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Cost Engineering
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ScopeMaster
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Achieving Defensible Software Cost Intelligence with ScopeMaster® and TruePlanning®

Customer: IABG are a leading, Germany based, engineering and consulting organisation specialising in aerospace, defence, and complex system lifecycle cost analysis.

AT A GLANCE

Challenge: Software size was unmeasurable, blocking defensible lifecycle cost estimates for a major European aerospace & defence program.

Solution: ScopeMaster® automatically derived COSMIC Function Point sizing from requirements; outputs fed directly into TruePlanning® parametric cost models. Assumptions documented, requirement gaps and ambiguities quantified, hidden cost risk made explicit and manageable

Outcome: Credible, audit-ready cost intelligence produced from early project phases, enabling better decisioning, governance and risk management throughout the lifecycle.

ScopeMaster® + TruePlanning® — from requirements to defensible cost intelligence

Challenge

Developing reliable cost intelligence for software-intensive programs is a persistent challenge, particularly in large, multinational projects where requirements evolve over time and technical complexity is high. IABG encountered this firsthand during a multi-year initiative to develop a shared software platform.

Despite being a primary driver of cost, software size was not something development teams could reliably quantify. Engineers were comfortable discussing architecture, tools, complexity, and timelines, but when asked to provide measurable sizing inputs such as COSMIC Function Points (CFP) or Source Lines of Code (SLOC), responses were inconsistent or unavailable. This created a fundamental gap in building credible cost intelligence.

At the same time, IABG operates in environments where cost outputs must withstand scrutiny long after initial decisions are made. Procurement regulations and legal frameworks require that lifecycle cost management (LCCM) outputs are not only accurate, but also transparent, traceable, and fully documented. Without this level of rigor, organisations expose themselves to financial, operational, and even legal risk.

Compounding this challenge was the nature of early-phase projects. At the point where cost intelligence is most valuable, information is often incomplete. Requirements may be ambiguous, partially defined, or even missing entirely. Yet it is precisely at this stage that decisions have the greatest influence on total lifecycle cost.

How

To address these challenges, IABG implemented an integrated approach combining ScopeMaster® and TruePlanning®, establishing a seamless workflow from requirements analysis through to cost intelligence.

The process begins with ScopeMaster, which analyses functional requirements directly and derives software size in COSMIC Function Points. Rather than relying on subjective inputs from developers, ScopeMaster applies a standardised, ISO-compliant methodology to quantify size based on the actual content of the requirements. This approach produces a consistent and objective sizing output, and provides immediate insight into the quality of the requirements themselves, highlighting ambiguities, inconsistencies, and missing elements.

This capability proved particularly valuable in early project phases, where requirements are still evolving. By quantifying both the defined and uncertain portions of the software, IABG was able to make the level of project maturity visible and measurable.

The outputs from ScopeMaster are then used as key inputs into TruePlanning, where they drive parametric cost intelligence models. TruePlanning leverages decades of historical data and established cost estimating relationships to translate software size into effort, schedule, and cost across the full lifecycle.

Crucially, this integration creates full traceability from initial requirements through to final cost outputs. Every assumption, input, and calculation can be documented and revisited, ensuring the methodology remains explainable and auditable over time.

The combined use of ScopeMaster and TruePlanning also supports an iterative approach. As requirements are refined throughout the project lifecycle, software size can be recalculated and cost intelligence updated accordingly.

Benefits

The implementation of this integrated approach has fundamentally improved IABG's ability to generate credible and actionable cost intelligence for software-intensive programs.

Audit-ready cost outputs
Every cost figure is traceable to a standardised measure of software size, ensuring full transparency for procurement reviews and compliance audits, even years after the estimate was produced.

One of the most significant outcomes is the ability to produce cost outputs that are fully defensible and audit-ready. By linking cost directly to a standardised and traceable measure of software size, IABG can clearly demonstrate how each figure was derived. This is critical in regulated environments, where cost models may be reviewed years after their creation.

Risk made visible and measurable
Requirement ambiguities and gaps are identified and quantified, converting previously hidden cost risk into explicit, manageable inputs within the cost model.

In addition to improving defensibility, the approach has increased confidence in the accuracy of cost intelligence. By removing reliance on subjective estimates and replacing them with data-driven sizing and parametric modelling, IABG has reduced the risk of systematic underestimation.

Another key benefit is enhanced visibility into risk. Because ScopeMaster identifies ambiguities and gaps in requirements and quantifies their impact on software size, IABG can explicitly account for requirement-related uncertainty within its cost models.

The approach also strengthens decision-making early in the project lifecycle. By providing a clear and structured view of how requirements translate into cost, IABG can evaluate design alternatives, assess trade-offs, and support budgeting decisions with greater confidence.

Furthermore, the integration of ScopeMaster and TruePlanning has improved collaboration across teams. By establishing a common, data-driven foundation for discussions, it bridges the gap between cost engineers and software engineers.

Finally, the approach provides a scalable and repeatable framework that can be applied across a wide range of projects, supporting the development of a more mature and institutionalised cost engineering capability.

Key Takeaway

By combining ScopeMaster's ability to objectively quantify software size from requirements with TruePlanning's advanced parametric modelling, IABG has established a comprehensive cost intelligence capability that is transparent, traceable, and robust, and in the words of one of IABG's customers a "World class, cost engineering capability".

What was once an uncertain and subjective process is now grounded in data, standards, and proven methodologies. The result is not just better numbers, but better decisions, supported by cost intelligence that can be understood, trusted, and defended at every stage of the project lifecycle.