

PART I

INTRODUCTION

1. Introduction

In 1999, the County of Pleasantvilleⁱ in Denmark started a project to introduce Electronic Patient Records (EPR) to the hospitals of a bigger part of the country. The objective was to develop an EPR that was flexible enough to encompass all areas of specialization (such as labor and delivery, gynecology and cancer) and all diverging professional skills (such as secretaries, pharmacists, nurses, assistant nurses and doctors). At the same time this system was meant to be dynamic enough to adapt to the constant changes facing the healthcare system.^(A) As we are about to see the development of this system is expected to create reconfigurations for both human and nonhuman actors.

This thesis is a result of one year of fieldwork around the development of one particular module of this Electronic Patient Record, in the County of Pleasantville – the Clinical Process Moduleⁱⁱ. There are four other types of modules within the Electronic Patient Record, these are: Medication, Booking, Requisition & answer, and Patient administration. Each county in Denmark has developed its own version of each of these modules.

The module studied is the Clinical Process Module. This type of module is to replace the physical record that doctors have carried around from room to room for many years. The data distributed through this module is not only to be shared across specialties, but also across types of hospital wards, and even across time, as this system is created to be configured by the clinicians after it has been delivered. The specific module I followed is further more unique as the software developer creating it also created three other modules for the County of Pleasantville. Consequently the county, in consultation with the software development company, chose a solution allowing data to be shared across modules too. In order to make this system adaptable to the changes facing healthcare a tool called Standard Plans is embedded. This tool supports the clinicians in planning tasks ahead, but also to create Standard Plansⁱⁱⁱ in terms of collections of related tasks that make sense in very specific local contexts.

Before continuing it should be mentioned that many words used in the thesis are both part of a specialised vocabulary and might have a specific Danish term loosing it's meaning in translation. To address this problem I have used endnotes explaining such cases.

1.1 Standardization Versus Local Adaptation

This thesis sets out to explore the dilemma between on the one hand desiring to share as much data as possible between healthcare professionals and at the same time making sure the shared digital representation of this data is useful in all the different contexts in which it is to be used. But despite the fact that it is desired to standardize the healthcare system in general, the history of the national EPR project shows that standardizing has a price in terms of local contexts that does not smoothly fit into them. It seems that often a higher degree of standardization causes for more people not to fit in, where as a lower amount of standardization allows less sharing of data across sites.

It is often assumed that this dilemma gets bigger as the technology used in order to share data, plays a bigger and bigger role in the healthcare sector. This becomes clear when looking at the development of EPR in Denmark over the last decade. Whether politically, ethically, technically or concerning the healthcare specific contents^{iv}, there are as many benefits from the greater sharing of data as there are challenges and often conflicting voices. This becomes clear as one browses through the debates in the media. Whereas politicians, clinicians, software developers and economical experts all call for standards, it seems at the same time that these standards over and over fail to be locally adaptable.

In the thesis I will argue that neither standardization nor local adaptation can be addressed to either technology or humans specifically. A more nuanced approach is needed in order to understand the dilemma in depth. This becomes particularly relevant when looking at the Clinical Process Module developed in the County of Pleasantville as a new distribution of responsibility between technology and humans was deliberately chosen in order to cope with the above mentioned dilemma. This is interesting as previous studies of EPR, although mostly concerned with the human price for disciplining and standardized IT systems, points to the role of technology as ensuring sharing of data through standardization. Looking at the Clinical Process Module allows me to explore how the dilemma between standardization and consideration to the local adaptations can be viewed in a setting where it was deliberately chosen that the humans, not the technology, should have the role of ensuring, defining and redefining the standards that make cooperation across sites possible. My discussion will consider different theoretical approaches in order to nuance the dilemma by focusing on concepts such as actors, delegation, work, and standards.

1.1.1 An Overview

In **PART I** –the present section- I will pinpoint two central issues where my approach in this thesis differs from previous studies of EPR. First I will look into my reason for focusing on the above mentioned dilemma in this study, and second I will bring into consideration what it meant to me to study the consequences of software in the making instead of in use. These two themes will be discussed further in PART III and IV respectively. Additionally I will relate my fieldwork to the literature on related studies of EPR.

In **PART II** I will go further into the theoretical framework that are to be used in this thesis. I will focus on the concepts of Actors, Delegations (Latour 1987, 1992, 2005, 2006) and Work (Strauss 1987, Star 1991a, 1991b, 1989, 1999, Fujimura 1992). These concepts will later on be used to discuss how we can talk about a new delegation of work between humans and technology within the Clinical Process Module when it will be implemented in the hospital wards¹. The role of Standards will be seen in relation hereto (Bowker & Star 1999). Following this I will use the concepts of Inscription (Latour 1999) and Interpretation (Robinson & Bannon 1991) to illustrate how software development over time, and between different groups of people, can be approached analytically. This is particularly relevant as my object of study, the Clinical Process Module, constantly changed hands, form and purpose during the months in which it was developed.

In **PART III** I will turn to focus on the empirical data gathered during my fieldwork. This will then be collated with the analytical concepts presented in PART II. I will use this to contemplate how the dilemma between standardizing data and making it locally adaptable will turn out in the new Clinical Process Module. Through this discussion I will pinpoint benefits, new expectations and challenges for the users of the module in the future.

Finally In **PART IV** I will reflect on my own representation of the development of the Clinical Process Module. Here I want to elaborate on how constantly changing objects can be captured in analysis together with the different actor groups involved in these changes. I will raise the question whether we benefit from treating the Clinical Process Module as an object ready for studying, or whether we instead ought to focus on the actors surrounding it in the

¹ Originally it was the plan that the Clinical Process Module should have been implemented in the hospital wards in the County of s, before the end of my fieldwork, but due to several delays it is still not in use.

development process. This chapter is primarily a theoretical discussion looking back at the thesis in order to reflect on how different theoretical approaches allow us to capture the objects of study differently depending on the analytical tools used.

1.2 Two Things Worth Noting

Two things distinguish this study of EPR from previous ones known to the author. The first is that the particular module studied to one of the highest extents in Denmark is aiming at sharing information across boundaries, at the same time as it launches a tool supporting local adjustments independently of the software developers. This makes it a particularly interesting subject for a discussion on standardizing versus local adaptation. The second thing is that my study considers a development process, as opposed to a finished technology, where technology is to be captured as it emerges. This instantly raises questions as to whether one is studying the technology, the surrounding actors creating it, or both.

These two divergences have resulted in the thesis being divided into two discussions: One with the focus on the dilemma between standardization and local adaptation, which will constitute the largest part of the thesis including an analysis of the data gathered during the fieldwork (PART III). And secondly a discussion on the object of study itself, which will constitute a shorter retrospective theoretical reflection of how one might approach and represent a technology in the making (PART IV).

1.2.1. The Shape of a Dilemma – Standardization Versus Localization

Although my concerns are specifically related to the Clinical Process Module, let me start elaborating by zooming a bit out focusing on the dilemma between standardization and localization within the context of the development of EPR as a national project in Denmark.

1.2.1.1 A Historical Overview

Browsing through newspapers² one notices that EPR has been zealously discussed for more than a decade. When specifying my search criteria to “EPR” and “standardization” it becomes clear that politicians, nurses, doctors, trade unions and computer experts all agree on one thing: Standardizations are crucial.^(B) This does not mean however that many standards have

² INFOMEDIA provides a search engine with access to all published newspapers, and a range of scientific magazines for nurses, doctors and computer experts respectively. (<http://www.infomedia.dk>)

been implemented successfully in practice. Arguments trying to explain these failing attempts often circle around local needs, local practices, technical utopias, economical boundaries etc.(c) By providing a brief history on the political decisions concerning the Danish EPR and a national standard suggested, I will show, that despite many attempts to implement this standard the politicians did not succeed.

In 1996 the EPR became part of the Fiscal Act^v for the year 1997 in Denmark. The goal being that it would facilitate initiatives for standardizing, modernizing and digitalizing the future healthcare sector. In 2000 the Danish Government decided that there should be a national standardization. The National Board of Health was then responsible for establishing this national standard. One year later The National Board of Health signed an agreement with the ministry of health, and the 14 counties in Denmark, stating that the responsibility for the practical solutions was to be delegated to the individual counties, but based on some common professional and technical standards. In 2001 a suggestion to such a standard that specifies demands for the structure, the correlation, and formalization of data was being put forward. This was called Basic Electronic Patient Record (B-EPR^{vi}). The following year an economy agreement for 2003 stated that the whole nation should have EPR based on the B-EPR before the end of 2005. During the next years several new versions of the B-EPR emerged and up till 2006 the economy agreement kept emphasizing that the counties should continue working with their individual implementations of the B-EPR.

In March 2006 The Danish minister of health stated that for now the individual projects should end, no one should any longer create their own individually tailored systems. This initiative was originally interpreted as a message that one joint national system was to be suggested next. A few months later the picture changed again and the minister claimed that the multi supplier strategy was to be kept, but the idea of one joint system was dismissed again. In 2007 Deloitte, an independent rating agency, published a report on strategic paths of developments for the EPR, concluding that the prevalence of B-EPR was no longer recommended, and that it would be recommended no longer to focus on a joint national development for the hospitals as the standard would properly not survive (Deloitte 2007). It was however suggested that more international standards should be taken into consideration in order for the Danish healthcare system to be stronger in the future. That year a major national reform also affected the EPR development as the 14 counties of Denmark were reorganized

into 5 big regions. This gave the new regions a new task in reassembling the previous counties systems and to decide upon a joint strategy within each of the new regions. Following the Deloitte report it is estimated that the work reassembling the system within the new counties may take up to another 8 years (Deloitte 2007: 22 -29).

According to the report there are 23 "landscapes"^{vii} each containing higher or lesser degrees of the 5 modules (Deloitte 2007: 18). As most of these modules are made by different developers, information cannot be shared across these, hence data cannot either be shared easily between different counties. One solution to this is a common database called SUP^{viii} which handles standardized extraction of patient data, making it possible to exchange a certain, but very limited, amount of information on a national level. However no attempts to allow data to be shared easily on a national level have yet succeeded and the B-EPR is no longer believed to be a solution to this.

1.2.1.2 The Dilemma

For me this history on standards around the EPR raises the issue of standardization versus local adaptation as two conflicting demands. As I will show, this dilemma is particularly relevant when looking at the Clinical Process Module in particular as this module will replace the paper records and is to be shared across specialties. Furthermore the developers creating this module to be used in Pleasantville, as opposed to developers of other modules had the option to integrate it with several other modules within the county as they supplied one of the largest EPR projects in Denmark and therefore from the beginning intended the modules to be able to share information. Before this they had already created more than three other modules already running at the hospital wards. Thus, their particular solution also included an option to share information across modules, which gave them advantages. This had the result that they included a feature, allowing clinicians to type in activities in one particular place, whereas they normally would have had to open three different programs in order to do the same. Thus, information in this particular module was to be shared across yet another boundary.

Recalling the dilemma the question arises whether this new module, aiming for both, will succeed. In Part III I will look at the development of the module in order to explore the actors involved, paying attention to both the humans and the technology. It is my hope that as a result of this discussion I will also be able to say something about the shape of the dilemma

when this system is fully implemented in terms of the challenges and benefits that the prospect users of the system can expect.

1.2.2 The Shape of an Object – Studying Software in Development

The history of EPR in Denmark emphasizes that EPR is many different things. It is a national IT project, it is the long term investment in a better healthcare system, it is 14 counties individual interpretations of an electronic record, it is several modules within each county, it is different software developers versions of modules, and when asking the clinicians on the wards, they denote it as “all the things visible on the screen.”

The above mentioned are on the one hand all qualifying as EPR, yet they are also very distinct. When I claim to study EPR what exactly does this mean? Let me position myself: I am not considering the EPR in Denmark in general, just pointing to an overall dilemma presented above. Neither am I studying the different counties versions of EPR. I am studying one particular module in one particular county. But it is still fuzzy as the module studied almost did not exist when I began my fieldwork but ended up as a piece of materialized software. A pertinent question when studying a piece of software as it is being developed concerns what exactly we are talking about. Casper Bruun Jensen in his PhD dissertation studied EPR without being bound to one particular place or practice (Jensen 2004). He rightfully raises the questions: What is an Electronic Patient Record? Where do you find it? How do you study it? This question opens up a new perspective that separate my focus from many of the previous studies, as I am not studying a stable technology in a delimited setting or practice. Actually my point of departure is the opposite as I study a software development process involving many different groups of people and many different types of technologies *in order* to create an EPR system similarly to what previous studies have been concerned with. So whereas previous studies have focused on EPR as a specific technology, my study is different as the technology was something that came into being while I was there. In Part IV I will draw upon different theoretical approaches in order to discuss the kinds of analytical tools we can use to capture such an emerging object.

1.3 Related Literature

Often studies have focused on the consequences of a certain representation of data in a given Electronic Patient Record. The technology has been set in relation with the way the users

perceived it, the consequences for the way patients are being represented in it, and the way conflicts arise due to the different perceptions or classification systems existing between system and users. My interest in contrast was never to look at the consequences of the system after its implementation but instead to watch the development in progress in order to see how such challenges were being defined and attempted solved in the making of the system.

In order to position myself and my background knowledge, in this section, I will give a brief survey of the literature on related studies that I have used. Although concerned with the practical use of such systems, these studies have provided me with useful knowledge on the complications arising in the meeting between the human and nonhuman actors in the daily practice on the wards.

Many of these views have been useful to me. But what I will emphasize as a distinguishing factor is that the technology has been treated as relatively stable with a mere focus on its consequences. Furthermore the technology has been emphasized as disciplining, and nonnegotiable. My study differs a bit concerning these issues. For one thing my study has evolved around a technology yet in the making, and second, the disciplining effect was to a certain extent removed in the module I studied. This was done by allowing clinicians to create and define their own standards in terms of plans, according to their specific needs and practices.

1.3.1 How the Digital Representation of Reality Affects the Reality

In 2004 Stine Aaløkke conducted fieldwork around the processes at work when implementing information systems in organizations and the issues which arose in connection with the implementation (Aaløkke 2004). Her study was based on data collected at a Spanish hospital and focused on the consequences of implementing a specific record to be used only by nurses. She notes that the system carried with it a standardizing effect, due to the fact that it represented one way possible for documenting. It left no room for other interpretations of what was worth documenting. This had an effect on the way the work done by the nurses was represented in the system. Tasks that were not represented, but were still considered important and therefore performed, could be seen as invisible to the system. Problems arose when the system's representation of what might be important and the nurses' perception of it differed. Aaløkke points out that a conflict arises due to the different classification systems that respectively the computer and the human use. She also points to other differences between

humans and nonhumans. Whereas a change of names in the system does not affect the system, the meaning and understandings of the names might constitute a feedback loop leading to new understandings and classifications for the humans using it³.

A study on the consequences of sharing records between nurses and doctors and the way this in practice happens was performed by Signe Svenningsen (2004). The system she studied was created in order for nurses and doctors to avoid redundant documentation. Thus, before the system came into being, on a typical ward round^{ix} nurse would accompany the doctor in order to take notes regarding her later work with the patient. Due to the new sharing of data through the computer the nurse could consult the digital record for data and was therefore no longer in need of attending the daily ward round in order to retrieve this information.

The intended effect of the new sharing of data however came out differently in practice, as it was discovered that the nurse also functioned as the patients allied. This meant that patients often used the nurses to re-talk the events from the round, later on. Svenningsen's study enlightens that even though the system was meant to be less time-consuming the nurse went along anyway due to factors not considered in the creation of the system. Svenningsen's conclusion is that even though a system is made to be effective in certain ways, the clinicians and the patients can have other needs that are not represented in the system.

Lars Sønnerbye also studied IT in the Danish healthcare and found further support for the fact that difficulties arise when the system does not reflect reality. He noted how a diagnose not represented in the system, would cause the clinicians to label the same kinds of symptoms differently (Sønnerbye 2005: 50). Thus, the way the system represented the patient in the end has an effect on the practices surrounding him or her. It was also pointed out how a new hierarchy among clinicians emerged as new skills such as technical ones suddenly ranked higher than other professional skills. Thus, the computer caused reconfigurations and changes in the practices it was created only to support.

Another study conducted by Claus Bossen was concerned with the predecessor to the Clinical Process Module that I studied, in the sense that it also dealt with the sharing of records between nurses and doctors (Bossen 2005). The study was conducted in the County of Pleasantville just as my own, but was concerned with a pilot test, including the consequences

³ This has further been elaborated on by Hacking 1992

of a switch to a problem-oriented viewing of the patient for the clinicians. Bossen concluded that the system was only supporting documentation after a diagnose was found, whereas no support was provided for the planning of activities necessary in order to locate and create diagnoses. This becomes particularly relevant in the light of my study as this system specifically aims at supporting future planning by embedding a new tool for it.

1.3.2 How the Reality Affects the Digital Representation of it

All of the above studies have been concerned with the consequences of the IT system in healthcare practices, but it should also be noted that not only does the technology have consequences for the humans. The humans' way of using the technology also has an impact on the technology itself. Related to this is the study by Margaret Lock denoting that there is a dialectic process between the ways technology gives new opportunities to, for instance creation of life through reproductive technologies, and the new way perceptions of life and death, due to this technology, feeds back on the opportunities for further developments of technology (Lock 1998). This is worth mentioning as it underlines that not only does the technology affect the surroundings, but the surroundings also has an impact on the system.

In an earlier fieldwork on the relation between nurses and their use of the Medication module I used a symmetrical approach where human and nonhuman were treated analytically equal (Jensen 2006). As a result I noted that the computer, wanting to ensure the integrity of the data, was not allowed to do so in the way it was created to, because the nurses used the system in an unintended way. Furthermore the nurse, wanting to create a smooth workflow, abandoned the computer in situations where he or she found it more important to take care of patients than filling in all the information that the computer required. Thus, both the consequences for the humans and the computer should be taken into consideration as both play a role in changing or affecting the other's options.

Signe Svenningsen's study on EPR also underlines this. She points out that new dilemmas arise due to new technological abilities that have potential but are not necessarily used properly. Even though the computer is now capable of updating new results constantly, it is not certain that the clinician necessarily is capable of responding immediately. And even if so, the clinician does not necessarily choose to do so. This leaves the clinician with a new dilemma, because the technology now allows her to do things more effectively, even though this only applies so far as the clinician can check the computer as often as the computer

updates. By ignoring the computer she misses potential information. By checking constantly she might miss other types of activity on the ward. Thus, the computers new ability to provide answers immediately is not necessarily advantageous although created to be (Svenningsen 2004: 259).

Aaløkke also considers the consequences for the computer system, when she points out that the systems programmed to draw a picture of the activities on the ward can be compromised: Sometimes the nurses wing off activities as “performed” even though they are not performed. Thus, the system cannot fully describe what happens on the ward even though it was programmed to do so. (Aaløkke 2004: 60)

As already mentioned, whereas these previous studies have been concerned with the consequences of the system and the users respectively there is still a pertinent difference between these studies and mine.

One last study worth mentioning, before returning to my field, is Susan Newman’s work on the development of middleware, which is software, intended to allow different software solutions to share data between them. This study is more related to the engineering of the software and deals with the ever changing hands that affect the object of study (Newman 1998). It deals with development meaning that a constantly changing object circulates between groups with different knowledge and interests. In that way it differs from the studies which are interested in an object and its consequences where the object is relatively stable.

1.4 Formulating a Problem of Interest

As we have seen there are two motivations for this thesis. One is to look into the dilemma between standardization and local adaptation in the Clinical Process Module as it is aiming at extending in both directions, another is to reflect on how we can analytically capture and represent the field as it evolves around an emerging technology, surrounded by constantly changing groups of people. Consequently the main questions I will form this thesis around can be summed up as follows:

-What are the consequences of delegating the work of defining standards in the healthcare sector to humans instead of the technology? Which analytical

tools can we use to capture the actors and the work done, and what benefits and implications are there when using the different approaches presented? (Chapter 2)

-How can we study and represent the development of a complex software system, in a way that fairly represents both the system that is developed, and the different groups of actors involved in the process? (Chapter 3, 6)

-In the light of the theoretical framework presented and the empirical data gathered, what new is there to be said about the dilemma between greater sharing of data and the need for local adaptation in the future use of the Clinical Process Module in s? (Chapter 4 - 5)

Will the prioritization of letting users define more of the content into local Standard Plans, support the greater sharing of information across boundaries or make it more adjustable to local contexts? Will the dilemma be dissolved; will the two sides conflict, or will the dilemma change form? (Chapter 5.2)

ⁱ Anonymized

ⁱⁱ Klinisk Proces Modul

ⁱⁱⁱ “Standardplaner” (Standard Plans) is the name of a specific tool within the Clinical Process Module that allows clinicians to gather activities into a joint plan. Time is saved as they can use and reuse the plan instead of recombining the activities each time it is needed.

^{iv} Health specific content (HSC) is translated from Sundhedsfagligt indhold or SFI (see section 4.1.3.1 for more details).

^v “Finansloven” The national budget agreements

^{vi} “Grundstruktur for elektronisk patientjournal” or “G-EPJ” is the national standard that Danish EPR systems, to a certain extent, are based on. It is characterized as the premise allowing patient data to be reused across different IT systems.

^{vii} “EPR-landscapes” are defined through the “patient administrative systemer” (patient administration system or PAS) that are in use. All hospitals considered have at least a PAS system implemented, and this is typically the “focal point” onto which all other modules are attached. According to this definition, some counties have more than one landscape or independent EPR system in development.

^{viii} “Standardiseret Patient Udtræk” or “SUP” is a joint database that all hospitals in Denmark have access to. It has been created to ensure that data saved electronically in EPR or PAS systems can be at disposal to everyone in clinical practices in Denmark.

^{ix} “Stuegang”

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A: http://www.aaa.dk/aaa/index/om-amtet/it_i_amtet/epj/epj-organisation/epj-org-dvh.htm

B: (Articles from Danish newspapers and magazines arguing that standards are crucial)

Lægerne skal tale samme sprog

 Dagens Medicin | 24.05.2007 | 3. sektion | Side 18 (3) |

Danmark i førerposition

📖 Dagens Medicin | 24.05.2007 | 3. sektion | Side 19 (3)

To standarder dræber innovationen

📖 Computerworld | 18.05.2007 | 1. sektion | Side 16 (Samfund)

Et serviceeftersyn på EPJ

📖 Computerworld | 26.05.2006 | 1. sektion | Side 32 (kronikken) |

Minister vil have fælles platform til EPJ

📖 Computerworld | 31.03.2006 | 1. sektion | Side 16 (samfund)

Ens referenceintervaller og harmoniserede resultater inden for klinisk biokemi i de nordiske lande - der er lys forude

📖 Ugeskrift for Læger | 26.03.2007 | Side: Videnskab og praksis: Statusartikel |

Løkke vil have en fælles epj –platform

📖 Dagens Medicin | 31.03.2006 | 1. sektion | Side 10 (Nyheder)

Debat: En skitse til landsdækkende system til en patientjournal

📖 Ingeniøren | 16.12.2005 | 1. sektion | Side 2 |

EPJ : Centralisering af EPJ er nødvendigt

📖 Computerworld | 09.12.2005 | Te. sektion | Side 20

Amter køber fælles sikkerhedsstandard

🌐 Computerworld Online | 27.05.2005

Amterne har puttet sig selv i it-leverandørernes lommer

📖 Ingeniøren | 21.10.2005 | 1. sektion | Side 12

Ny version af g-epj er flyvefærdig

📖 Dagens Medicin | 27.05.2005 | 1. sektion | Side 10 (Nyheder)

Fælles arkitektur-principper for EPJ

📖 Computerworld | 13.05.2005 | Ak. sektion | Side 6

Strukturreformen kræver landsdækkende model

📖 Ingeniøren | 01.04.2005 | 1. sektion | Side 26

It-leverandører: Lars Løkke må slå i bordet

📖 Ingeniøren | 04.03.2005 | 1. sektion | Side 6 |

Sygehuse ignorerer internationale it-standarder

📖 Ingeniøren | 04.02.2005 | 1. sektion | Side 6 |

Nu taler EPJ -systemerne sammen

Computerworld Online | 30.03.2004

Amterne på elektronisk forkant

Horsens Folkeblad | 26.02.2004

Fast hånd om kommunernes it-standarder

Nyhedsmagasinet Danske Kommuner | 05.02.2004

Sundhedsstyrelsen klar med EPJ –standard

Computerworld | 21.12.2001 | 1. sektion | Side 17 (Samfund) |

Amterne løber i forvejen med fælles EPJ –indeks

Computerworld | 13.11.2001 | 1. sektion | Side 18 (Samfund)

Overblik: Fyn: Nye standarder for EPJ

Dagens Medicin | 04.10.2001 | 1. sektion | Side 14 (Nyheder) |

Klar med standard for EPJ

Computerworld | 18.05.2000 | Side 33 (Samfund) |

Struktur eller kaos - vi vælger selv

Computerworld | 07.05.1998 | Side 44 (IT & Samfund) |

Sundhedssektoren lider under mangel på standarder

Computerworld | 23.02.1996 | Side 32 | 531 ord | artikel-id: Y1059778

C: (Articles from Danish newspapers and magazines arguing for the complications and local prices that are to be paid, using standards)

Er der lys for enden af epj -tunnelen?

Ugeskrift for Læger | 14.08.2006 | Side: FORENINGSNYT: OVERLÆGEFORENINGEN

Standarder kan forhindre internationalisering af EPJ

Computerworld | 16.12.2005 | Ak. sektion | Side 6

EPJ -udmelding får blandet modtagelse i branchen

Computerworld | 05.05.2006 | 1. sektion | Side 16 (samfund)

Kommuner: Mere fart på åbne standarder

Computerworld | 28.01.2005 | Pe. sektion | Side 12

Amtsformand: Regeringens stop for lokale patientjournaler koster dyrt

Politiken | 04.05.2006 | 1. sektion | Side 7

EPJ -udmelding får blandet modtagelse i branchen

Computerworld | 05.05.2006 | 1. sektion | Side 16 (samfund) |

Amter melder hus forbi

📖 Ingeniøren | 29.09.2006 | 1. sektion | Side 10 (1.sek artikler)

EPJ -ambitionerne var for store

📖 Computerworld | 28.10.2005 | Pe. sektion | Side 12

Dansk epj -standard uden mål

📖 Dagens Medicin | 03.05.2007 | 1. sektion | Side 12 (1)

Dansk enegang koster førerposition

📖 Computerworld | 03.11.2006 | 1. sektion | Side 26 (samfund) |

Hovedstaden vil kompenseres

📖 Dagens Medicin | 20.05.2005 | 1. sektion | Side 17 (Nyheder)

HS-satsning skal sikre succes for g-epj

📖 Dagens Medicin | 06.05.2005 | 1. sektion | Side 9 (Nyheder)

Det lille kontor, der vil revolutionere sundhedsvæsenet

📖 Dagens Medicin | 06.05.2005 | 1. sektion | Side 8 (Nyheder)

Sygehuse: Oprør mod elektroniske patientjournaler

📖 Jyllands-Posten | 17.04.2005 | 1. sektion | Side 5 |

En daglig udfordring og forhindring

📖 Dagens Medicin | 01.04.2005 | 1. sektion | Side 22 (Debat)

Sygehuse misser regeringens mål for elektroniske journaler

📖 Ingeniøren | 18.03.2005 | 1. sektion | Side 12

Læger skrotter national epj –standard

📖 Dagens Medicin | 11.03.2005 | 2. sektion | Side 22 (Fokus – IT)

Store udfordringer venter regioner

📖 Dagens Medicin | 11.03.2005 | 2. sektion | Side 23 (Fokus – IT) |

Pionererne straffes

📖 Magasinet eGov / Computerworld | 29.10.2004 | 1. sektion | Side 12 (Brændpunkt) |

Det digitale Danmark – effektivisering eller illusion?

📖 Computerworld | 06.08.2004 | It. sektion | Side 14 |

Standard for EPJ blot en ramme

📖 Erhvervsbladet | 08.12.2003

Nye svære krav til sygehuslæger

📖 Computerworld | 24.10.2003 | it. sektion | Side 18

Nøglehul til sundhedsvæsenet

Computerworld | 28.03.2003 | Side 22 (It i praksis) |

Kun plads til ét EPJ –system

Computerworld | 31.05.2002 | 1. sektion | Side 27 (Samfund) |

IT sætter fokus på problemer

Erhvervsbladet | 19.06.2002 |

Rolighed afviser fælles EPJ –system

Computerworld | 08.06.2001 | Side 21 (Samfund) |

Rigets EPJ -projekt lagt på is

Computerworld | 08.06.2001 | Side 20 (Samfund) |

Amter i soloudbrud med elektroniske patientjournaler

Ritzaus Bureau | 29.08.2000 kl. 14:34 |

Sundhedsstyrelsen magter ikke standard

Computerworld | 03.03.2000 | Side 43 (Samfund) |

Landspatientregistret i dvale

Computerworld | 22.02.2000 | Side 27 (Samfund) |

EPJ mangler politisk vilje og penge

Computerworld | 18.05.2000 | Side 33 | 701 ord | artikel-id: Y1046376

Politisk slaphed sinker sygehus-IT

Computerworld | 18.05.2000 | Side 1 | 375 ord | artikel-id: Y1046339

Fremtidens EPJ tvinges over på fælles platform

Computerworld Online | 03.05.2006 | 422 ord | artikel-id: e0633582

Lægerne skal have epj light

Dagens Medicin | 03.05.2007 | 1. sektion | Side 12 | 715 ord | artikel-id: e097d7a6

To standarder dræber innovationen

Computerworld | 18.05.2007 | 1. sektion | Side 16 | 1730 ord | artikel-id: e09b6b85

Dansk enegang koster førerposition

Computerworld | 03.11.2006 | 1. sektion | Side 26 | 841 ord | artikel-id: e07c33f7

Standarder kan forhindre internationalisering af EPJ

Computerworld | 16.12.2005 | Aktuelt. sektion | Side 6 | 539 ord | artikel-id: e0516a23

Pionererne straffes

Magasinet eGov / Computerworld | 29.10.2004 | 1. sektion | Side 12 | 2486 ord | artikel-id: e0614a76

Mens vi venter på ministeren

Computerworld | 16.06.2006 | 1. sektion | Side 29 | 805 ord | artikel-id: e068ba29

EPJ : Høje danske ambitioner sløver EPJ -processen

Computerworld | 09.12.2005 | Samfund. sektion | Side 20 | 694 ord | artikel-id: e0502aeb

Tavshed om national strategi lammer epj -udvikling

Dagens Medicin | 07.09.2006 | Side 8 | 1687 ord | artikel-id: e073a08a

(D) Alle taler om EPJ – ingen taler om det same. Computerworld Online | 28.10.2005

(E) <http://www.systematic.dk/DK/Om+os/Download.htm> (Systematic Columna Klinisk Proces)

(F) www.sst.dk/Informatik_og_sundhedsdata/Elektronisk_patientjournal/GEPJ.aspx

(G) Wikipedia programming language http://en.wikipedia.org/wiki/Programming_language [Located 3rd may 2008]

(H) The Columna Platform whitepaper published 15th March 2007. [To be found on <http://www.systematic.dk> under whitepapers. Located 20th May 2008]