

Using human language technology to support the handling officers at the Swedish Social Insurance Agency

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ABSTRACT

The Swedish Social Insurance Agency, (Försäkringskassan) receives 40 000 e-mails per month as well as phone calls from the citizens that are handled by almost 500 handling officers. To initiate the process to make their work more efficient we carried out two user-centered design workshops with the handling officers at Försäkringskassan with the objective of finding in what ways human language technology might facilitate their work. One of the outcomes from the workshops was that the handling officers required a support tool for handling and answering e-mails from their customers. Three main requirements were identified namely to find the correct template to be used in the e-mail answers, a support to automatically create templates and finally an automatic e-mail answering function. We will during two years focus on these design challenges within the IMAIL-project.

Keywords

Human language technology, Swedish, automatic e-mail answering, user centered design

INTRODUCTION

The Swedish Social Insurance Agency, is one of the largest paying agents in Sweden, with 1

billion SEK (approximately 100 million Euro) payment per day. The agency handles a large amount of e-mail and phone calls every day. The handling officers have a large amount of knowledge on what and how to answer citizens. Nevertheless, they are in need of assistance to cope with the great amount of e-mails and telephone calls they get daily; to allocate and coordinate their work better and, to capitalize and update their competence and knowledge on the domain of social insurance. For this purpose, e-services based on human language technology seem to be appropriated to introduce into the handling officers' work, as the bulk of the e-mail arriving to the Swedish Social Insurance Agency might be answered by providing citizens with automatic or semi-automatic responses. IMAIL [1] is the research project within we will study how to introduce language technology into the handling officers' work.

RELATED RESEARCH

During the last decade, many countries have put a lot of efforts in developing and introducing e-services into the public sector. Sweden, for example, is one of the countries that together with US and Denmark shared the third position (see Grundén, [2]). Indeed, according to the Swedish government, public organizations are considered as precursors in the introduction and propagation of e-services and information into the society. For instance, it has been suggested that public authorities should be stimulated to develop "the 24hours authority" (Statskontoret,

[3]). “The 24hours authority” is a term that introduces the idea that public service and information should be available to the citizens at any time through the use of Information Technology. For an overview of the different levels of e-Government see Krogstie [4]. This particular vision of e-government puts thus high demands on both employees and citizens. Grundén [2], for example, showed in her surveys that important implementation aspects of e-Government are closely interrelated with the competence and knowledge development of the civil servants conducting their work with new electronic tools.

In the same sense, Cajander & Ericsson [5] argues that e-Government will make civil servants ill-healthy since they can not affect their working situation since they are captured in the way their computer system work and they therefore will not able to make creative solutions. Fully aware of these risks, our work intends to provide both, employees and thus citizens with usable and quality-based language technology e-services.

The vision of the IMAIL project is that human language technology can play an important role in the development of user-centred services for e-government. Human language technology (HLT) includes all algorithms and tools that deal with human speech and writing. The technology is basically based on the analysis, filtering or generation of human language, but the applications are far more sophisticated and useful (e.g. machine translation, predictive text, speech interfaces, search engines). HLT has a clear potential not only to support human-machine interaction but also to support human-human interaction.

There exist several examples of the usage of human language technology in e-Government including for example e-mail classification for automatic routing to appropriate official see Segev & Gal [6], human language technology as an aid in rule-making processes in Cardie et al [7], and crime information extraction based on language technology based extraction techniques from police reports and witness narrative reports,

see Ku et al [8]. Scheffer [9] have analyzed incoming e-mail to a European education provider, and he found that 42 percent of the incoming e-mails could be answered with nine different standard answers. In Busemann et al [10] there is an overview on automatic e-mail answering.

DEVELOPING AND DESIGNING HUMAN LANGUAGE TECHNOLOGY FOR HANDLING OFFICERS

We have carried out two user centered design workshops with handling officers at the Swedish Social Insurance Agency in Stockholm to find out in what ways human language technology based services might support handling officers in their daily tasks. The first workshop was a so-called future workshop, see Löwgren & Stolterman [11], and focused on the design of a future system for e-mail handling at the Swedish Social Insurance Agency. In the second workshop the handling officers created scenarios, storyboards and sketches based on design themes from the future workshop.

One of the outcomes from the design workshops was that handling officers need a support system for assisting them with answering e-mails. More concretely, they need a tool helping them to find the correct templates to be used in the e-mail-answers as well as support able to automatically create templates for them. When it comes to the fully automatic answering of the e-mails, the handling officers like the idea of getting rid of the frequent short questions, but at the same time they are very concern with how the messages should be designed and written. The opinions of the officers were that the messages should clearly indicate that they are answers from a machine; they should include a disclaimer, and always give a reference for how to get personal service from a real person. What kind of questions that are suitable for automatic answering was also an important issue.

In this sense, this position paper proposes a system based on human language technology that is expected to answer as many as 30 percent of the e-mail flow received by the handling officers. More specifically, the research questions at the core of our project are the following:

- i) How should such a system be designed to support the handling officers in their work in the best way?
- ii) How can we assist the handling officers to capitalize on (reuse) and update the answers already sent?
- iii) How should the introduction of a new tool be integrated into the current electronic practices shared by handling officers?
- iv) Which are the new tasks that such a new tool may generate in the daily handling officers' work?

QUESTIONS FOR DISCUSSION

- Will the handling officer really gain of having a system that assists them in answering the questions?
- How large percentage of the e-mail questions to the Swedish Social Insurance Agency can be answered automatically?
- Is it possibly to automatically or at least semi-automatically create templates for answering e-mails?
- What types of citizens' requests are suitable to get an automatic or semiautomatic answer?
- How should we balance efficiency and quality when developing e-services based on language technology?
- Is it possibly to automatically or at least semi-automatically create templates for answering e-mails?

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