

Improving software product development without going bankrupt.



Introduction

Returns on investment (ROI) for IT projects are notoriously difficult to calculate. Because resource costing, workflow, and time expenditures vary across the organization and even from individual to individual, these calculations are prone to error. However, certain tangible returns are more visible to management, and are generally taken to be indicators of significant positive return on investment.

Under ordinary circumstances, Cogent bases its software process improvement recommendations on a detailed assessment of the current and desired future states. However, because many clients request information on examples of past project ROI and this information is proprietary to our clients, it is sometimes necessary to base our cost-benefit estimates on our broader experience in software development processes rather than the specifics of any one case. Notwithstanding, this paper provides case studies of two projects in which it was possible to estimate ROI. We believe that the assumptions we have made in this paper are representative of the industry, and typical of our engagements. Armed with this data, you can see that the business case for even a one-day improvement is compelling.

Case Studies

Cogent Minds believes that the areas of improvement most visible to management are:

- Faster realization of revenue
- Increased predictability of product readiness to ship

Examples of actual engagements where clients have been able to demonstrate significant ROI are discussed below.

Faster realization of revenue

Result of a Cogent Minds engagement – One additional month of revenue opportunity gained.

Cogent consultants have significant experience in the assessment and removal of those factors that prevent the timely recognition of revenue in product development. Frequently, development organizations work in an environment of competing cross functional interests, which lead them to act more alone than in tandem with other organizations.

One client's product revenue was seriously impeded by a gated workflow, which relied on sequential completion of activities outside of engineering. Engineering required completion of these outside tasks before the product master CD could be sent to Manufacturing.

Finalization of documentation and training of product support personnel were considered gating factors for release to manufacturing. However, information from field trials was resulting in significant rework – which impacted these areas, and unpredictably lengthened the release cycle. The average time expended in this mode for each 6 month release cycle averaged 1 month.

Cogent consultants worked with management to successfully implement several corrective measures:

1. The introduction of feature freeze and code freeze strategies.
2. Mid-point assessment of product quality during field trials
3. Readiness to ship planning
4. Training of support personnel during field trials
5. Completion of documentation edits prior to code freeze.

These changes were implemented across test, engineering, documentation, and support organizations, and resulted in a nearly one month sooner capture in product revenue. As importantly, Cogent consultants were able to embed these enhancements into the *culture* of the company, so that future product releases would be expected to conform to the new process.

Increased predictability of product readiness to ship

Result of a Cogent Minds engagement – Product ship dates, which had been sliding for over a year, were finally made predictable to within one week. Conservative estimates were that engineering savings of 2 months were obtained - \$880,000.

In this case, the client proposed a simplifying assumption to quantify their savings. Their software development organization consisted of 40 engineers, with an average salary of \$80K. The annual loaded cost of an engineer and the value of each day saved is calculated as shown in the table below.

Average annual loaded cost (1.3X salary of \$80K)	\$104K
Average weeks of actual work per engineer	39
Average effective weekly cost per engineer	\$2700
Weekly cost of 40 engineers	\$108,000
Approximate value of each day saved	\$22K

We were asked to assist the client in improving the ability to predict release dates, and bring the product to a shippable condition. The client believed that this was due to feature creep and a lack of release engineering skill. Cogent consultants were able to determine within two days that while there was some feature creep, the primary issue was a lack of reasonable quality goals for the product, and an out-of-control development environment that made product builds nearly impossible to reproduce. In addition, once product was built, the testing team lacked a strategy to properly test the product, and therefore the state of completion of the product was never known.

Our consultants identified serious cultural issues that would have impeded any internal attempts to repair the situation, and along with management, engaged the development team in a path of corrective action.

1. Roles for product management were aligned with revenue responsibilities
2. A change management board was created to guarantee that development efforts were controlled and focussed
3. Organizational changes were recommended and adopted which allowed the following steps
4. Quality goals and a process for reaching them were introduced. Cogent consultants mentored line management in strategy and acted as experienced resources to mitigate risk during this period of accelerated learning.
5. Cogent consultants worked with testing leaders to strengthen their participation in the development life cycle and provided test strategy support to ensure proper assessment of product.

The consulting engagement cost the client approximately \$150,000. However, this entire expenditure was recovered in the next product cycle, with an ROI of nearly 600%.