

# PROJECT ]open[

“Into space with  
]project-open[”

Max Collon,  
CEO of cosine

## cosine (Leiden, Netherlands) Building satellites with ]project-open[

### The Customer

cosine builds measurement systems for satellites and ground-based applications. These systems are used in scientific, industrial, medical, environmental, energy, agricultural/food, security, semiconductor and space applications, with customers ranging from small high-tech companies to the European Space Agency, IBM and EADS. “We are specialized in solving measurement problems for which no solutions exist as of today,” says Max Collon, CEO of cosine. “It is our culture of curiosity and creativity that produces fresh perspectives to hard problems.”

### Building Satellites using “Engineer-to-Order”

Most projects at cosine involve engineering, software development and procurement/subcontracting. This is usually known as engineer-to-order (ETO) or build-to-order (BTO). This is similar to the way startups work.

To manage ETO, cosine uses a mix of classical and agile project management and discrete manufacturing for the product hardware. This differs from standard ETO operations (for example, custom machinery construction) in two ways: The project risks are higher due to technological challenges, and the ratio of external to internal cost is much higher.

### The Challenge

cosine is a relatively small company with complex, large and risky projects that often have high external procurement costs.

A custom legacy system handled the ETO processes in the past, but the system was technologically obsolete, was not very user-friendly and required a lot of manual interaction to precisely plan and track budgets.

### The Solution – Open Source

A technology evaluation team found ]po[, which supports most of the required cosine processes, albeit with a different focus. As it’s open source, ]po[ could be adapted to exactly suit cosine’s needs. cosine’s needs were explored in detail during a two-day workshop, which resulted in the definition of a four-month implementation project.

### Business Results

]po[ replaced the old system after the four-month customization phase. Minimal training was required as the system was rolled out in stages so that employees had time to learn how to use one feature before another was introduced.

cosine | measurement systems

## At a glance

### Customer

cosine, with about 50 employees, builds space and ground-based measurement systems. It is located near Amsterdam, The Netherlands.

### Business Need

cosine needs a user-friendly way to frequently update project information to produce accurate financial reports for high-risk projects.

### Solution

cosine chose to fully customize ]project-open[ to meet their specific requirements.

### Results

]project-open[ was rolled out in stages so that employees could get used to new functionalities gradually. Optimization of the product will be an ongoing process.

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*Max Collon,  
CEO of cosine*

## The Importance of Cash Flow Forecasting

Cash flow is the top priority for cosine senior management. "We manage purchases of equipment whose costs exceed our labor costs," says Ray Doerdjan, financial manager of cosine. "So we have to plan cash flow carefully, and we need precise and up-to-date data on hundreds of purchase operations per month."

"The cash flow forecast is a relatively simple report, but allows us to plan many months ahead and to adjust to changes," says Max Collon, CEO of cosine. The report takes the state of the bank accounts and subtracts purchases and a monthly "burn rate". Customer invoices are added and in sum we get a reasonable and precise prediction of the cash flow.

The difficulty with this forecast is that projects may get delayed, which leads to delayed expenditures and revenues which have big impact on the cash flow. So project managers are required to update their project status and risk logs frequently and carefully. The easier these updates are made for PMs, the more accurate the cash flow prediction will become.

## Reducing Administrative Overhead

For this reason a number of ]po[ extensions have been developed to reduce the administrative effort to update the expected date for purchases and customer invoices.

- A self-service procurement portal allows any project member to initiate purchases. Approval is handled via the ]po[ workflow engine.
- Financial documents (invoices, purchase orders, etc.) are shown in the ]po[ Gantt Editor. They "move" together with the milestones in the Gantt chart. This greatly reduces the administrative overhead to keep estimates up to date.

## Business Results

PMs can now update the project status in minutes rather than hours. cosine had not previously used workflows, but these reduced the number of emails required to get necessary approvals.

]po[ replaced a proprietary software tool, freeing internal resources to work on external projects with customers, while improving the precision of the cash-flow forecast.

## Implementation Highlight

Full customization of ]project-open[ meant that all requirements from management, finance, HR and project managers were taken into account.

## Key Modules Used

cosine uses the standard functionality of ]po[ to considerable depth. The most important modules are:

- ▶ ]po[ Gantt Editor for project planning, with extensions for financial planning
- ▶ ]po[ Risk management
- ▶ ]po[ Time sheet management
- ▶ ]po[ Invoicing
- ▶ ]po[ Management Accounting
- ▶ ]po[ Procurement Self-Service Portal
- ▶ ]po[ Wiki for project collaboration

## Key Customizations

- ▶ About 20 additional reports to provide easy access to information
- ▶ A procurement portal with custom workflows
- ▶ Purchase order forms allow employees to enter procurement information easily and correctly
- ▶ Changes to financial cash-flow forecasting
- ▶ Risk management changes to reflect ESA and NASA space agency standards
- ▶ Resource planning modified to take into account "estimated to complete" times which constantly change due to the scientific nature of the work