



Epicycles Pty Ltd

The Project

The project for a new business required a messaging system for automated provisioning, activation, testing and use of high volumes of uniquely identified mobile devices. Individual devices are assigned to users. A flexible distribution system for barcoded devices with perpetual lossless inventory was required. Requirements for complex product variants, pricing and invoicing evolved through the project. Marketing and transactions are all web based.

The need for a system was left until late in the business development. Four weeks before the first devices were due to arrive. The accounting requirement was poorly defined.

Project Management

Project management was poor. At one time the project was labeled “troubled project”. Lack of technical standards created a high level of rework. Lack of maintaining deadlines caused work arounds and further rework while the business continued to evolve and demand change and additional complexity. Slow sales introduced complexity as the business searched for an effective sales model. Lack of systems maturity within the business meant the impact of complexity and change on system development, testing and implementation time and cost was little understood. It was difficult to maintain momentum.

The demands of the business resulted in a high degree of parallel design, development, testing and implementation.

A change in project organisation resulted in development working directly with the business. The changeover took 4 weeks as the server was moved to a commercial service provider and mobile phone network equipment with proprietary software was reconfigured and moved.

The initial requirement of “4 week for stage one” has evolved into 9 months.

A formal methodology was not applied. A simple combined requirements, concept and project plan document was prepared. During development prototypes were developed for business approval.



Technical Environment

Standard Linux based web server with Apache, PostgreSQL with geospatial extensions, PHP, Smarty HTML templates, CSS, and JScript.

Sierra Wireless GX400 mobile phone gateways for SMS messaging with Lua scripting language.

A high degree of flexibility has been provided for the business through configurable tables. This increased the project complexity and development time while at the same time insulating development from a large proportion of changing business requirements.

Rachael's Role

The opportunity was taken to train and provide Rachael with insight and experience in all aspects of the project while performing useful tasks.

Rachael initially provided graphics expertise for the system marketing pages, eventually growing to providing all marketing pages within the developed standard.

Introduction to transaction web pages within the project was through early unit testing expanding to system testing and all system documentation.

From that base Rachael's role expanded into providing CSS and HTML pages changes using Smarty templates which provided an avenue into scripting with PHP.

Rachael responded well to the pressures of a project and the rapid addition of new skills while contending well with the inevitable uncertainty of not feeling ready.

Exposure to relational database design was followed by Rachael developing SQL statements for use within PHP scripts.

Client side JScript was then added to Rachael's portfolio of skills.

Coaching in debugging and problem solving within web pages was provided.

In parallel coaching in the fundamental principles and concepts of programming, was provided such that Rachael has developed her own algorithms. Rachael has understood the need for standards within projects.

Rachael has been involved in and informed of project management issues as they arose and understood the impact of project management on her tasks.



Importantly the whole system design has been discussed with Rachael who developed her skills sufficiently to question aspects of the design and suggest improvements. The system has been discussed from perspectives of the whole business requirement, design and development. She has begun to understand the relative merits of different design approaches. Rachael provided an important sounding board for discussion of all aspects of the system.

As a result Rachael has been able to visualise and write a complex web page from scratch using defined project standards. The price list maintenance page required insert and update to five one-to-many and one normalised many-to-many related tables and has been accepted as easily usable by the business. Rachael understood the business context and how the page related to the rest of the system.

While Rachael still requires coaching for more complex tasks, as is appropriate for the length of time involved in acquiring such a wide spectrum of system development skills, she has become increasingly independent and capable of performing increasingly long and complex tasks to required standards.

Rachael joined the project with established sound work habits and completed tasks willingly. She understood and contributed to the social processes necessary to sustain a project and maintain momentum through a difficult project. Rachael remained objective and worked methodically under pressure.