Chapter 11
HCI for PrimeLife Prototypes

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Abstract User-centered design (UCD) processes need to be further extended to the field of privacy enhancing technologies (PETs). The goal of the UCD process for PETs is to provide a means for users to empower them to manage their privacy on the Web. Taking care of privacy and being careful while surfing the Web are still considered to be cumbersome and time-consuming activities. Hence, PrimeLife aspires to provide easy to use tools for users to manage their privacy. This chapter describes the challenges in UCD that arose during the development of the PrimeLife prototypes. As part of the HCI activities in the PrimeLife project, we have researched the users’ attitudes towards privacy and discovered the main challenges when developing user-friendly PETs. We use two example prototypes to explain how the challenges can be tackled in practice. In general, PETs should neither require much of the user’s attention and time, nor should they require particular technical knowledge. They should, in fact, present the complex methods of privacy enhancing technologies in an easy, understandable and usable way. We will conclude this chapter with a discussion of our findings and implications for further development of user-centered privacy enhancing technologies.

11.1 Introduction

One of the main goals of the HCI activities within the PrimeLife project was the design, development and evaluation of usable and understandable privacy enhancing technology (PET) prototypes. This also included the extension of user-centered design (UCD) processes to be able to advance existing methods in order to be applicable to the particular needs and challenges of PET prototypes. The PrimeLife prototypes were also developed to be able to answer research questions by conducting user evaluations. As a part of this process, researchers encountered several challenges to be solved in order to accomplish the above stated goal. In the present chapter, these challenges will be identified in Section 11.2 and a brief outline of
them will be provided. The main goal of this chapter is not an in-depth description of the challenges, but to provide an overview of possible issues and solutions when developing PETs. Section 11.3 will present examples on how these challenges were tackled as part of the PrimeLife project. Different approaches to apply the suggested solutions to the challenges within a UCD process will be described in Section 11.4. The findings presented in this chapter will be discussed in Section 11.5. Furthermore, conclusions will be drawn and an outlook on further research will be provided.

11.2 Overview of HCI challenges

In this section we will outline the HCI and UCD challenges we identified while working on the design and evaluation of various PrimeLife prototypes.

11.2.1 Challenge 1: Limited User Knowledge of PETs

When designing and developing standard software, developers usually rely on knowledge in the form of research and products that already exist. Another possible source of information is the user’s mind [Nor88], i.e., the user’s knowledge about PETs and the application of these technologies.

Knowledge about privacy enhancing technologies in the mind of the users is still fairly limited. Hence, relying on this knowledge when design decisions are made in the area of PETs is likely to lead to unusable results. Several evaluations conducted throughout the duration of the PrimeLife project have indicated that the users’ knowledge of privacy on the Web is rising. We see this as a consequence of more public occurrences and lively discussions about privacy in mass media, especially in connection to data disclosure and social networks [GA05]. Our experience gained during the PrimeLife project shows that an increasing number of users are interested in privacy and in active privacy protection.

Unfortunately most users still think that privacy protection is very time-consuming, too complicated or cannot be achieved, as it is in the hand of the service providers. Through several user evaluations within the last three years [KWW08, KWGT09, GWKT10], we have observed an increase in user awareness for privacy enhancing technologies and privacy issues in general. This might also be caused by added media coverage and attention to social networks or larger cases of industrial data loss. Concerning the users, this means that the knowledge in the mind of the users is increasing and based on our research it is foreseeable that general applicable guidelines for the best way of designing PETs will evolve over the next years.