Improving project management for small projects

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A consulting firm, which is also one of Canada’s largest engineering companies, has implemented an improvement programme which consists in defining and implementing new management processes for small-scale projects. This company provides a variety of engineering services to industrial and business companies, major institutions and municipalities. It is subdivided into five “divisions” or special business units.

Efficient project monitoring

The programme’s objective was to avoid cost overruns and project delays, standardize practices to facilitate the integration of new managers, increase the level of customer satisfaction and reduce risk-related planning deviations. The new series of standards, ISO/IEC 29110, Software engineering – Lifecycle profiles for Very Small Entities (VSEs), was used to document the company’s small- and medium-scale project management processes, while the ISO Methodology was used to calculate the economic benefits of implementing ISO/IEC 29110.

The project management process improvement programme was targeted at one division of the company, which was created a decade ago and now boasts around 500 employees across 10 offices throughout Canada. As a relatively new entity, it had no efficient tools or project management processes suited to managing small-scale projects. The strong growth of the division in recent years made management aware of the need to improve its methods in order to remain competitive. For this reason, most of the projects managed by this division include project plans and cost-time estimates. In most cases, these projects involve updating existing infrastructures. Hence the challenge of handling multiple small-scale, fast-moving projects allowing little room for unwieldy management processes, but still requiring an efficient and straightforward monitoring process.

Managing projects of varying scale

Projects in this division are classified into three categories according to duration, size, number of disciplines involved and engineering fees. It was decided to subdivide the projects into three categories: small-, medium- and large-scale projects (see Table 1).

For this improvement programme, the company developed and implemented project management processes for small- and medium-scale projects. The goal-problem approach developed by Potter and Sakry(1) was used to set the improvement programme’s priorities and to ensure that the goals set by the programme addressed tangible problems that the company wished to solve. This approach includes the following steps:

- Identifying the business goals (see Table 2) and the problems that the company wishes to solve
- Grouping goals and problems
- Prioritizing problems
- Developing an action plan

Then, the managers grouped the problems relative to the different goals. Finally, they evaluated the priority goals and cost for each improvement in order to prioritize goals and establish implementation phases for each one.

Moreover, a risk management plan was developed in order to prevent – i.e., reduce the probability and minimize the impact of – certain events on the project process.

Benchmark selection

There are several documents describing recognized practices for project management, among which guides such as A Guide to the Project Management Body of Knowledge (PMBoK Guides) published by the Project Management Institute, maturity models such as the Capability Maturity Model Integration (CMMI) for Development of the Software Engineering Institute, and standards such as the new ISO/IEC 29110 series for very small entities.

A meeting with the improvement programme project sponsors helped define a selection of criteria with a view to determining the most suitable project management benchmark for the company. The following criteria were selected:

- The benchmark is suitable for the management of small-scale projects (small team and limited means)
- The company’s management knows the benchmark
- The benchmark is recognized by the company’s customers
- Tools are available to facilitate the use of the benchmark
- The benchmark may easily be used and integrated into the existing processes
- A recognition mechanism through accreditation for the company is available
- Benchmark documents are readily available

Before analysing the selected benchmarks, each criterion was weighted by its importance according to the project sponsors’ perception. ISO/IEC 29110 was the standard selected for the improvement project. Even if the company’s division comprises more than 500 employees, a significant number of small-scale projects are carried out by separate teams focusing on one customer only. Since the ISO/IEC 29110 series applies to enterprises, organizations, departments and projects of up to 25 people, it is perfectly suitable for this company.

Management process

The simplest profile of the ISO/IEC 29110 series – the entry profile – was used as the basis for developing the small-scale project management process. The basic profile was used to develop the medium-scale project management process or for basic project management.

The project management practices used by the company’s managers were assessed against the ISO standard’s basic profile. Figure 1 shows the results obtained. It displays the percentage of the tasks performed for each of the following activities of the ISO/IEC 29110 management and engineering guide:

- Project planning (15 tasks)
- Project plan execution (6 tasks)
- Project assessment and control (3 tasks)
- Project closure (2 tasks)

Table 1: Classification of the division’s projects (CAD = Canadian dollar).

<table>
<thead>
<tr>
<th>Project duration</th>
<th>Small-scale projects</th>
<th>Medium-scale projects</th>
<th>Large-scale projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team size</td>
<td>Up to 4 people</td>
<td>4 to 8 people</td>
<td>More than 6 people</td>
</tr>
<tr>
<td>Number of disciplines involved</td>
<td>One discipline</td>
<td>One or more disciplines</td>
<td>More than one discipline</td>
</tr>
<tr>
<td>Engineering fees</td>
<td>Between CAD 5 000 and 70 000</td>
<td>Between CAD 50 000 and 350 000</td>
<td>Over CAD 350 000</td>
</tr>
</tbody>
</table>

Table 2: Division’s business goals.

<table>
<thead>
<tr>
<th>Identification number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Facilitate the integration of the new project managers.</td>
</tr>
<tr>
<td>0-2</td>
<td>Achieve a global customer satisfaction level of 80%.</td>
</tr>
<tr>
<td>0-3</td>
<td>Meet the deadlines and costs planned for the projects, within a fluctuating margin of 5% of all projects.</td>
</tr>
<tr>
<td>0-4</td>
<td>Reduce resource overload by 10%.</td>
</tr>
<tr>
<td>0-5</td>
<td>As a consequence of poorly managed risks, reduce time delays to one week and cost overruns to 5% of the initial budget.</td>
</tr>
<tr>
<td>0-6</td>
<td>Reduce corrective work during the quality control phase by 10%.</td>
</tr>
<tr>
<td>0-7</td>
<td>Reduce non-chargeable time for resources by 10%.</td>
</tr>
</tbody>
</table>

Figure 1: Performance assessment of activities and tasks of the basic profile.
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A successful programme

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