

Method for Modeling Social Care Processes for National Information Exchange

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Abstract. Finnish social services include 21 service commissions of social welfare including Adoption counselling, Income support, Child welfare, Services for immigrants and Substance abuse care. This paper describes the method used for process modeling in the National project for IT in Social Services in Finland (Tikesos). The process modeling in the project aimed to support common national target state processes from the perspective of national electronic archive, increased interoperability between systems and electronic client documents. The process steps and other aspects of the method are presented. The method was developed, used and refined during the three years of process modeling in the national project.

Keywords. social care, process modeling, method, national project

Introduction

The development of integrated and holistic care as well as social care ICT applications increasingly require support for active processes and activities in addition to traditional concepts of 'data' and 'records' [1]. Such initiatives require interoperability and governance between multiple viewpoints and information systems. Approaches have been introduced to support interoperability in large-scale ICT networks in social care [2]. Many interoperability challenges are derived from the heterogeneous record management and work processes. We describe the method used in the Finnish National project for IT in social services (Tikesos) to model client record management and work processes. The process modeling method was developed between 2008 and 2011.

Tikesos was a development project to support utilization of IT in social care [6]. Its goals included the standardization of the client information in social services, the specification of nationwide electronic documentation and the unification of record management and archiving practices in the municipalities. Sharing of client information to authorized caregivers was also pursued. The national IT services for social care will be mainly based on healthcare KANTA project and its patient record archiving architecture [2]. The solutions will also be used to support the requirements of collaboration between health and social care and integrated care for the clients [3].

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Understanding the work practices and information needs of the workers for designing client information systems (CISs) is important in fields like social care [4,5]. Such requirements and understanding can be supported by process modeling [6,7]. Process modeling efforts were initiated in the Tikesos project in order to understand the client processes and workflows underlying the structured electronic documents. The future record management requirements and electronic archiving processes were especially considered. In particular, a clear picture was required on how information and structured documents flow between the participants: the client, service providers, the national archive for client records, and local information systems. Features such as computerized decision support were not considered in process modeling, although the structured documentation and semantic definitions produced in other parts of the Tikesos project provide future possibilities for them as well.

1. Materials and methods

The main inputs for process modeling in the Tikesos project were collected on national level in co-operation with various social care professionals and practitioners through sixteen documentation workgroups. These groups described the information requirements as well as the common workflows for social services [2]. The process modeling sessions were attended by a group which consisted of one or two social care professionals and one technical process modeler and a process manager, whose one task was to ensure that the national legislation was followed. The process modeling group also gathered information about the services and work methods from the network of social care professionals, internet, studies and theses. In addition, the Finnish legislation was an important input for process modeling. The social care services are strictly regulated by legislation [2], governed by approximately 17 laws.

The scope of social care process modeling work was extensive and the results were to be usable nationally. Hence the Classification of Social Care Services which was co-developed with process modeling efforts was used to find the right perspective to the social care service process models. The classification categorizes Finnish social services under 21 service commissions of social welfare such as Adoption counselling, Income support, Child welfare, Services for immigrants and Substance abuse care. Service commissions of social welfare are realized in social services. An example of service commission from the classification is shown in table 1. The classification also defines 11 common service process types under the service commissions of social welfare. These service process types also guided the modeling of processes.

The process modeling group got input from the client document modeling group of the Tikesos project and vice versa. The work was also synchronized commission by commission by these groups. The Finnish public administration recommendation standard for process modeling (JHS152) [8,9] was applied and the Business Process Modeling Notation (BPMN) version 1.1 [10] was used along with the QPR ProcessGuide modeling tool [11]. The tool was linked to a national process bank which is a portal maintained by the modeling software vendor and the municipalities and commonly used by the municipalities.

In Finland, the municipalities have autonomy to organize and provide the services and therefore they cannot be forced to provide social services through detailed nationwide process specifications. In addition, according to national experience from

the UK [12], enforcing too much structure can have undesired effect on the outcome. Thus, there needs to be a balance between structure and autonomy.

Table 1. Example from Classification of Social Care Services (Substance abuse care).

Service commission of social welfare	Core service process	Phase of a service
Substance abuse care	Initial assessment for Substance abuse care	Substance abuse care initiation
		Assessing the need for substance abuse care
	Organizing service for Substance abuse care	Planning of substance abuse care services
		Follow up and estimating of substance abuse care services
		Finishing of substance abuse care
	Administrative actions for Substance abuse care	Case initiation for substance abuse care
		Case resolution for substance abuse care
		Decision for case in substance abuse care
	Service Provision for Substance abuse care	Planning for substance abuse care service
		Derive substance abuse care service
		Assessment for substance abuse care service
		Ending of substance abuse care service

JHS152 recommendation has four process levels: process map, operations level, process flow and workflow. In addition, all process models were joined together in one complete model by using additional level above process map: Social service map level. The levels and numbers of processes modeled in Tikesos project are shown in figure 1.

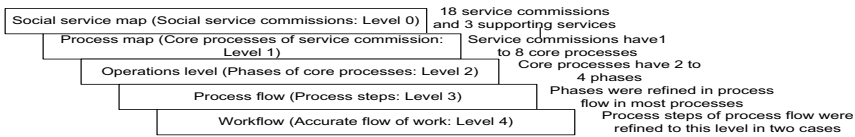


Figure 1. Process levels used in the project.

During the three years of process modeling, eighteen service commissions of social care and three common support services were modeled (see Figure 1) to the process flow level (level 3), resulting in more than 150 process flow models. The income support and child welfare service commissions also included some workflow models. The results were nationally published in fifteen specification documents.

2. Results

The main result of this paper is a modeling method which progresses top-down from overview description to more accurate description level by level (Figure 2). The method has some loop-back decision points (branching points marked in figure with: <>). These are needed as at some point it may be necessary to return to some of the previous process modeling steps to perform further refinements. All such loop-backs are not shown in Figure 2. The main steps of the method are:

1. Gather information about the service commission to form a holistic picture.
2. Designate unique names for processes of the service commission, using shared terminology such as the classification of social services.
3. Outline the use of client documentation within various phases of the process, using the list of structured client documents for the service commission and specifying how they are used within the phases of the process.

4. Check if all documents are adequately covered by process models and phases.
5. Refine the process phases to process flow level by resolving the participants along with their information needs and information sources. Clarify the responsibilities for each of the client documents and other means of work such as electronic meetings, and potential for solutions such as process automation.
6. Write textual descriptions for the process models, documenting the flow of the processes. If some important exceptional cases are left out of the standard process models in phase 5, they should be characterized in text.
7. Evaluate the process models with project manager and with data modeling group. Approve the process models in an accepted body such as project board.
8. If the project manager, data modeling group and the project board approve the process models, the modeling of the service commission is complete. Otherwise, additional modeling from step 5 is necessary.

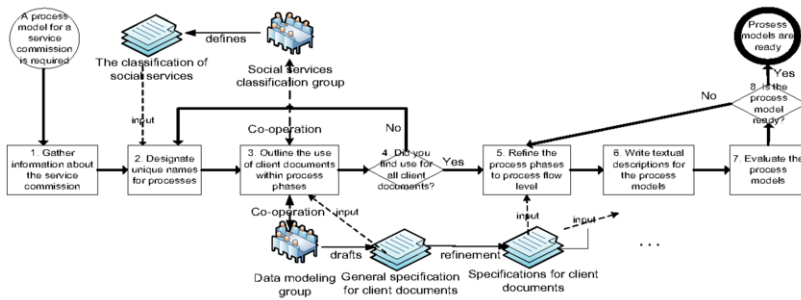


Figure 2. Process modeling method.

3. Discussion: applying the method

Figure 3 shows a three-level example of the process model from the service commission of Substance abuse care. The main participants of various process models such as the client, the electronic archive (eArchive), the Client Information System (CIS) and the Service organizer are included. The information flows contain either client documentation as transferred messages between systems (boldface) or direct communication between human participants such as meetings, phone or internet calls.

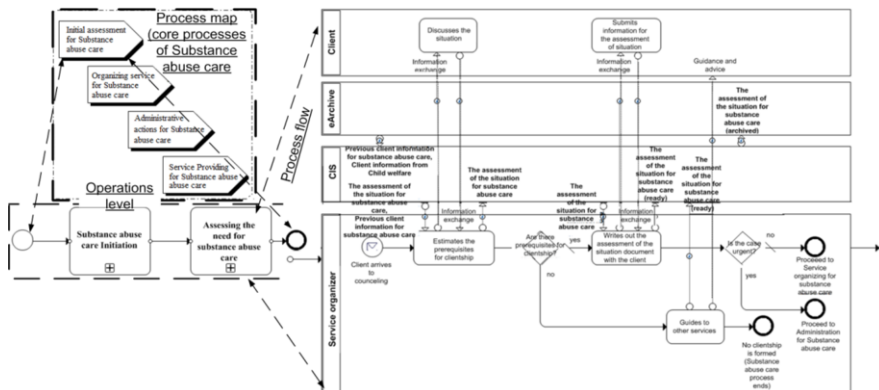


Figure 3. Example process model from the service commission of substance abuse care.

4. Concluding remarks

The method shown in this paper was developed during three years of process modeling. It produced process models for national use on a high level and as the experience from UK [12] points out, it seems better to avoid too much detail. We note that the important parts of a process modeling method are the contact points and the information requirements between collaborating groups. Although the method has not been systematically tested outside the project environment, its phases, levels and artifacts are reusable. Modeling social care processes is quite time consuming, and according to our experience comprehensive and detailed (level 4) modeling from all perspectives of different stakeholders is not a feasible goal. Further detailed modeling from the standpoint of the IT services of the national electronic archive for social services and the local CISs has been planned and performed to support generic documentation and access management requirements. The national Tikesos service process models must be applied and refined locally in municipalities and by service providers. The process models also provide basis for further development of currently used client information systems and new IT solutions for social services information management.

Co-operation between process modelers and other development groups is essential. Collaboration between process and data modeling and social services classification group in the Tikesos project enhanced quality of all produced models despite synchronization difficulties. In future it is also important to highlight the link between healthcare and social service processes [1]. Storing information in shared electronic repositories with jointly agreed access principles and mechanisms is an important step towards this, but we state that it must also be supported by accessible process models.

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