



“I Did It My Way”: Social workers as secondary designers of a client information system

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ABSTRACT

The article focuses on the social workers' workarounds aka their own alternative strategies for defeating the various types of obstacles in information interaction in a client information system (CIS). Data consists of semi-structured interviews and social workers' observations with their verbal accounts while they used CIS in their daily work. The workarounds were analyzed from the process perspective when antecedent conditions, actual workarounds and their consequences were taken into account. The design flaws and external demands in work generated the workarounds. The social workers used small scale tricks within CIS to maintain continuum in a client's trajectory; they relied on shadow systems to manage their whole clientele; and took shortcuts in production of statistical information. The workarounds offered a better grip on information and saved time. However, some of the workarounds were tensional in a child protection context. The analysis of workarounds provided valuable secondary design suggestions to remedy CIS.

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1. Introduction

A client information system (CIS) has been part of social work for decades. It is embedded in work tasks in a course of client's process in social work like in the child protection services (Huuskonen & Vakkari, 2010). Information systems (ISs), including CIS, are expected to support the performance of work (Gasser, 1986). Users are motivated to use them if they facilitate information interaction, e.g. various forms to produce, communicate and consume information (Hovorka & Germonprez, 2011). In social work, it is vital that CIS offers appropriate tools to chronicle a client case (White, Hall, & Peckover, 2009) and to present it comprehensively (Huuskonen & Vakkari, 2011).

Occasionally, obstacles related to the material properties of IS (Leonardi & Barley, 2008), users' unawareness about properties (Koopman & Hoffman, 2003) or contextual issues (Azad & King, 2011) may hinder the information interaction. The users tend to seek solutions to bypass the obstacles, however. Their own alternate routes to reach work goals are called workarounds (Gasser, 1986; Koopman & Hoffman, 2003). Workarounds have been considered as a secondary design where users “tinker and tailor” the system to better fit with the demands in real context of use (Hovorka & Germonprez, 2011). The workarounds have been also described as an outcome of a learning process which was preceded by resistance toward a new technology (Boudreau & Robey, 2005; Orlikowski, 2000).

The research on CIS use in social work has enriched again since 1990' (Rafferty & Steyaert, 2009). The long lasting themes have been the bureaucratization of social work (e.g. Burton & van den Broek, 2009) and CIS' impact on the nature of information (e.g. Pithouse, Hall, Peckover, & White, 2009). Recently, the implementation of Integrated Children's System (ICS) in Great Britain has generated a substantial number of research evaluating technological failures (Ince & Griffiths, 2011) and

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criticizing policies behind the system (Wastell, White, Broadhurst, Peckover, & Pithouse, 2010). Studies of workarounds in social work are missing.

There has been a call for the post implementation stage studies of technology (Boudreau & Robey, 2005) that would reckon in the genesis and consequences of the workarounds (Pollock, 2005) and their localized context (Germonprez, Hovorka, & Gal, 2009). Understandably, insight about tinkering practices at the grass roots can provide vital information to remedy or set IS on a specific organizational culture (Ciborra & Nygaard, 2002), too. This type of information is essential when CIS is better fitted with social workers' work tasks.

Our aim is to explore social workers' workarounds in information interaction in CIS as part of their daily work. We consider workarounds as a process: the antecedent conditions, the actual action and possible consequences of them. Our findings rely on semi-structured interviews and real-life observations with verbal accounts. The field work was realized in three Finnish municipal in-home child protection services several years after the implementation of current CIS.

The paper is structured as follows. First, we introduce our conceptual framework and related literature. Thereafter, we describe research environment and methods used. We structure the results section in three work related themes: managing individual clients' trajectory, managing clients' groups and accounting statistics as part of direct social work. Finally, we summarize and discuss the results and present grass roots improvement ideas for CIS.

2. Conceptualization of workarounds as a process

Workarounds have been broadly defined as substitutive methods (e.g. Koopman & Hoffman, 2003) that facilitate the continuation of the information interaction and realization of a task at hand. The process model divides a workaround into three phases: preceding conditions, a workaround itself and consequences of workaround (Halbesleben, Wakefield, & Wakefield, 2008) (Fig. 1).

Information interaction, in most cases, intertwines to some wider activities, such as work tasks (Blandford & Attfield, 2010; Vakkari, 2003). IS support the accomplishment of 'primary work' (Gasser, 1986) as they facilitate various ways to produce, communicate, aggregate and consume information (Hovorka & Germonprez, 2011).

The obstacles faced in information interaction are part of an antecedent phase of the workarounds. Koopman and Hoffman (2003) suggested categorizing the workarounds on the basis of four obstacle types. Firstly, the design flaw in software refers to buggy programs and laborious paths in a system. Secondly, hardware or component failure concerns system misbehavior. Thirdly, the intentional design limits aim to purposefully prevent users' action. Fourthly, the software may also totally lack the necessary features. This may be due to the new attributes in work tasks unknown when a system was designed. The users may be unaware about the system features (Koopman & Hoffman, 2003) or their conceptual model does not match with the conceptual model of the system (Blandford & Attfield, 2010). Also, pressures from external environment and bottom-up constraints (Azad & King, 2011), e.g. policies and protocols, have been named as conditions behind the workarounds (Halbesleben et al., 2008).

Gasser (1986) defined workaround as an unintended manner to use a computer or avoiding its use and turning to alternative ways to accomplish work tasks. He identified three concrete forms of workarounds. Firstly, the data were adjusted or even incorrect data were entered to get the desired outcome in IS. Secondly, the organizational procedures were reversed. Thirdly, users created alternative backup systems that could be either manual or automated ones. Recently, the workarounds have been seen as innovative ways to tinker and tailor IS (Germonprez et al., 2009; Hovorka & Germonprez, 2011). A shortcut has been defined as a specific form of workaround that is used as a reaction to time block (Halbesleben et al., 2008).

The classification of consequences of workarounds to harmless, hindrance and essential ones (Ferney & Sobreperez, 2006) describes the dual nature of workarounds. Workarounds do not necessarily affect data accuracy at all. Alternatively, they leave gaps in documentation if, for instance, information is entered partially. Workarounds may be essential to get work done but they may as well harm the workflow as well (Ferney & Sobreperez, 2006).

We define a workaround from the process perspective as follows. It is a substitutive method that is used to overcome a constraint in information interaction in CIS with a specific motive to complete a work task. The workaround is used either to substitute the existing but insufficient properties of CIS, to patch up the lacking ones or to survive external demands.

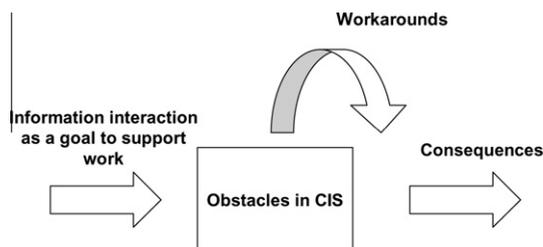


Fig. 1. Workaround process.

3. Workarounds in IS in social work and health services

Recent British studies have extensively reported the mismatches between work practice and Integrated Children System (ICS). The findings demonstrated difficulties of documenting narrative information (Hall, Parton, Peckover, & White, 2010), problems in gaining a full picture of a case (White, Wastell, Broadhurst, & Hall, 2010) and enlisted technical shortcomings in detail (Ince & Griffiths, 2011). The workarounds have not been in the focus of these studies. Some remarks were made about social workers reverting to other systems (Ince & Griffiths, 2011) and parallel paper files that were used because of the unstable system and complexity of data entering and finding (Shaw et al., 2009). The social workers overcame the timescale demands in a child's case by redefining the date of the assessment in ICS and moving the case forward in the assessment process in ICS although there was not necessarily a need to do so (Wastell et al., 2010). These examples demonstrate that not only technical failures but also external policies generate workarounds.

The workarounds have been explored in various health care information systems (see Halbesleben et al., 2008; Lawler, Hedge, & Pavlovic-Veselinovic, 2011) including the electronic health record (EHR). The studies have reported the persistence of paper along EHR. Lack of skills and knowledge about EHR and perceived efficacy of paper were motivation to rely on paper workaround (Saleem et al., 2009). The paper seemed to better support writing and reading practices of physicians (Heath & Luff, 1996; Varpio, Schryer, Lehoux, & Lingard, 2006).

The use of copy-paste within EHR was identified in the study based on a survey among physicians (O'Donnell et al., 2009). Automated text categorization within EHR revealed that the physicians copied their own previous entries but some of them used also text written by colleagues. The study assumed that copy-paste was used because it was considered an effective way to save time (Thielke, Hammond, & Helbig, 2007). Therefore, the copy-paste can be considered a shortcut that is a sub-category of workarounds (Halbesleben et al., 2008).

The study in computerized consultation package in EHR in a hospital revealed that instead of using the reporting option of the system to track active consultations the clinical staff used Excel spreadsheets. The shadow system offered more flexibility and functionality (Saleem et al., 2011).

4. Study design

Our objective is to explore social workers' workarounds in CIS from the process perspective. We answer the following research questions:

- What kinds of obstacles in information interaction lead to the workarounds?
- How do social workers and social work managers work around obstacles in CIS?
- What are the possible consequences of workarounds?

4.1. Research environment

The field work was carried out in three Finnish municipal social service organizations (A, B, C) in 2008. Child protection in-home service is part of statutory social work. It provides support to children and their families in problematic life situation by offering services just as family workers visit at home, financial aid and support persons and families. The social workers' work was organized differently in the research sites varying from pure child protection to cover all areas of social work. The variation in work content impacted on what modules of CIS the social workers used and what information they were mandated to access.

A social worker with a co-worker was assigned to manage a child's case. The case management included activities such as assessing need for the services, keeping in touch with a child and his/her family and other parties involved in the case, and organizing services. Documentation was a mandatory part of the work. The social work managers gave consultancy to their subordinates if needed and carried out some official decisions. Their major tasks were administrative. The system administrators, in turn, were in charge for the maintenance of CIS. They also produced statistical information.

The current CIS replaced the former one in 2004 in research sites A and C and in 2006 in research site B. The data conversion was manual. Therefore, only the basic information of active clients was manually entered to the current CIS. Narrative case reports were left in former CIS. Each research site tailored the CIS to match the local needs. The CIS had separate modules for different purposes (Table 1). The modules were not directly connected but the navigation went through a 'diary view'. The modules can be purchased separately.

Table 1
CIS modules and content and availability at the research sites (A, B, C).

| Module | Content of modules | A | B | C |
|---------------|---|---|---|---|
| Documentation | Chronological case report as free text; client plan structured with titles | x | x | x |
| Family | Structural information of a family living in a same household | x | x | x |
| Decision | Formal decisions (e.g. opening and closing of a case, given services) structured mostly with drop-down menus, justifications as a free text | x | x | x |
| Work done | Performance information about realized work task structured mostly with drop-down menus | | x | x |
| Scheduling | Future events structured mostly with drop-down menus | x | | x |

Table 2
Overview of data collection in research sites (A, B, C).

| Type of data | Informants | A | B | C | Total |
|------------------------------|-----------------------|---|----|------------------|--------------------|
| Interviews | Social workers | 6 | 8 | 9 | 23 |
| | Social work managers | 1 | 3 | 3 | 7 |
| | System administrators | 1 | 1 | 1 | 3 |
| | Total | 8 | 12 | 13 | 33 |
| Observations and think-aloud | Social workers | 3 | 3 | 5/6 ^a | 11/12 ^a |

^a One social worker observed twice.

4.2. Data collection and participants

Our data consists of semi-structured interviews and observation of social workers using CIS in conjunction with their verbal accounts (Table 2). After a pilot interview, the interviews were carried out and the observations were conducted thereafter.

In the research sites A and B, practically almost all the social workers in child protection were reached for the interviews. In the research site C, that was the largest one, one quarter of the social workers were interviewed. The interviewees were at different stages of their career. Social work managers and system administrators were interviewed to gain a 'variety of voices' (Myers & Newman, 2007). The themes of the interviews were the work, documentation and use of CIS. The questions varied according to the role of the interviewee. The workarounds were not directly asked about but often the topic came up among other questions, and then it was discussed in more detail. The interviews were tape-recorded and transcribed in full for analysis. The total interview data consists of 33 interviews with an average length of 2 h (Table 2).

The social workers' willingness to participate in observation was asked for during the interviews. Everyone who was asked accepted the request. Twelve observations were conducted in a realistic and authentic context of CIS use. The social workers worked normally in these sessions doing their daily work with CIS. The only exception was that based on their own choice they verbalized and reflected upon their actions concurrently every now and then (Makri, Blandford, & Cox, 2011; Miller & Brewer, 2003). Observation data includes field notes from all sessions and the tape-recorded accounts from ten sessions. The recording was not appropriate in two sessions. The sessions varied from 2 h to the whole working day. The total data is about 40 h. Field notes were written up shortly after the observation session. The commentaries of the social workers were transcribed word for word.

4.3. Data analysis

The analysis was started with holistic coding (Dey, 1993) when items related to CIS were identified. Thereafter, the coded parts were read through and the following narrower codes were added: production and use of information, obstacles in the use of CIS, workaround and ideas to improve CIS.

The notes from the observations and social workers' commentaries during the sessions were matched up. Thereafter, the data was segmented (Miller & Brewer, 2003) into functional entities. A functional entity is a single task in CIS consisting of a sequence of actions occurring in order to reach a certain goal. The functional entities ($n = 92$) were activities like writing a case report or making different types of decisions. The analytical frame covered the following aspects: the purpose of activity in CIS and its linking to a work task; a sequence of actions and types of information interacted; blocks in information interaction and means to work around the block.

Lastly, the analysis of interviews and observation data were joined together. Finally, the coded parts were organized in the analytical scheme that depicted the process of workarounds: antecedent conditions, action and consequences (Fig. 1). The interviews offered an overall picture of the use of CIS in daily work, problems encountered in the use and the solutions to them. Observations and social workers' accounts concretized in detail the use of CIS and brought out how workarounds were embedded in the information interaction in CIS.

5. Findings

The social workers recorded and used information in CIS daily. They expected that CIS would offer support in gaining an overall picture of a single case (see also Huuskonen & Vakkari, 2011) and controlling their clientele. The social work managers, instead, used CIS less frequently, because their work tasks rarely required recording. Information in CIS was often relayed to them by the social workers or the system administrator. Specifically, the managers wished that CIS would have been able to provide accurate statistics about clients and work realized at the organizational level.

CIS did not fully live up to the expectations, and various obstacles in information interaction with CIS were faced. A social worker summarized the overall problem of CIS: "At our office, the system administrator knows CIS the best. CIS is a rare program made in cipher. You get to understand it when you have used it for a long time, messed up with it and participated in many training

sessions.” (Social worker – site B – Interview 8) The data extract signals frustration but also lists potential strategies for familiarizing with CIS. It is a matter of learning by doing and by the hard way. When facing an insurmountable obstacle, the system administrator is a resource that is turned to.

Alternatively, workarounds were developed to bypass the obstacles in information interaction in CIS. They included small scale actions in CIS or reliance on alternative technologies or traditional paper. The next three sections bind together the process of workaround more in detail. The workarounds are approached from three perspectives: maintaining an individual client’s trajectory, being aware of clientele, and accounting about work and clients at the organizational level. The division (a) brings out the major areas where CIS was expected to support work (b) describes workarounds in relation to narrative, aggregated and statistical information (c) depicts the workarounds from the viewpoint of direct social work practice and managerial needs.

5.1. Maintaining individual client’s trajectory in CIS

5.1.1. Obstacles

The child’s trajectory was maintained and could be found over several unconnected modules and documents (e.g. a child welfare assessment, a case report, a client plan) in CIS. The *insufficient linking of modules and documents* resulted in cumbersome navigation and information fragmentation across CIS. The case report was the central information source among the various documents in CIS. The time sliced entries contained “odds and ends” type of information as a social worker defined it. *Insufficient filtering options*, however, slowed down locating the essential information within a case report. Additional information, such as the statements of other professionals, was available in paper files.

The information interaction was harmed also because of the advisedly *obstacles set by an organization*. Firstly, access to the information in the other sectors, e.g. income support could be denied if the social workers’ work tasks did not directly relate to the sector. In practice, the distinction between the duties was not that clear. As the social workers in child protection also provided financial support, they had a need to access the income support files, too. Secondly, there was a limited access to information in former CIS. That was explained with the lack of skills of the social workers to use former CIS and an irregular need to relay on earlier information. Thirdly, the social workers faced obstacles in information production since they were not able to delete recorded decisions themselves. The purpose was to prevent an accidental deletion of the essential documents. The organizational blocks, therefore, were justified for the sake of privacy, practicality and safety, respectively.

The general changes in the of nature work reflected in the requirements of documentation, and consequently the way information was maintained in CIS. Family files were replaced by individual case files when work orientation changed from family to child-centred (Pösö, 2011). This was the case in our research sites too. Previously, the records were found either under the youngest (site A) or oldest sibling (site B) or under the head of the household (site C). Individual recording for each child and demands for accountability increased time spent with CIS. This led the social workers to struggle with a *limited time resources* and seek alternative ways to operate in CIS. The social worker expressed a concern about how working hours were distributed: “One of our long term worker said that our work shifts to more interaction with the computer than with the clients.” (Social worker – site A -Observation – entity 76)

5.1.2. Workarounds and their consequences

To avoid multiphase navigation between modules and too many clicks the social workers *embedded* information in the case report instead of using appropriate modules or documents. For instance, a social worker chose to collect contact information of the families on the top of case reports instead of using a family module meant for this type of information. Likewise, saving and verifying each subtitle separately in a structural client plan was perceived as being complex and therefore the plan was embedded in a case report as a free text. Embedding was also an ad hoc solution to post information at least to a place somewhere in CIS. A just recently introduced document type, the summation of child welfare assessment, did not have a specific place in CIS yet. Therefore, it was written in MS-Word and copied to a case report. In two first cases, the workarounds were reactions to the shortcomings of CIS. In the last one, instead, it was a matter of changed attributes in the work tasks. Obviously, embedding simplified the use of CIS. The navigation was reduced since information was in one place. The embedding, in some cases, had harmful consequences, too. The embedded client plans were practically hidden in a case report. Thus, there was no separate document that could have been sent to a client to inform him/her. Nor it was possible to collect statistics about made plans.

The social workers prevented the information fragmentation across insufficiently linked modules by using the case report as the main document to preserve a case history as a whole. A *manual linkage* aka a short written reference was made in it to create a connection to information elsewhere, either in the other modules or in the paper files. Practically, linking was a double work. Within the case report, the social workers used *information signals* to point out the essentials among otherwise indistinguishable information. The signals, just as bold fonts, titles with capital letters and listings supported skim reading. The signals could be compared with underlines made on paper. Maybe the unwritten rules within organizations, however, made the social workers also wonder about the appropriateness of highlights or even abandon the use of them. A social worker approached the issue considering a client as a potential reader of a case report. Since bolded fonts were used most likely to highlight lamentable issues a client might feel uncomfortable seeing them pointed out as such.

Intermediaries were turned to when information interaction was constrained due to the organizational blocks. Intermediaries were colleagues who had sufficient privileges or know-how to access information. Firstly, a colleague could be approached if access to information required to carry out a work task was denied. Secondly, the access to former CIS was most likely obtained through long-term social workers who had a long experience in using it. Even years later the commands were still deeply rooted in mind as explained in next: “I used it almost twenty years so I know it like the back of my hand. Actually, just during this week workers asked me to print the information out from there.” (Social work manager – site C – Interview 24)

The copy-paste function was a workaround which goal was to reduce time spent in mandatory recording. The copy-paste occurred not only between the same type of documents but also across different document types of a child. Unchangeable parts of a document could be reused as such, as was the case when a client plan was updated, for instance. Alternatively, a copied text could be later modified to better fit the current purpose. The copied text of a case report could serve as a base for a client plan or a taken into care decision. Copy-paste was realized between siblings’ files equally, which turned out to be a double-edged sword, though. Copy-paste was a way to maintain a history as whole as possible for each sibling. The same information content in the siblings’ record was needed, for instance, when identical decisions were made or short entries about the shared event recorded. On the other occasions, copied and pasted information was regarded to compromise the individuality of a case report even though entries were modified: “child-specific information” added and “extra information” cleaned out. Obviously, the siblings have a shared family history but also their unique lives.

5.1.3. Illustrating and summarizing

The functional entity from the observation sessions (Vignette 1) concretizes the workarounds that support keeping the client’s trajectory as a whole in a narrative case report. The left column lists major moves in and outside the CIS and the right column gives examples of the social worker’s verbal account.

The social worker has received a child welfare notification from a police previously [move 1]. The notification concerns three siblings who are already involved in the child protection services. The social worker starts by locating a child through the diary view [move 2]. She records the notification to three siblings [moves 3, 6, 8] by selecting information from the drop down menus and navigates between their files. The structural recording provides statistics for organizational use too. She suggests that CIS would support her work better if it enabled her to add a notification to all siblings at once if needed. She also makes an entry to the case report of the child [move 4]. The entry offers complementary information, and it points out the existence notification and connects information in different modules. Within the case report, the social worker uses a bold font for the word child welfare notification to indicate the contingency in a client’s trajectory. Further, she copies and pastes the entry to siblings’ case reports [moves 7, 9]. In this case, the content of the information for the siblings is the same in any case and the shortcut – a specific form of workaround – rationalizes work and saves time. Copy-paste requires several moves. The case reports are open and closed by turns because only one document at a time can be open. As wished by several social workers CIS could be improved if multiple documents could be opened concurrently. The social worker manages her own work too. She uses her calendar [move 5] to check up the appointment that was set up. The calendar is an important information artefact for social workers. It supports personal time management whereas the scheduling module in CIS is rather for organizational use. Finally, she updates her paper list [move 11] that contains information about invitation letters sent to clients. The information on the list is parallel to information in CIS but faster to find and see at a glance.

Vignette 1

Functional entity: recording a child welfare notification (site A).

| Moves in CIS | Example of verbal account |
|--|---|
| 1. Child welfare notification from the police 2. Locates a child through Diary view 3. Adds a notification (own module) | <i>Then I choose child welfare notification, it is from police. Then it is drug abuse by a parent and child protection</i> |
| 4. Writes an entry to a case report (bold font) 5. Checks an appointment time from a calendar and record the time to a case report | <i>Generally, I use a bold font for a word child welfare notification so that it shows up I have already booked up a time for them. But when was the appointment?</i> |
| 6. Adds a notification to a sibling’s file (own module) 7. Copies and pasties a case report entry to a sibling | <i>You have to do a great deal of typing if a notification concerns several children in the family Now I copy this so that I can add it to the text of the other children</i> |
| 8. Adds a notification to another sibling 9. Copies and pasties a case report entry to another sibling | <i>If you could choose whether you want to record the [notification] only to single child or simultaneously to all children in the family. Then this would be a smart CIS</i> |
| 10. Invitation letter to the parent by using Microsoft word 11. Updates her own paper list holding information of invitations | <i>Invitations sent. I normally mark it so that I can remember that I have sent them</i> |

Table 3
Summarizing the process of workaround in the maintenance of client's trajectory.

| Obstacle | Workaround | Consequence | Design ideas |
|---|---------------------|---|--|
| Insufficient linking of modules (intricacy) | Manual linkage | +Continuous story | Facilitating direct moves between modules |
| | Embedding | –Possible harm to compile statistics –Hiding information | View showing all documents jointly |
| Insufficient filtering | Information signals | +Support for reading –Uncomfortable from a client point of view | Automatic short summations |
| Organizational block | Intermediaries | –Extra work and time effort | Control by log data |
| Limited time resources | Copy-paste | +Saves time | Allowing two documentation to be open simultaneously |
| | | +Guarantees a record for each sibling –Lost of individuality in a child's record | Concurrent recording |

Table 3 pieces together the complexity of workarounds in the maintenance of a client case. Both the technological and organizational reasons generate the workarounds. Use of workarounds means also balancing between positive (+) and negative (–) outcomes.

5.2. Maintaining control over client groups

5.2.1. Obstacles

The social workers were in charge of varying numbers of children. The group level information about the children was needed to be able to coordinate the direct social work. A social worker explained the situation when she took up the baton of a new client group: “I wanted to know children's names in my area. That was to be able, for instance, to book up times for the negotiations to check up their current situation.” (Social worker – site C – Interview 1) Also, the figures were needed for estimating whether the caseload between social workers was in a reasonable balance.

An individual child could be searched by using the name or ID. However, searching for the whole clientele of a social worker, not knowing the exact names, turned out to be problematic. Our data offered three plausible explanations for the obstacle. Firstly, the search tool was too complex and an unconnected part in CIS. Therefore, the social workers had not learned to use it. Secondly, information about a worker in charge was inaccurate in CIS. Inaccuracy was explained by the fact that several workers took care of a child's matters over the client process. Information about a change should have been updated each time but obviously that was not necessarily done. Thirdly, the social workers were not even authorized to do group level searches. The obstacles returned to the *intricacy of CIS* and consequently specific skills required, *inaccurate information* and *authorization issues*.

5.2.2. Workarounds and their consequences

The social workers created *shadow systems* to keep updated with their clientele. *Self-made client lists* were maintained either on paper or on alternative technologies just as MS-Word or Excel. Lists provided by system administrators existed, too. They organized children according to the three formal stages of a client process: notification, assessment or service stages. In the research site C, general practice was that the system administrator prepared the client lists for social workers semi-annually. The aim was that the social workers would go through the list and check up the current status of the cases. The social workers preserved the list also for later use because it offered a modest help to keep track of the cases.

The content and organization of information varied on the self-made lists. The minimum information seemed to be a child's name and the year of birth. At the widest, the Excel-based list contained all the basics about the client: name, contact information, services in use and planned future activities and specific remarks on the case. The color codes supplemented the list: yellow being an alert code, for instance.

The new workers gained from ‘*hand over lists*’, which served as a communication tool between a former and a new social worker. It named the clients and could also indicate the most critical cases to work with.

Similarly, a social work manager maintained a paper list on children in foster care. It was a well tried and an inherited workaround from a former manager. The manager reasoned the workaround from two perspectives. Firstly, the maintenance of a list did not require much effort because the situation remained relatively stable over time. Secondly, the paper list provided better support than CIS. Information was accessible faster at-a-glance and did not require multistep clicking in CIS.

Vignette 2

Managing client groups.

OBSTACLE:

The system administrator send [client lists] to us. Our manager thought we should be able to print out the lists ourselves. But from where that I can't say. (Social worker – site C – Interview 15)

WORKAROUND:

I don't have [list] on a computer. Sometimes I have written the names on the paper or aside of a calendar. But I have the clients in my head. (Social worker – site A – Interview 14)

CONSEQUENCE/TENSION:

In principle, you are not allowed to keep up client lists. It is a rule. (Social worker – site C – Interview 1)

SECONDARY DESIGN SUGGESTION:

It would be great if I could get out my client families and how old are the children and for how long time they have been my clients and all that. I never thought that before but if I log to CIS with my ID why can it not even print out my clients? (Social worker – site A – Interview 11)

Table 4

Summarizing the process of workaround in the client group management.

| Obstacle in CIS | Workaround | Consequence | Design ideas |
|---------------------------|----------------|---|----------------------------|
| Intricacy of CIS | Shadow systems | +Increased awareness | Integration of search tool |
| Inaccuracy of information | | +Information available fast at a glance | |
| Lack of authorization | | –Legitimacy of client list unclear | |

5.2.3. Illustrating and summarizing

The multi-voiced collection of data extracts in [Vignette 2](#) illustrates the phases of workaround in controlling client groups. Firstly, the social worker refers to a discussion recently carried out in their organization. The manager had assumed that self-directed searches in CIS are possible but the issue has twisted in the wind. At least, the social worker cannot indicate where the appropriate tool in CIS exists. Therefore, she relies on lists made by the system administrator. The second extract demonstrates two styles to sustain paper shadow systems: paper sheet or side of a calendar. Moreover, it points out the value of the social worker's own memory. She has worked years in the area and has built a long-term relationship with her clients knowing them by heart. In the third extract, the social worker carefully refers to the principles and rules that question the list outside CIS. The rule may refer to the Personal Data Act that dictates what kind of personal registers are permissible. In the final extract, stimulated by interview the social worker ponders the possible support CIS could offer. According to her, obtaining basic information on clientele is the essential feature in CIS.

[Table 4](#) depicts the process of workarounds in the client group management. There are several possible reasons to relay tools outside of CIS. The workarounds have both positive and negative consequences.

5.3. Statistical accounting about work and clients**5.3.1. Obstacles**

The production and use of statistical information bound together three occupational groups observed in the organizations. The social workers did the groundwork as a part of the case recording. The figures were raised especially when information was entered through the drop-down menus in various modules like in recording child welfare notification, decisions or in separate “work done module”. The system administrators aggregated figures to be used within organization and as well in the national child welfare statistics. The social work managers rested on statistics provided by the administrators. However, the managers wished for independency and looked for “*smoother co-operation with CIS*” as expressed by one of them. The manager's expression refers to her own inadequate skills, and before anything, the intricacy of CIS.

The social workers considered especially the statistical reporting about their work as a duplicate task in CIS. From their point of view, the essential information was recorded as free text in a case report. The “work done module” depicting figures was *insufficiently linked* to the case report causing multi-step navigation across CIS. Certainly, navigation highlighted the separation of the tasks. The *pre-structured information* in the drop-down menus represented the work *insufficiently*. The information produced through menus was minimal (type of activity, time used and number of participants) compared with case reports. The client-based allocation of work activities was not unambiguous because often the activities related to several children at once. Obviously, the logic of work and the way to collect figures did not match. The figures depicted the “products” but the social workers perceived it difficult to squeeze the client process into product information. Statistical information was not perceived to benefit them in client cases. The obstacles faced by the social workers, therefore, seemed to be only partially technological ones. There was mismatch between root level and administrative needs.

Vignette 3

Making statistics about work in site B.

| Social workers | Administrator and manager |
|---|---|
| <p>OBSTACLE: It is a huge inconvenience. . . It is not easy to remember the work done module and to see what is the point of it (Social worker – Interview 2)</p> <p>WORKAROUND: Then we keep up the double registries, for example, about the client plans. For example on Word or Excel or by some other means (Social worker – Interview 13)</p> <p>SECONDARY DESIGN SUGGESTION: The work done module and the documentation should be integrated. The case report could have a similar kind of tool as the work done module is (Social worker – Interview 21)</p> | <p>TENSION: We have some workers who probably resist CIS. They do not use it as wished. We have noticed that you cannot quite trust every statistic (System administrator – Interview 31)</p> <p>WORKAROUND: I have asked for the statistics manually from the workers. This is the number of my clients and this is the number of the client plans. Then I have calculated the percentages myself. That's what is asked from us (Social work manager – Interview 27)</p> |

Table 5

Summarizing the process of workaround in the statistical accounting.

| Obstacle | Workaround | Consequence | Design ideas |
|---|---------------------------------|-----------------------------|--|
| Insufficient linking of modules (intricacy) Insufficient pre-structured information Irrelevancy to direct social work | Ignoring Information merging | –Inaccurate statistics | Integration of work done module into case report |
| Intricacy of CIS Inaccuracy of information in CIS | Shadow systems | –Extra work and time effort | |

5.3.2. Workarounds and their consequences

Generally, the social workers roughly estimated the time spent in work tasks. As a workaround, the social workers either *ignored* it entirely or *merged information*. For example, several short activities of the same type in a row could be shrunk as one in the “work done module.” Alternatively, an activity could be allocated only for a single child even though it would have concerned several ones. The information merging rationalized the social worker’s work and saved time spent in documentation. On the other hand, the accuracy of the statistics was harmed.

The social work managers only occasionally collected statistics themselves. Their workarounds were *shadow systems*. The statistics were collected directly from the workers and then figures were calculated manually.

5.3.3. Illustrating and summarizing

Vignette 3 gives two perspectives to accounting statistics. The left column gives a voice to the social workers and the right one to the social work manager and the system administrator. As stated by the social worker recording the statistical information is an extra burden, because it barely has importance in direct social work. Therefore, it is also easy to forget. The system administrator has recognized undesirable ways to use CIS and names it resistance against CIS. The inadequate recording has an effect on accuracy of statistics. The social work manager is responsible for reporting the outcomes to the board of social services. One of the measures followed quarterly is the number of client plans. She thinks that it might be possible to get figures out somehow through the “work done module”. Her reasons to turn to workaround are the unclear procedure in CIS and a doubt that information would not even exist there. She asks numbers from workers manually and thereafter calculates the figures herself. The social workers respond to the manager’s demand with their own workaround: either paper based or alternative technology based accountancy. An obvious outcome of the workarounds is that work gets done even though it requires extra effort. At the end, the social worker presents an idea to simplify the double phase recording. The joining of two modules would reduce navigation. The recording would be done in a case report that is considered the major working area in CIS.

Table 5 encapsulates both the social workers’ workarounds in statistical accounting while recording a client case (the first row) and workarounds when statistics are compiled for organizational use (the second row).

6. Discussion and conclusion

Our study extended our knowledge about workarounds in the use of CIS in social work. Firstly, the workarounds were examined as a process when their genesis and consequences were also taken into account (Pollock, 2005). Secondly, the research of workarounds was introduced to human services – a sensitive field dominated by narrative information and

regulated by legislation and professional ethical code. Thirdly, the social workers were considered as active agents who realized their daily work with the support of CIS even though they faced obstacles in the use of it. The workarounds within and outside of CIS were primary users' attempts to design CIS to better fit their task environment (Azad & King, 2011; Hovorka & Germonprez, 2011) and get their work done. Understanding the workarounds as secondary design suggestions is a step forward to socio-technical system design. Its potential has been recognized in the social work research, too (White et al., 2010).

Generally, the social workers considered that CIS was far too intricate. Multiphase procedures in decision making, inconsistencies in the position of the cursor and number of clicks in navigation on a screen were concrete examples about design flaws (Koopman & Hoffman, 2003). Complaints were made about unclear terminology and icons, that indicates conceptual mismatches between a user and CIS (Blandford & Attfield, 2010). Specifically, the *insufficiently linked modules* generally complicated the realization of tasks in CIS. The social workers navigated long paths as often the same issue generated a need to record information in several modules. The continuity of case information was at risk as information was distributed across different documents and modules in CIS. It seems that CIS rather consisted of separate sources meant for different purposes than being a unified tool.

The importance of narrative information in social work has been widely emphasized (e.g. Hall et al., 2010). It is obvious that free text facilitates a comprehensive description of a client situation. Another aspect, however, is how narrative information is made accessible and is used. This has not been discussed in the previous studies. Our findings demonstrated that the social workers had difficulties in finding the core of a case especially in long and miscellaneous case reports. The documentation module facilitated recording in free text but *lacked tools for filtering or searching information* in a case report to get a faster grip on information. CIS did not support skim reading, and if intensive reading was necessary a case report was rather printed out (Huuskonen & Vakkari, 2010).

The social workers balanced how to fulfil the macro-level demands for the recording while they had limited time resources to work with a multitude of clients (see Huuskonen, Korpinen, & Ritala-Koskinen, 2010). These demands were expressed in the Child Welfare Act that defined recording as a mandatory part of each client process. On the organizational level it was equally expected case information to be up-to-date but also that performance information to be recorded. Understandably, the social workers sought alternatives to ease their workload in CIS. Our findings, therefore, are consistent with Azad and King (2011) who suggested that tension between top-down requirements of the external environment and the bottom-up constraints in daily work are potential generators for workarounds.

Manual links guaranteed a continuum of a case history and information signals pointed out the core information in a case report. These workarounds were realized to support the later use of information.

The social workers turned to *shadow systems* when keeping control over their clientele. The reasons could be either the inadequately integrated search tool for producing group based information; lack of authorization; or workers' unawareness about the features in CIS. Previous studies have identified social workers' reliance on paper (Shaw et al., 2009) and alternative technologies (Ince & Griffiths, 2011) as a backup but not discussed their purposes in detail.

The top-down requirements were beaten by two types of workarounds. Firstly, the social worker copied and pasted information within a child's documents, and between siblings' records, too. These shortcuts saved time (Halbesleben et al., 2008), rationalized work and guaranteed a case history for each sibling. The use of copy-paste has been identified in patient records, too (Thielke et al., 2007). Secondly, the social workers occasionally merge performance information or totally ignored its recording. The findings are in line with the discussion about the irrelevancy of statistics to direct social work (Shaw et al., 2009) and social workers' unwillingness to reduce a client relationship to numbers (Carrilio, 2005). It has been argued that the British social workers are in the "iron cage of performance management" (Wastell et al., 2010). Our findings demonstrate that the social workers also find ways to break out of the cage.

The workarounds may seem rather small technical tricks to interact with CIS. If they are contextualized in human services, tensions and balancing acts in their use come up. The tension exists in relation with clients, legislation and demands for being accountable. According to Vierula (in press) parents experienced child protection records as traumatic and repressive reminders about the past. Understandably, information signals pointing out a regrettable event may be a sensitive issue from the clients' point of view. The shadow systems used to maintain awareness about clientele contravened legislation. A juxtaposition of the direct social work and administrative needs exists as workarounds related to statistical information recording depict. After all, the workarounds were social workers' everyday survival strategies, which supported them to get a better grip on information and consequently carry on their work with their clients.

Our study was realized in three social service organizations using the same, albeit locally, tailored CIS. Our research, therefore, gives a limited account from three sites with a particular tool in use. In the interviews, the workarounds were not directly asked for. Hence, the analysis was built on the cases that emerged spontaneously. The observational data was collected when the social workers particularly focused on information activities in CIS. Consequently, the data may over-emphasize information production activities in CIS. The information interaction in other daily routines was missed. Also, the workarounds may have been so embedded in the work practices that they were not even interpreted as such in the observations. The research, however, is a detailed representation from the grass roots. It shows how social workers actively worked around the obstacles in CIS.

The social workers tinkering in CIS (Ciborra & Nygaard, 2002) and their direct verbalizations produced remedies for design. They thought up the possibility to have multiple documentation views open simultaneously, integrating a proofreading tool in CIS and specific place for clients to write down their own thoughts. The joint view of the varied documents and direct moves between them would guarantee a decent chronology, and would substitute the current use of manual links. The social

workers needed summarized and time-wise overviews, for which visual diagrams were proposed by a social worker (see also Huuskonen & Vakkari, 2011). Integration of “work done module” into a case report was directly suggested: the beginning of an entry could collect procedural information in structural form and thereafter the entry could continue as a free text. The integration would concretely diminish a navigational path. Moreover, it might even decrease the mental gap between recording for direct social work and administrative needs; but might be a difficult design task though (see Ince & Griffiths, 2011).

The people, practices, values and technologies form rich information ecology (Nardi & O'Day, 1999) in child protection. An ethnographic approach has been suggested in order to gain insight into what occurs in the interaction between users and CIS in a specific context (Gillingham, 2011). Interaction log data from CIS as complementary data might offer a more detailed understanding about patterns of use and time spent with CIS. Further research is still needed, for instance, about the eventual use of voluminous narrative information in daily work and information production chain from grass roots to national child welfare statistics. Possibilities of language technology have been explored in health records to provide the overviews of patient histories (Suominen & Salakoski, 2010). Its applicability in social work records should be studied, too. It might offer tools to develop CIS in the condition of the narrative information – a traditional way of knowing in social work.

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