Controlling software development

A breakthrough for business

Businesses must be able to change the way they operate quickly – and often they need to change their software to do so. With this in mind, over the last four years the Victorian Government has developed an invaluable new method for acquiring custom-built software, reports Terry Wright

If, as a software developer, you are providing custom-built software to your clients with a budget blowout of less than 87 per cent you are doing better than normal. If, as a customer who has commissioned a software development, your project actually delivers something, you are doing well when you consider that 32 per cent of projects are cancelled before they deliver anything. Does this seem too bad to be true?

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The global software development scoreboard is dismal. Consider these figures:

- 32 per cent of projects are cancelled before they deliver anything.
- The average project cost blowout for projects that do complete is 87 per cent.
- The price business is paying for comparable applications can vary by a factor of 15:1.

In an industry worth an estimated $200bn (US) per year (with Australian share at $4.6bn), why should this be the case? There are probably two primary reasons. Firstly, the software industry is relatively young and is still in the evolutionary stage. Unlike most other engineering disciplines we have not had access to ancient and excellent tools which allow us to predict, plan and measure progress and productivity. Secondly, until relatively recently we have had no reliable and broadly accepted technique for measuring the output of a software engineering project. In the building industry they talk squares of floor space and in road construction kilometres of highway – but we have had nothing.

Over the past decade both of these problems have been overcome. In the late 80s the first of what are now known as software functional size measures was developed. These measure the size of the functionality provided to the end user, irrespective of how the software has been developed. The most used variant is known as function points. To continue the analogy with the building industry, whereas the average house size is 15 squares, the average software application size is 500 function points.

Australia has been at the forefront of these developments. Through the Australian Software Metrics Association (ASMA) established in 1989, Australia has been a key player in leading the development of standards for functional size metrics. It has driven the creation of the International Software Benchmarking Standards Group (www.isbsg.org.au) which is based in Melbourne. The membership of this body comprises the peak national software metrics ▶

associations of the 10 leading software engineering countries. ISBSG has created a repository of data of more than 800 projects from 20 countries, which has provided a wealth of software productivity data across the major industry sectors.

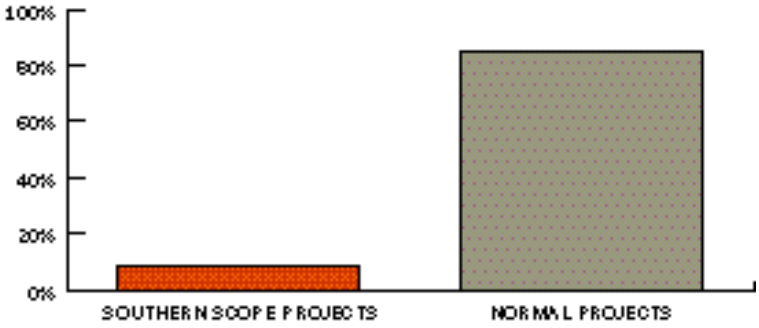
It was in this environment of new found ability to understand and to control software engineering projects that, in 1996, the Victorian Government developed an alternative approach to acquiring custom-built software. Using this approach, departments would specify the nature of the software they required and have potential developers bid for the work on the basis of '$$ per function point' for software ultimately delivered. This was a major shift from the previous alternatives of either paying a fixed price based upon specified requirements or paying for inputs ('bums-on-seats').

In recent times, there was anecdotal evidence that customers using the '$$ per function point' approach had received significant benefits when compared to the traditional approaches. In August 2000, a review of the usage and benefits of projects that had used the approach was concluded… and the results have been a revelation!

Although the extent of its use was found to be limited, each of the projects studied had:

- been completed successfully;
- provided the customers with good control over the functionality developed;
- resulted in a high level of customer satisfaction;
- resulted in an average budget over-run of less than 10 per cent; and,
- provided value-for-money in the top 20 per cent of comparable industry projects.

With the knowledge obtained during this review the method has been redefined and packaged – it has now moved from what was 'a seemingly good idea' to a fully developed project management approach for project sponsors. Documentation to support the approach is available on the Multimedia Victoria website (www.mmv.vic.gov.au). It has been branded as the southernSCOPE method and has been adopted by the Victorian Government as the approach that should be used when acquiring custom-built software.

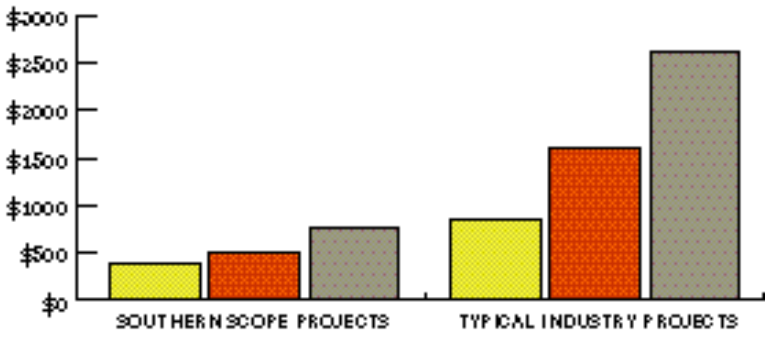


southernSCOPE projects resulted in an average budget over-run of less than 10 percent.

How is southernSCOPE different from the traditional approach?

The significant features of the southernSCOPE method are:

- The price that the customer must pay the developer is directly linked to the functional size of the software actually delivered.
- Early and accurate estimates of software size, project duration and project cost are made and maintained throughout the project.
- A change management structure ensures accurate and reliable management of the change process during development.
- The project engages a 'Scope Manager' who is a specialist in software measurement. This person provides early and realistic estimates of size, cost and duration to the sponsor and throughout the project assists both the customer and the developer to interpret changes to scope.



southernSCOPE projects provide value for money when compared with other industry projects [yellow-minimum, orange-median, grey-maximum]

It puts control squarely in the hands of business – and allows them to acquire software as confidently as they do with most other resources

Why is southernSCOPE effective?
There are six reasons that projects have scope and cost blowouts. These are:

- lack of user input
- incomplete requirements
- changing requirements
- lack of executive support
- technology incompetence
- unrealistic expectations.

The southernSCOPE method has been found to address all but one of these reasons (that being lack of executive support).

Does this method work for all software developments?
The answer is no. The main factor determining the suitability of the southernSCOPE method for specific projects is whether a reliable functional size measure exists. At this time the only software applications which have such a measure are MIS applications (also known as 'data rich' software). These represent probably half of the current world developments and cover most of an organisation's information infrastructure software. The other significant area is 'processing rich' applications such as real time and embedded software – a measure for this type of software has been under development for several years and is currently undergoing international field trials.

How significant is this development?
It is a breakthrough. It puts control squarely in the hands of business – and allows them to acquire software as confidently as they do with most other resources. It has already received global attention in its early development for its innovation and, in its new operationally robust and tested format, it should receive significant global adoption.

What does this mean for Australia?
It provides Australian business with a strategic advantage. The ability of businesses to quickly change the way they operate is more important now than ever before and, in most circumstances, they need to acquire software to do so. Whilst the southernSCOPE method will aid this responsiveness, it cannot be practised on a broad community basis without the existence a suitable stock of Scope Managers. Having been strong in the software metrics field for more than a decade, Australia is now comparably well served with reputable and skilled organisations capable of providing these services. (END)

2001 CONSENSUS SOFTWARE AWARDS

Nominations are now open for the 2001 Consensus Software Awards which honour excellence in Australian-designed and developed software. The Awards are endorsed by Austrade and the Australian Information Industry Association and will be presented by Hon. Richard Alston, MP, Minister for Communications and Information Technology at a gala dinner in March 2001.

Nominations are open up to the end of November and cost $800 + 10%GST = $880. Nominations can be completed on-line by visiting the Consensus website at http://www.consensus.com.au

Judging is conducted by senior representatives of the software industry, education, government and software users. There is no limit to the number of Awards made, as each product is assessed on its own merits. In 2000, there were 30 entries, 12 finalists and 5 awards. Information on each of the award winners and photographs are also on the website.

Products are assessed on their innovation, usability, and market potential.

For further information email julian.day@consensus.com.au or call Consensus on (02) 9719-9344.