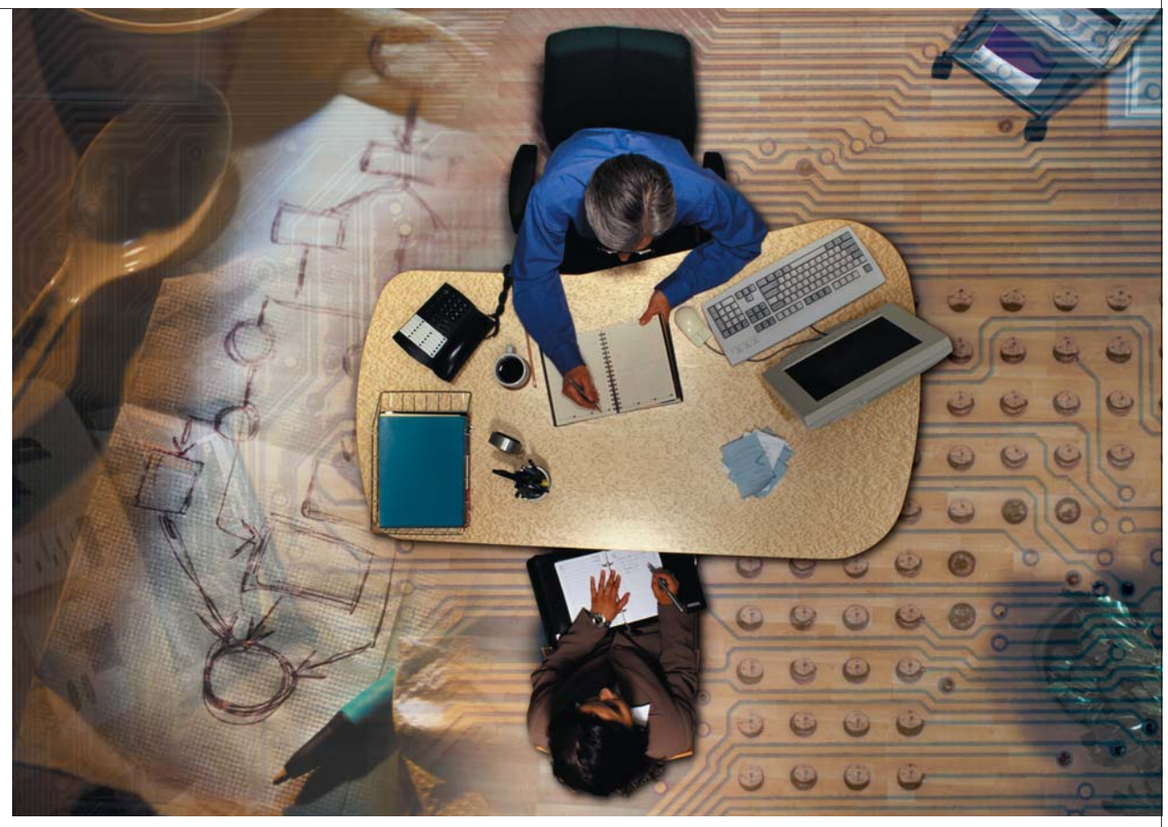
In the second article of our series, **Ray Murphy** identifies the critical elements of software development projects and the agreements that underpin them

SOFTWARE SOURCING

Creating the contract



Most of us will, at some stage, buy, build or extend a house. It will probably be the most significant event in our lives for a time and we will be familiar with the project shape and structure, from planning through to the build and finish stages.

A construction project will also follow a certain structure throughout its life. Building a house requires the creation of plans and architectural drawings, an understanding of how long particular activities will take so that reasonable time and effort expectations may be set, and an understanding of what tasks must be completed before others can begin. And, of course, there must be a clear understanding of the costs of the project and, ideally, some means of ensuring it will be completed on time and within budget.

Software projects run on similar lines, but there is one major difference – their failure rate is high. While there is no panacea to cure their ills, there are a few fundamental safeguards that, if implemented at the start, can reduce the risk of projects going awry. These include an appropriate and focused contract, a project plan and payments schedule and the appointment of a capable, experienced and empowered project manager to lead and manage the work.

The starting point for a software development project is the definition of requirements, which is usually triggered by the need for a new business product or the implementation of new or upgraded business support systems, such as inventory management or e-procurement.

Once the high-level business requirements have been agreed, they are expanded into a detailed specification, akin to architectural drawings and materials specifications for building a house. This will provide the main focus for the supplier's performance.

The next stage is for the supplier to develop and test the software, before handing it over to the customer to be tested and accepted (acceptance testing). At the end of this, the software will go live.

Track progress

Across this structure the project plan will be used to track progress and, when milestones have been achieved and signed off, initial payments will be made against the agreed schedule. Sitting behind this and focusing the respective obligations of the supplier and customer will be the software development project contract.

This may be subdivided into a services-type agreement that will cover:

- the provision of early stage activities (such as expanding the requirements definition or developing the specification);
- the software development agreement, which is self-explanatory;
- an optional software support and maintenance agreement, which will cover the provision of support services after the software system has gone live. This would include fixing bugs, making small changes to the software and generally maintaining new versions of the software over time.

Activities that fall under the services contract could work on a fixed-price or time-and-materials basis. However, the software development project would ideally be undertaken on a fixed-price, "shared risk and reward" or similar basis, with exceptional changes that were not covered in the specification falling under a defined change control procedure *(see Law, 2 January 2003)*.

The typical clauses in a software development contract would refer to:

- the project plan, milestones and payments schedule, which should be structured in a similar way to a building project payments schedule, with payments against key signed-off milestones and significant retention elements retained until the project is completed;
- the acceptance process and the acceptance criteria;
- the form of the acceptance certificate;
- the software warranty period;
- change control process;
- liquidated damages, and so on.

One difference between house-building and software projects is who owns the intellectual property rights (IPR) in the software. A house will be owned by the customer once the end payments are made. But with software, the IPR it contains is normally owned by the supplier, unless the contract explicitly states otherwise.

There may be commercial or other compensatory factors that would influence the customer to assign the IPR to the supplier – such as the subsequent payment of royalties to the customer or lower development charges – but this is an exception. There are many cases of companies paying to develop a large software system, only to see it licensed to a competitor, negating the advantage the system was developed to deliver.

The project plan

In a good development project, the supplier and the customer project manager will agree a detailed and achievable plan. The former will also have its best people on the project and will have agreed a fixed price for the work, which will be supported by appropriate incentives.

The role of the project manager cannot be overstated and the definition of concrete, specific milestones is key. Fred Brooks, project manager for the IBM System/360 operating system software development project – for one of the first general-purpose computers – once said: "Software coding is '90 per cent finished' for half of the total coding time, debugging is '99 per cent complete' most of the time and 'planning complete' is an event one can proclaim almost at will."

It is essential, therefore, that software development agreements are focused on and driven by meeting key unambiguous milestones – a house-building analogy would be completion of all external blockwork or the roof. It is important that the project critical path (which maps the activities and points crucial to success) is clear. Where customer tasks are on the critical path, they should be completed on time. If they are not, the supplier will have grounds for claims for delays or variations.

Both parties should perform the milestone inspection and sign-off process consistently, as this enforces clarity and removes the causes of the argument that would otherwise occur late in the project after the schedule has slipped chronically. The lack of such processes is a major reason why so many software projects fail.

- NEXT ISSUE: commercial regimes

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DEAL ESSENTIALS

Eight points to remember in software development talks

1. **Negotiate** a contract at the earliest stages before work has started.
2. **If you are to own** intellectual property rights, ensure the contract spells this out. If you agree that the supplier retains ownership of them, ensure there is a commercial *quid pro quo*.
3. **Ensure the contract** contains adequate warranty provisions so that any bugs found during the agreed warranty period will be fixed promptly by the supplier at no extra cost (this is separate to a support and maintenance agreement).
4. **Ensure a detailed and realistic** project plan is in place that reflects the supplier's and the customer's activities. The customer should complete any of its tasks on the critical path on time – otherwise, the supplier will have grounds for claims for delays or variations.
5. **Tie the payments schedule** to the completion of key milestones – use a simple milestone sign-off form to signify completion of each one. Ensure the supplier is incentivised to complete the project.
6. **If liquidated damages clauses** are used, ensure the figures are realistic – they are legally required to give a reasonable estimate of losses or damages. Keep any supporting documents for the calculations.
7. **If certain personnel are deemed** key to the project's success, ensure they are named in a contract schedule. In addition, the contract should state that the supplier may not remove them from the project without your consent.
8. **The most important person** in a software development project is the project manager, who will lead the project, liaise with the supplier and internal stakeholders, and be responsible for the overall success of the project. It is also normal for the supplier to provide a project manager who will ensure that the supplier's obligations are met.