Tutorials

Problematising and Ideating for Design Science Research

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Abstract. Problematisation is the activity of developing understanding, defining, and selecting the scope of a problem to be solved or improved upon by a Design Science Research (DSR) project. Ideation is the act of coming up with and selecting a new means for improving upon a selected and defined problem that further sets a DSR project's scope and will be developed and evaluated in the DSR project. Performing both activities well is essential for successful completion of a DSR project. This tutorial will define and frame these two activities within existing DSR processes and methodologies and develop practical skills for how to accomplish these activities. The principle method to be applied is Coloured Cognitive Map-ping for Design Science Research (CCM4DSR). Using CCM4DSR, DSR re-searches can analyse the causes and consequences of a problematic situation (using coloured cognitive maps or CCMs), transform the resulting understanding/CCM into a CCM representation of what it would mean to solve or improve upon the problem, ideate means to achieve the desired outcomes, decide upon the scope of a DSR project, select the attributes or criteria to evaluate, and select constructs for design knowledge theorising. CCM4DSR support for the last two activities (evaluation and theorising) will only be introduced, not developed further during the tutorial. Practical exercises will require attendees to use and discuss the frameworks and tools in CCM4DSR to develop skills in their use.

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Taking Control of Our Privacy When Using Mobile Apps: Checks and Tools

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Abstract. Mobile applications that provide access to information system services can impact user privacy. This impact influences the quality of an information system from perspectives such as ethics, regulatory compliance, and user satisfaction, ultimately determining their intention to use the system. In this tutorial, we address this issue from the user's perspective, working on users' ability to take action. From the understanding of the risks assumed when using mobile applications, to the use of indicators helpful to make informed decisions for self-protection.

Keywords: Privacy · Mobile Computing · Risk Assessment

Summary

Mobile applications that provide access to information system services have become essential for user interaction with these systems. However, we are not used to considering the impact of these applications on user privacy when assessing the risks associated with an information system. This is changing as this impact influences the quality of an information system from perspectives such as ethics, regulatory compliance, and user satisfaction, ultimately determining their intention to use the system.

In this tutorial, we will address this issue from the user's perspective. We will begin with a brief introduction to the issue and explore the extent of users' ability to take action. Next, we will demonstrate how to find and use quality indicators and information to make informed decisions. This helps users understand the risks they assume when using these applications and protect themselves effectively. Although the workshop is primarily focused on end users, the tools presented will also be useful to developers and other experienced users.

Expected Background of the Attendees

Attendees are expected to have a basic understanding of digital technologies, such as using mobile applications, navigating online services, and recognizing

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common security concepts. However, no prior expertise in cybersecurity, legal compliance, or software development is required. This tutorial is particularly valuable for end users seeking to enhance their privacy awareness, as well as for developers and IT professionals interested in better understanding user-centric privacy concerns and solutions.

Learning Objectives

By the end of the tutorial, participants will be able to:

LO1 Recognize the privacy risks users take when using mobile apps
LO2 Use the mechanism users have to protect their privacy in mobile apps
LO3 Use privacy indicators and quality repositories to assist decision-making
LO4 Assess the effect of their decisions as users on the privacy risks they take
LO5 Understand the potential of privacy metadata repositories for developers

The activities will be organized in four main phases. The relation of each phase with Learning Objectives and timeline is shown in Table 1:

Table 1. Structure: Contents, Learning Objectives, Timeline.

Content	Learning Objectives	Timeline
Introduction	LO1	20 min: Min. 1–20
Self Protection	LO2	20 min: Min. 21–40
Repositories & Indicators	LO3, L04, LO5	35 min: Min. 41–75
Conclusions	LO4, LO5	15 min: Min. 76–90

Methodology

An **active learning** approach will be employed, based on **case-based learning**. A set of real-world mobile applications will be selected as practical examples to work on throughout the tutorial.

Useful Links

ToS;DR : https://tosdr.org/
Exodus Privacy : https://exodus-privacy.eu.org/
APK Falcon (App-PI) : https://apkfalcon.inf.uva.es/

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Introduction to Fractal Enterprise Model (FEM) and FEM Toolkit

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There exist several enterprise modeling languages, each aimed at a different usage. For example, ArchiMate can be used to understand what IT support exists or what IT supportis needed for certain business activities. Fractal Enterprise Model (FEM) can be used to understand how the enterprise functions as a whole in its environment, find missing activities, plan organizational changes, or radical business model transformations. FEM expresses the relationships between the enterprise assets, its business processes, and the enterpriseâĂŹs environment. The tutorial is aimed to introduce the participant to the FEMâĂŹs concepts: process and asset for describing enterprise activities, and external pool and external agent (e.g., a competitor) for describing the environment in which the enterprise operates. The tutorial will also introduce tools for drawing FEM diagrams (the FEM toolkit, which is freely available for download on Windows, Linux, and Mac) and presenting them on the WEB for stakeholders (the FEM viewer).

An example of an FEM diagram is shown in Fig. 1. It shows a model of a business consulting company. In the root of the diagram, there is a primary process (oval) - which represents the behavior. The shape has a double line border, which indicates that the primary process, i.e., the process has an external beneficiary who can pay for the service. Other ovals show supporting processes that are needed to provide the service. The processes are connected to the assets (set of things) - rectangle shapes - that are needed for running the processes repeatedly; the connections have the form of arrows with solid lines. The connection between the supporting processes and assets has the form of dashed arrows. A dashed arrow shows that the process is aimed to have the asset in working order. Arrows have labels that are predefined. A label on the solid arrow explains in what capacity the asset is used in a process. A label on the dashed arrow explains how the process manages the asset; there are three labels of this sort: *Acquire* - adding new elements; *Maintain* - maintaining elements in working order; and *Retire* - removing elements that can no longer be used in the process.

Two other shapes are meant to show the environment in which an enterprise operates. A cloud shape represents an external pool - a set of things - from which the enterprise can get its assets or to which it can add something, e.g., waste. The connection is shown by dashed blue arrows with a rounded tale. A rectangular shape with rounded corners represents an external actor that can be connected to the same pools. An external actor may represent competitors or collaborators.

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There is a special Internet site [1] devoted to the Fractal Enterprise Model. From this site, it is possible to download the FEM toolkit [2] that will be used by the instructor to draw FEM diagrams. The toolkit exists for Windows, Linux, and Mac. The installation on Windows is straightforward. Mac installation can be a bit complicated. Write to the instructor in advance if you tried but were not lucky in installing the toolkit. There is also a web-based viewer [3] that allows to browse through the package of models, which will also be used in the tutorial.

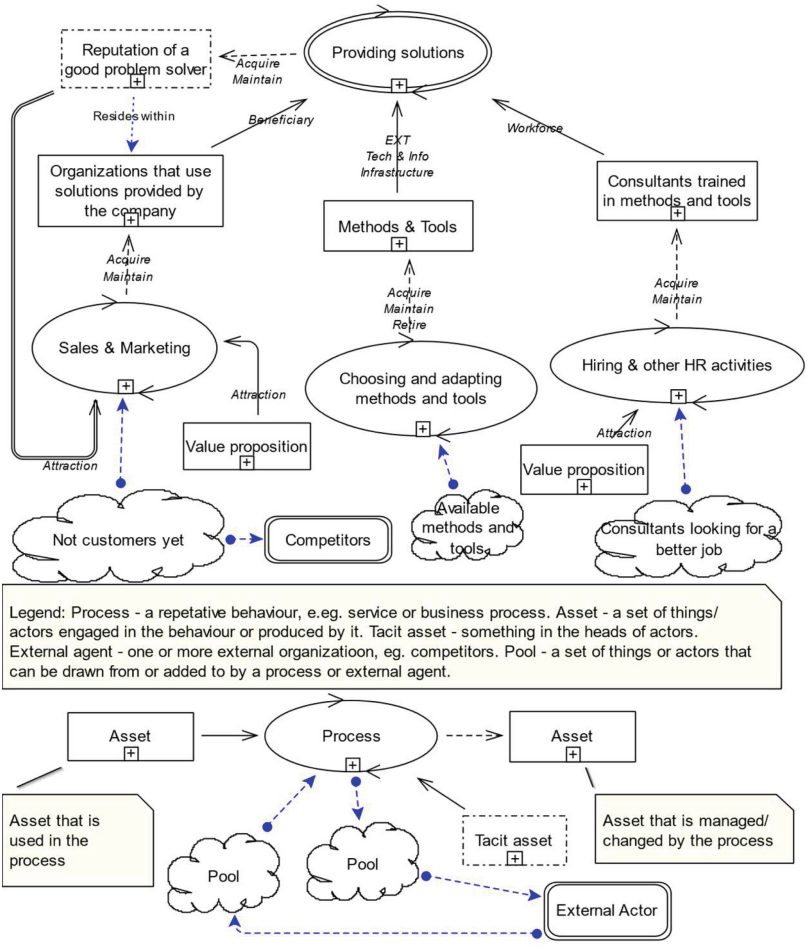

Fig. 1. An example of FEM model with some explanations

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