Chapter 2.22
Designing for Service-Oriented Computing

Bill Vassiliadis
Hellenic Open University, Greece

EXECUTIVE SUMMARY

This case describes major management and technology issues which arise when designing advanced service-oriented architectures in distributed networked environments used for e-learning. The organization at hand uses a mixed funding model and is preparing for a large expansion of its services and capacity. This case takes place after the initiation of a project and during the design phase where significant decisions have to be taken about what is feasible, what are the risks and how they can be dealt with and finally, what is to be developed and how. The need to address diverse goals set by business, technology and education right from the start of the project requires new methodologies for documenting development plans, feasibility studies, risk, and human resource management policies. The project manager needs to go beyond traditional project management methods in order to cope with the needs of this use case and most importantly, to manage the risk that arises from many directions.

ORGANISATIONAL BACKGROUND

This case is set in the higher education industry involving an Open University which utilizes a mixed business model: its operation is funded by both public and private funds. This institution is supporting a diverse population of students which undertake undergraduate or postgraduate studies. Moreover, it provides postgraduate curricula to graduates who wish to extend or upgrade their studies to subjects related to their profession. The University's curricula correspond to various certificates, Bachelor or Master's degrees. A Bachelor degree is comprised of several research directions. Courses, organized in modules, are designed according to the distance learning methodology: students study using text books, participate in 5 tutorials for each module taking place in 8 towns, communicate with the corresponding tutor by telephone, fax, e-mail and letters, prepare 4 – 6 assignments for each module and finally, take a final examination 10 months later. A student belongs to one student group, called class. A class

is based on a major city in which class sessions take place. A tutor is allocated for each class of a maximum capacity of 32 students who inhabit in a specific geographical region.

The organization's educational services are targeted to a very specific audience:

- students: students are the main clients of the organization. They pay fees for attending courses.
- other Academic Institutions collaborating with the University: academic institutions are possible collaborators in the development and provision of MSc Curricula.

The academic personnel of the institution involve a small number of about 30 permanent personnel (Professors, Associated Professors and Assistant Professors) as well as a large number of tutors (about 1000). Each one of the permanent personnel undertakes, besides tutoring, the coordination of all classes and the overall academic responsibility for a specific course. Tutors cooperate with the University on an annual basis.

This organization is supported by a mixed funded scheme: it allows admission of students without an entry examination but although it is a state University, students pay fees for the cost of their studies. Fees cover the cost of the instructive material and all the expenses related to the studies. The number of annual registrations in each bachelor degree programme is about 500. To date, over 1800 students are registered for various stages of each course. Future plans of the administration foresee a significant increase in the number of new registrations will reach up to 1500 per year. The total number of students attending at all the educational programmes totals to 16000. Table 1 summarizes these figures.

The institution is relative new, with only five years of existence. It monopolizes the open and distance education of the country since it is the first and only higher education institute of its kind with bachelor and MSc. degrees recognized by the state. This fact has given the administration of the University the possibility to expand both its range of services and its capacity without serious competition in the domestic market. The following graph depicts in approximation, the annual increase of the organization's budget for the last 5 years.

It is worth noting that the unique services offered has created a large and ever-increasing client base. As the University is annually increasing its capacity, more and more applications are made for filling new student positions. Figure 2 presents this annual increase in capacity and the corresponding applications for registration for the last five years.

Since the organization is an Open University, new technologies are used for delivering education: electronic material, video lectures, electronic forums and e-mail. Advanced services include high-end communication and collaboration tools for online delivery of content and lectures in real time. It is reported that these tools have several drawbacks and they will be probably replaced in the near future. Asynchronous services are

Table 1. Organization's staff and clients

Administrative Staff	Permanent Academic Staff	Non-permanent Academic Staff	Students (clients)
100	30	1000	16000+