

**A practice for
Lifecycle & Portfolio-Management (LCPM)
within the context of a European NREN**

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Introduction

SURFnet, the National Research & Education Network (NREN) in the Netherlands, is providing network-connectivity to its connected institutions as well as a full range of security-, middleware- and end-user services. Most of the value-added services offered, result from innovation projects and hence are primarily developed from a technology-push perspective. The risk of a mismatch with customer needs is therefore imminent, often resulting in slow adoption of new services. The funding structure of innovation projects however, does not allow for a pre-dominantly "demand-pull" approach and thus the question arises on how to establish an equilibrium between demand-pull and technology-push.

In 2004 a process for lifecycle- and portfolio-management has been adopted within SURFnet that serves as a practical guideline for decision-making on product management and portfolio issues. A key-element of this procedure is the fact that the representatives of the member institutions are directly involved in the different go/no-go's in the lifecycle process. On the basis of the experience gained with the model during 2005 en 2006 this model has been refined to some extent resulting in the SURFnet Lifecycle- and Portfolio-model as it is outlined in this document.

A definition of LCPM

LCPM basically comprises of two inter-related processes, lifecycle-management and portfolio-management.

Lifecycle-management refers to the choices that are made during the development process of an individual service. Lifecycle-management is a dynamic process requiring a flow of decisions and does therefore not allow for direct involvement from member institutions or funding organizations.

Portfolio-management - on the other hand - is oriented more externally and guarantees that the range of services delivered to the users closely aligns with customer demands.

Rationale for LCPM

It is increasingly important for NRENs to align their service portfolio with current and future customer requirements as the average NREN customer-base (universities and research-institutions) is becoming more critical and demanding towards the NREN service portfolio. This trend results from the fact that:

- high-speed connectivity and associated services have become mission-critical for a growing number of users;
- education depends highly on 24/7 availability of network services and other NREN services (e.g. authentication services);
- NRENs are used for intranet connectivity (e.g. OPNs, VPNs) resulting in network dependency of financial and HRM applications;
- commercial ISPs are closing the gap with NRENs in terms of costs, technologies and provided services.

Traditionally, NRENs have been public funded and hence a technology push orientation is not uncommon since a focus on innovation and technology is the “raison d’être” for NRENs from the perspective of funding bodies. On the other hand, a pure demand-pull orientation would probably not stimulate innovation and would result in a lack of differentiation with commercial ISPs.

The SURFnet Lifecycle model

To avoid the pitfalls of a sole demand-pull and a sole technology-push orientation, SURFnet applies the model as depicted in figure-1. This model allows for input and feedback from customers at the various stages of service development while preserving the valuable orientation on technological innovation.

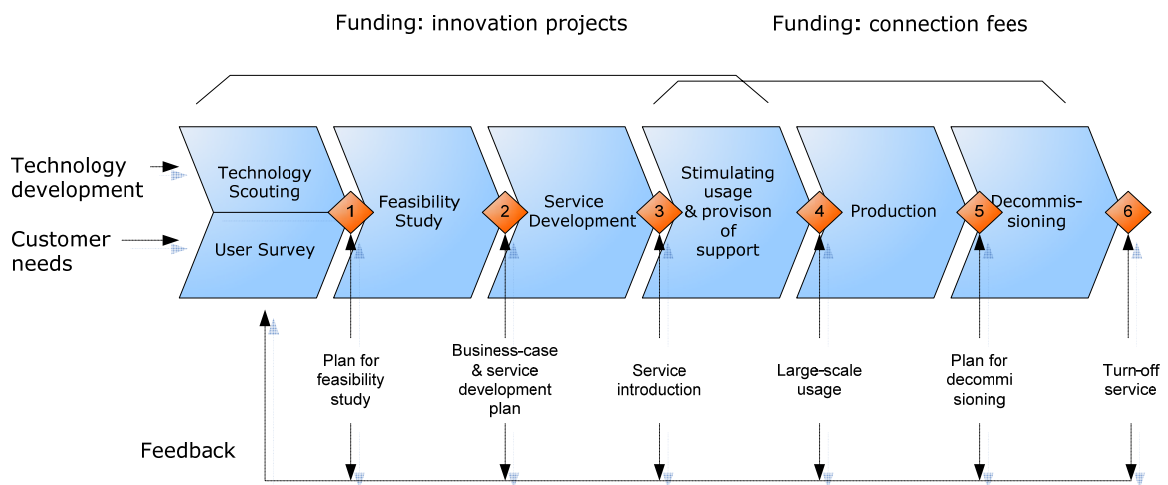


Figure-1 The SURFnet Lifecycle model

The main inputs for the lifecycle model are technology development (technology-push) and customer requirements (demand-pull). These inputs are formalized in a yearly technology scouting programme and a yearly conducted user survey. Based on these inputs the following go/no-go decisions are presented annually to a forum made up of representatives from the user constituency:

Go/no-go documents	Resulting lifecycle stage
Plan for a feasibility study	Feasibility study
Business-case & service development plan	Service development
Plan for service-introduction	Production
Plan for stimulating usage & support	Production
Plan for decommissioning	End-of-life

User Survey

Since 1991 SURFnet conducts user surveys. The focus in these surveys has traditionally been on end-users, more specifically on researchers, tutors and students. In 2006 the scope of the survey was broadened by including surveys on the requirements of member organisations and Special Interest Groups (SIGs). Figure-2 shows the framework of the user research project.

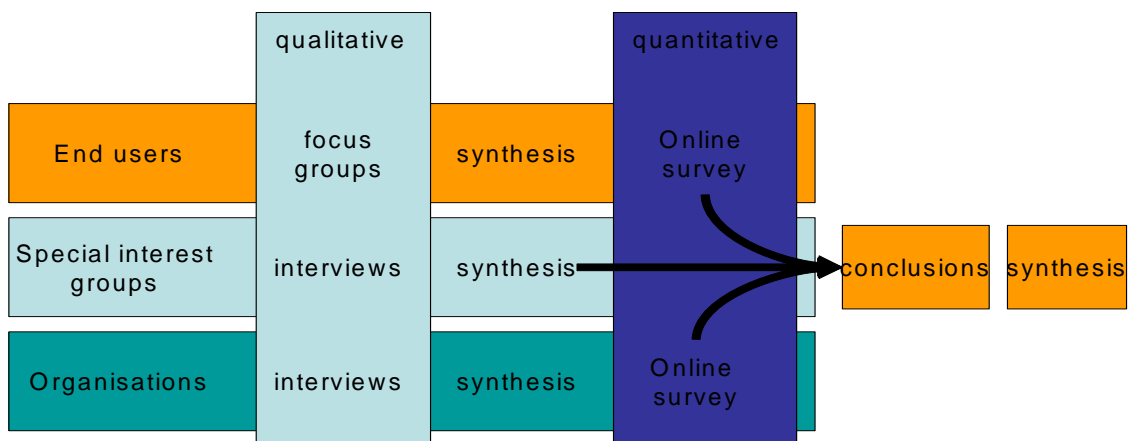


Figure-2: SURFnet User Survey 2006

Regarding the survey on *organisations*, we started with a long-list of topics and questions that might be relevant for ICT managers of member organisations. In order to verify the validity of the questions ten qualitative interviews have been conducted with ICT-managers, representing different kinds of organisations like universities, polytechnics, research institutions, libraries and academic hospitals. These interviews lead to a better understanding of the issues at hand and resulted in a short-list of questions. This quantitative survey was presented as a web-form to the ICT-managers of all connected institutions and included primarily questions regarding the portfolio of services but also questions on the dissemination of knowledge and customer satisfaction. The response rate of the survey amounted to 76 per cent, which is considered high for this type of surveys.

A similar approach was used for the *end user* survey. First, the most relevant topics were identified during discussions in small focus groups (see figure-3). These topics were then used for a quantitative survey that was distributed under end-users. In total some 3.000 end users, representing researchers, tutors and end-users, have filled in the web-form.

A specialized market-research company facilitated the qualitative interviews and processed the results of the quantitative surveys.



Figure-3 Focus group session with researchers

SURFnet (financially) supports a number of Special Interest Groups that consist of active users of a particular service that is provided by SURFnet. The people that attend the SIG-meetings are specialists in their field and their opinions are therefore highly regarded by SURFnet. For each *SIG* a specific questionnaire was drafted that was discussed during a regular meeting.

The SURFnet User Survey was concluded with a synthesis-meeting where representatives from the different stakeholders were invited to discuss the conclusions and actions that SURFnet proposes in response to the results found. During this meeting SURFnet presented the results of the surveys as well as the conclusions and actions that SURFnet has formulated in response to these conclusions. The meeting also functioned as a forum where feedback from the users on the conclusions and proposed actions was discussed resulting in endorsement from the representatives of the service-portfolio for 2007 as well as support for the innovation plans for 2007.

SURFnet considers the User Survey as a valuable tool for gathering input regarding service-portfolio decision-making as well as for the yearly innovation planning. The survey has provided a good insight in the objectives and opinions of the end users, member institutions and SIGs. The survey will therefore be repeated on a yearly basis and is incorporated in the LCPM-process.

Product management

In addition to the external inputs of the SURFnet Lifecycle the internal inputs are primarily organised around the concept of product managers.

The responsibility for each operational service is given to a combination of a product manager and a technical product manager. Together they are responsible for decision-making on the strategic, tactical and operational level. Daily operations are usually subcontracted to a third-party under full responsibility of the product managers.

During the lifecycle-process the role of the product managers is crucial since they are responsible for all aspects of the service, including the preparation of decision-making. These preparations include a yearly analysis that is executed in parallel with the User Survey. This analysis comprises of a cost-benefit analysis, including usage statistics.

Every service is outlined in great detail in a so-called service-description¹ in which the relevant operational parameters of the service are given. The service-description internally functions as a checklist, however a subset of the information is available on the SURFnet website².

The relevant service specifications of each service are included in the SURFnet Service Level Specification³. For each service the availability guarantees are available as well as other performance indicators. The main purpose of the SLS is to provide specific information of the service parameters of each individual service and therefore penalty clauses are not included in the SLS. Reporting on these parameters (e.g. availability statistics, usage indicators etc.) is presented to the member institutions by providing each institution with a dedicated webpage (customer specific reporting).

¹ A template for this document is included in Annex A.

² An example of an external service-description is available at <http://www.surfnet.nl/info/diensten/beveiliging/mailfilter.jsp>

³ The latest version of the SLS is available at <http://www.surfnet.nl/diensten/sls/>

Concluding remarks

Over the last couple of years the service-portfolio of SURFnet has gradually become more and more important for the member institutions that connect to our network. This results in a growing involvement of customers in both the SURFnet-network and the added-value services. In particular the network-services have become *business-critical* for many institutions and this trend will most probably intensify when applications like VoIP, storage and shared services are transported using the SURFnet-network. These developments require that the composition and quality of the SURFnet service-portfolio aligns well with current and future customer demands.

A well-balanced service-portfolio is also essential now that market-conditions have changed in the sense that a growing number of commercial ISP's is able to close the (technological) gap with NRENs. Until now this has not resulted yet in direct (financial) competition but it will definitely make connected institutions more critical towards the SURFnet service-portfolio and associated conditions (tariffs).

Apart from these (re-active) external reasons there is also an important internal reason for a focus on LCPM that follows from the financial urge to allocate resources efficiently. It is especially essential to decommission services, which have come at the end of their lifecycle, at the right moment.

For these reasons SURFnet has introduced the LCPM-model that is outlined in this document. First experiences with this model have shown that the model enhances the involvement of member institutions and end-users and facilitates reaching a balance between technology push and demand-pull.

Especially the user survey has proven to be a valuable tool for gathering input regarding user requirements. The survey is instrumental to a yearly decision-making cycle that results in a revised service-portfolio for the coming year and in an outline for the innovation plans.

Examples of conclusions that have been drawn based on the user survey that was conducted in 2006 are:

- operational excellence of (network) services should become a key focus of SURFnet
- security-services (CERT, MailFilter, IDS) and authentication-services (Federation) are highly regarded but the usage of these services requires stimulation and active support by SURFnet
- end-user services (e.g. streaming services, collaborative tools) should be marketed primarily toward researchers and tutors (and hence less focus on students)
- support is given to the introduction of new services including SURF MailFilter (anti-spam and virus-service), SURF Federation, SURF Server Certificate Service, SURF Intrusion Detection Service and lightpaths (including Optical Private Networks)
- support is given to the decommissioning of the following services: SURF Search Engine, SURF http mirror-services (e.g. Tucows, Apache etc.) and the X.509 PKI hosting service