

SMS Case Study

Managing Outsourced Supply: Improving Productivity



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What level of productivity is our supplier achieving?

SMS were commissioned by the customer side of a large and significant Public Sector outsourcing partnership to carry out a productivity review. The customer wanted to know, “what is the achieved level of productivity on ‘difficult’ projects and how does this compare with other experiences in the industry?”

The partnership contract was approaching its renewal date and the customer was managing an open tender process, so a major element of the review was to provide a means of representing the development environment to potential future suppliers.

The SMS approach

SMS’s experience and expertise in assessing outsourcing partnerships enabled us to conduct a valuable analysis of productivity levels within the customer’s tight timescale.

An SMS Study Team of two Principal Consultants conducted an analysis for a representative sample of projects, using data provided by the supplier and verified by the customer.

This short study was set up and delivered within the very short time-scale available: the review took an elapsed time of just three and a half weeks.

The study

Using a standard industry estimating model preferred by the customer (COCOMO II), the Study Team derived **predicted productivity** rates, in terms of Staff days per Unadjusted Function Point, and **duration** in terms of elapsed months. Other benchmark data was used where this helped understand the issues driving productivity and velocity.

To gain an understanding of the environment in which the sample projects were carried out, the

Study Team conducted a series of interviews with representatives from both the client and the supplier.

Systematic determination of the scale and cost factors explained the evident differences between achieved and predicted productivity/duration.

COCOMO

The COCOMO estimation method was one of the first reliable methods for predicting the resources necessary for software development projects.

An updated model, COCOMO II, was developed in 2000 for estimating software projects in modern development conditions such as incremental development and rational unified process.

Analysis against COCOMO

The work products sampled were typical of products that had been delivered previously. They exhibited the following characteristics against COCOMO scale drivers:

- LOW flexibility to change requirements
- HIGH need for architectural review and risk management
- GOOD team collaboration at the technical level
- LOW process maturity (ML1) across all stakeholders

The development environment was characterised using COCOMO cost drivers:

- Reliability requirements are high
- Testing must be thorough and is complex
- Complexity of the product is high
- Software is built for reuse where cost effective
- Documentation is appropriate, with some need to improve
- No extraordinary effort to meet time and storage constraints is needed
- Platform volatility is moderate or low, with a few exceptions
- Analyst and Programmer capability and personnel continuity is assumed to be nominal
- Products and architectures are new, so analyst and programmer domain experience is low
- The introduction of new methods and technologies results in low language experience
- Tools are integrated to some extent
- Project teams must coordinate across multiple buildings, cities and even countries
- The majority of projects are schedule compressed with some projects severely compressed
- Requirements volatility is very high

The results and conclusions of the study were presented to the customer and supplier representatives and accepted by both sides. The independent and objective review enabled both customer and supplier to begin to achieve a mutual understanding of the current productivity level of the outsourcing partnership as a whole.

The results

The analysis phase of the project yielded some interesting and informative results. Two projects in the sample were outliers in terms of achieved productivity (Staff days per Unadjusted Function Point). One showed a relatively high cost and one a relatively low cost compared to the majority of the sample. The circumstances surrounding these projects, as identified in the interviews with the teams working on them, readily explained the results.

For the main body of the sample, some projects somewhat outperformed the predictions of the model for both productivity and duration. Nevertheless, the predictions of the estimating

model were surprisingly close to the 'actuals', generally within plus or minus 25%.

Analysis of the Scale Factors and Cost Drivers used by the COCOMO II 2000 model showed a reasonably high degree of consistency. This enabled the Study Team to derive a number of descriptive statements that the 'bid team' would be able to use when characterising the development environment to potential suppliers.

The value of improved processes

"...moving to Maturity Level 3 of the Capability Maturity Model could potentially halve the cost per Function Point."



A subset of the projects examined outperformed the model's predictions for productivity. Three of the projects in this subset were 'early adopters' of the same new development methodology.

The SMS Study Team were able to use the estimating model to predict the improvement and benefits which could be derived from wider adoption of this new methodology, coupled with an associated shift in project management and inter-group co-ordination. The Study demonstrated that these changes - which aligned to moving to Maturity Level 3 of the Capability Maturity Model - could potentially halve the cost per Function Point.

Going forward

As a result of this study, SMS was able to make recommendations which would take the partnership in a positive direction.

SMS is still working with the client and supplier to roll out the ensuing improvement programme.

Results for the implementation of this outcome-based management approach to outsourcing contracts have been promising. Some of the recommendations implemented have resulted in such significant savings (running into many millions of pounds) that the partnership we are working with is beginning to be seen as an exemplar of an outcome-based approach within the public sector.