one system achieves this ideal. For example, the alternatives to Epic do not provide a unified record across healthcare sectors. However, the GPs perceive the alternative systems as promising and innovative; they are not ready to discard these systems in favor of Epic:

> The way I look at it, we're going to switch systems. But there're other EHR systems on the horizon, and they seem more promising—such as Pridok, a web-based EHR that is built on Microsoft's Azure platform. [. . .] Compared to these new solutions, there's not much innovation [with Epic]. Therefore, it's more likely that we choose a different system. (GP4)

If the GPs switch to PasientSky, Pridok, or another alternative to Epic in the near future, their threshold for adopting Epic at a later stage will be much higher. This temporal issue is a problem for the Health Platform program. Thus, the GPs' expectations are influenced by technological futures that may become a reality before Epic is available:

> There are a lot of people wondering if they should change system now. If they do, they may not want to take that cost once more when the Health Platform emerges in two years. And I don't just think about the cost of acquisition, but also the cost of closing the clinic for three to four days as well as training the staff. That's terribly expensive. (GP2)

Discussion

The generation of expectations is "an intrinsic, continuous and everyday fact in social life."[17] Just like others, GPs routinely form expectations that guide them in navigating the choices they face. In relation to EHR adoption, expectancies about effort and performance are known to influence GPs' choices.[5] These expectations evolve over time under the influence of new inputs, changing circumstances, and social processes. Early expectations are, however, important because they provide a starting point that colors the later evolutions. Accordingly, the GPs' current skepticism toward Epic should be a cause of concern for the Health Platform program. Several points are worth noting:

First, two of the drivers of expectations are backward-looking in the sense that they shift experiences back in the process. These experiences are however not first-hand experiences that the GPs have had with the prospective EHR. They are either the GPs' experiences with their current system or others' experiences with the prospective EHR. The GPs' satisfying experiences with their current system drive their expectations through the experienced absence of an urgent need for change. Without urgency, change is much less likely to happen.[18] The transfer of others' experiences drives expectations through, first and foremost, the Danish physicians' frankness about their experiences. Although these experiences have been negative, the transfer otherwise resembles the use of reference sites, which are an established way for vendors to promote their products toward prospective customers.[19]

Second, the three other drivers are forward-looking in the sense that they are about whether the GPs' concerns will be attended to in the implementation process. Alignment with the implementation process scheduled by the Health Platform program would indicate that the current state of affairs was likely to evolve in ways the GPs would deem favorable. In contrast, the current sense of misalignment drives expectations by lowering the GPs' trust in the Health Platform program. While the lower trust results from current actions, it introduces an expectation that the current misalignment will continue and, thereby, casts a negative shadow on the future implementation process.[20] The uncertainty about the inclusion of GP needs drives expectations by calling into question whether the prospective EHR will meet the, sometimes conflicting, needs of its diverse user groups. The EHR promises to be cross-sectoral; however, the GPs are concerned that it might in practice prioritize hospital physicians' needs and not meet GP needs. Finally, there are competing alternatives to Epic. For the GPs, some of these alternatives appear quite compelling, given their lightweight design.

Third, exaggeration appears integral to the formation of the GPs' expectations and has a polarization effect, exaggerating the qualities of their current system, their concerns about Epic, or both. This finding accords with studies of the expectation–confirmation model. These studies find that outside a tolerance range, the effect toward high satisfaction or dissatisfaction is increasingly exaggerated when perceptions are well above or below expectations.[11] By exaggerating, even slightly, the GPs simplify a potentially muddled situation and reduce the uncertainty under which they must decide for or against the prospective EHR. However, exaggeration can be experienced as biased or unfair by others. As a result, it may create tension in social situations, such as negotiations between the GPs and the Health Platform program. Both parties in such negotiations are likely to be subject to exaggeration and polarization effects.

Fourth, the Health Platform program aims to establish expectations of a unified solution for the entire healthcare service. In the early and uncertain stages of the EHR implementation process, such shared expectations are an effective means of increasing the possibilities of success.[15] User representatives and future users are attracted to the Health Platform program because they want to contribute to large-scale improvements in the healthcare services in Central Norway. These expectations may then serve to mobilize user groups for whom participation is optional and the immediate benefit less obvious (e.g. the GPs). However, the Health Platform program must strike a difficult balance. On the one hand, the GPs must experience a considerable need for change to be convinced to replace their current systems with Epic. On the other hand, they must not experience this need as so urgent that they decide to switch to another system within the next year or so, that is, before Epic is available.

Fifth, to manage the expectations related to the prospective EHR, it is necessary to start early. The Health Platform program has not succeeded in counteracting the GPs' skepticism, which has rather been reinforced by a sense of disregard for their concerns. Well-articulated visions are important for the early management of expectations. Visions are a class of expectations, which are

deployed to marshal support for a joint mission.[17] Exceptional designers exercise their impact on large projects through their ability to articulate shared visions,[21] but exceptional designers are in short supply. Instead, program managers and IT vendors often build and evolve their product visions in collaboration with their customers.[22] Whereas such collaboration facilitates expectation management, mismanaged expectations produce a need for subsequently convincing people to reverse their expectations.

Last, the GPs' current expectations are that the prospective EHR will be cumbersome to use because it will be heavy and dense (poor effort expectancy) and that its functionality will not be superior to their current systems (modest performance expectancy). The main appeal of Epic is its unified patient record, but this cross-sectoral integration also causes concern: the GPs are concerned that Epic will to a larger extent be tailored to hospital physicians' needs than to GP needs. Currently, the strongest reason for the GPs to adopt Epic is probably the Health Platform program's expectation that the GPs will join in (social influence, in technology-acceptance terms[6]). However, in the absence of good effort and performance expectancies, the GPs are not eager to adopt Epic and may ultimately choose not to.

More research is needed on the factors that drive the expectations of EHRs, in particular, the early expectations. This study merely analyzes one case, which is influenced by its Norwegian context and by the absence of an urgent need for change among the GPs. In contrast, Gagnon et al.[23] find that a group of family physicians was quite open to the adoption of a new EHR, partly because they were already in a process of changing their practices. Furthermore, we have only investigated the GPs' expectations. Other healthcare professionals in hospitals, home care, and nursing homes also have expectations of the prospective EHR. The drivers of their expectations may be different.

Conclusion

Our study shows that GPs' expectations of EHRs are driven by their current systems, others' experiences, sense of alignment, inclusion of GP-specific needs, and competing technological futures. Currently, these drivers make Norwegian GPs skeptical of the prospective EHR. However, the drivers also constitute opportunities for the Health Platform program to try to shape the GPs' expectations. On the one hand, it is crucial for program management to mobilize GPs in sufficient numbers early in the project. This may require the promotion of expectations and visions that reflect grand ambitions. On the other hand, grand expectations may crumble when confronted with organizational realities. This may lead to disappointment and resistance during the implementation phase. Striking a balance is difficult, but the mobilization of the GPs is more likely to succeed if started before skeptical expectations have taken root.

ORCID iDs

Morten Hertzum https://orcid.org/0000-0003-0019-8531
Gunnar Ellingsen https://orcid.org/0000-0002-6122-4003

References

1. Gunter TD and Terry NP. The emergence of national electronic health record architectures in the United States and Australia: models, costs, and questions. *J Med Internet Res* 2005; 7(1): article e3.
2. Häyrinen K, Saranto K and Nykänen P. Definition, structure, content, use and impact of electronic health records: a review of the research literature. *Int J Med Inform* 2008; 77(5): 291–304.
3. Gagnon M-P, Desmartis M, Labrecque M, et al. Systematic review of factors influencing the adoption of information and communication technologies by healthcare professionals. *J Med Syst* 2012; 36(1): 241–277.
4. Kissi J, Dai B, Dogbe CSK, et al. Predictive factors of physicians' satisfaction with telemedicine services acceptance. *Health Inf J* 2020; 26(3): 1866–1880.
5. Ljubicic V, Ketikidis PH and Lazuras L. Drivers of intentions to use healthcare information systems among health and care professionals. *Health Inf J* 2020; 26(1): 56–71.
6. Venkatesh V, Morris MG, Davis GB, et al. User acceptance of information technology: toward a unified view. *MIS Q* 2003; 27(3): 425–478.
7. Venkatesh V, Sykes TA and Zhang X. "Just what the doctor ordered": a revised UTAUT for EMR system adoption and use by doctors. In: *Proceedings of the 44th Hawaii international conference on system sciences*, Kauai, HI, USA, 4–7 January 2011, pp.1–10. New York: IEEE Press.
8. Hertzum M and Ellingsen G. The implementation of an electronic health record: comparing preparations for Epic in Norway with experiences from the UK and Denmark. *Int J Med Inform* 2019; 129: 312–317.
9. Bhattecherjee A. Understanding information systems continuance: an expectation-confirmation model. *MIS Q* 2001; 25(3): 351–370.
10. Kirsch I. Response expectancy and the placebo effect. *Int Rev Neurobiol* 2018; 138: 81–93.
11. Thompson AGH and Suñol R. Expectations as determinants of patient satisfaction: concepts, theory and evidence. *Int J Qual Health Care* 1995; 7(2): 127–141.
12. Hossain MA and Quaddus M. Expectation-confirmation theory in information system research: A review and analysis. In: Dwivedi YK, Wade MR and Schneberger SL (eds.) *Information systems theory: explaining and predicting our digital society*, vol. 1. New York, NY: Springer, 2012, pp.441–469.
13. Harle CA and Dewar MA. Factors in physician expectations of a forthcoming electronic health record implementation. In: *Proceedings of the 45th Hawaii international conference on system sciences*, Maui, HI, USA, 4–7 January 2012, pp.2869–2878. New York: IEEE Press.
14. Davidson E and Heslinga D. Bridging the IT adoption gap for small physician practices: an action research study on electronic health records. *Inf Syst Manage* 2007; 24(1): 15–28.
15. Borup M, Brown N, Konrad K, et al. The sociology of expectations in science and technology. *Technol Anal Strateg Manage* 2006; 18(3–4): 285–298.
16. Kvale S and Brinkmann S. *Interviews: learning the craft of qualitative research interviewing*. 2nd ed. Los Angeles, CA: Sage, 2009.
17. Berkhout F. Normative expectations in systems innovation. *Technol Anal Strateg Manage* 2006; 18(3–4): 299–311.
18. Kotter JP. *A sense of urgency*. Boston, MA: Harvard Business Press, 2008.
19. Pollock N and Hyysalo S. The business of being a user: the role of the reference actor in shaping packaged enterprise system acquisition and development. *MIS Q* 2014; 38(2): 473–496.
20. Poppo L, Zhou KZ and Ryu S. Alternative origins to interorganizational trust: an interdependence perspective on the shadow of the past and the shadow of the future. *Organ Sci* 2008; 19(1): 39–55.
21. Curtis B, Krasner H and Iscoe N. A field study of the software design process for large systems. *Commun ACM* 1988; 31(11): 1268–1287.
22. Pollock N, Williams R and D'Adderio L. Global software and its provenance: generification work in the production of organizational software packages. *Soc Stud Sci* 2007; 37(2): 254–280.
23. Gagnon M-P, Desmartis M, Labrecque M, et al. Implementation of an electronic medical record in family practice: a case study. *Inform Prim Care* 2010; 18(1): 31–40.