

Software Estimation in the Automotive Industry

Challenge: The automotive industry is in the midst of a transition from the development of hardware-driven machines to software-driven electronics devices. And because of this the industry's competitive rules are being rewritten.

Large computing power, software and advanced sensors are becoming the industry's core technologies and are adding significant complexity, and cost, to vehicle development.

Software Cost Engineering is the single biggest challenge to Cost Engineering. Software, unlike hardware, tends not to have any dedicated cost engineering support. As such there tends to be no particular structure and approach to estimation nor the ability to challenge vendors and project costs.

How:

Hardware cost engineering is a well established capability within the customers procurement organization, but the same is not true for software.

A Proof of Value (PoV) was initiated, and a team comprising the customers' Purchasing, Software Engineering and Cost Engineering departments supported by PRICE Systems' software experts, was established.

The concept of this PoV was to utilise existing Cost Engineering practices combined with proven software estimation tools and techniques.

The PoV established a methodology and process which allowed the team to identify and request more detailed information from the vendor. This information was initially used by the team to challenge assumptions made about the project and establish whether the solution met the customer's requirements and, where required, influenced the modification of the proposal.

With a clear understanding in place detailed estimates were produced to determine whether the revised proposal represents value for money for money. At no time during the PoV was it the intention to force the vendor to arbitrarily lower their costs but rather gain confidence that the contents of their proposal was justifiable.

Benefits:

This PoV was run against a single project with a value of approximately **€500k**. At the conclusion of the PoV the customer was able to secure a **reduction of approximately 20%** of this value, or roughly **€100k**.

Following from the successful completion of this initial exercise, we continue to work with the customer using TruePlanning™ in combination with the cost engineering team, to support more software vendor proposals.

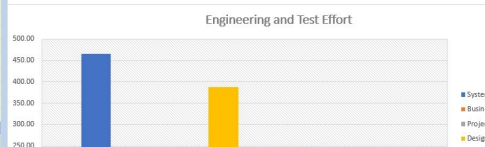
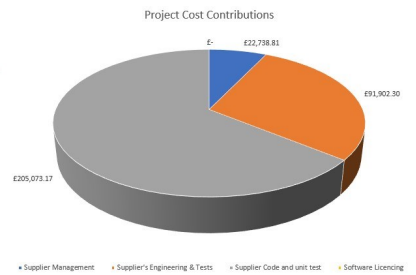
CASE STUDY

Customers:

A European based automotive manufacturer who are developing new marques of vehicles that have a heavy reliance on software and embedded electronics.



PRICE TruePlanning Use Case Driven - Automotive Software Estimation Model				
Estimate Details				
Software System	PVI			
Feature ID	abc123			
Estimate Date	29/11/2018			
Supplier Management				
Resource	Hours	Rate	Cost	
System Engineering	80.40	56.69	£ 4,557.70	
Quality Assurance	45.12	56.69	£ 2,557.86	
Configuration Manager	50.96	56.69	£ 2,888.72	
Software Engineering	3.45	56.62	£ 195.55	
Project Manager	99.78	56.89	£ 5,676.55	
Technical Writer	109.55	56.69	£ 6,210.07	
Support Engineering	11.51	56.69	£ 652.36	
Supplier Management	400.78		£ 22,738.81	
Supplier's Engineering & Tests				
Resource	Hours	Rate	Cost	
System Engineering	465.61	56.71	£ 26,405.09	
Business Analyst	69.71	56.71	£ 3,953.16	
Project Stakeholder	27.03	56.71	£ 1,532.66	
Design Engineering	388.21	56.77	£ 22,039.51	
Programmer	222.98	56.79	£ 12,663.70	
Test Engineering	240.14	56.79	£ 13,637.83	
Quality Assurance	102.75	56.79	£ 5,835.17	
Configuration Manager	102.75	56.79	£ 5,835.17	
Supplier's Engineering & Tests	1619.17		£ 91,902.30	
Supplier Code and unit test				
Resource	Hours	Rate	Cost	



PRICE Systems Approach:

Our approach, known as PRICE Cost Analytics™ (PCA), provides a bespoke and unique combination of data analysis techniques, industry standard knowledge and software tools supported by expert implementation services and consultancy.

Over the past 5 to 10 years we have been applying this approach and our experience gained in the Aerospace and Defence sectors successfully with OEM's in the Automotive sector.

In that time we have piloted, developed and implemented solutions in:

Parametric (Predictive) estimation - through a combination of consultancy support and the PRICE Systems parametric models to develop and implement a workable software cost estimation capability.

Early days conceptual cost estimation - a solution covering all aspects of program cost including; purchase material, facilities, design, engineering and launch costs. This solution uses analysed and normalised organisational historic data to built parametric (predictive) cost models linked to an easy-to-use feature based front end.

The PCA framework delivers estimation models and templates based on an organisations structure, process, projects and knowledge.

This, in turn, promotes rapid analysis of alternatives and uncertainty analysis to support What If scenario's and budget decision making for either internal or external investment.

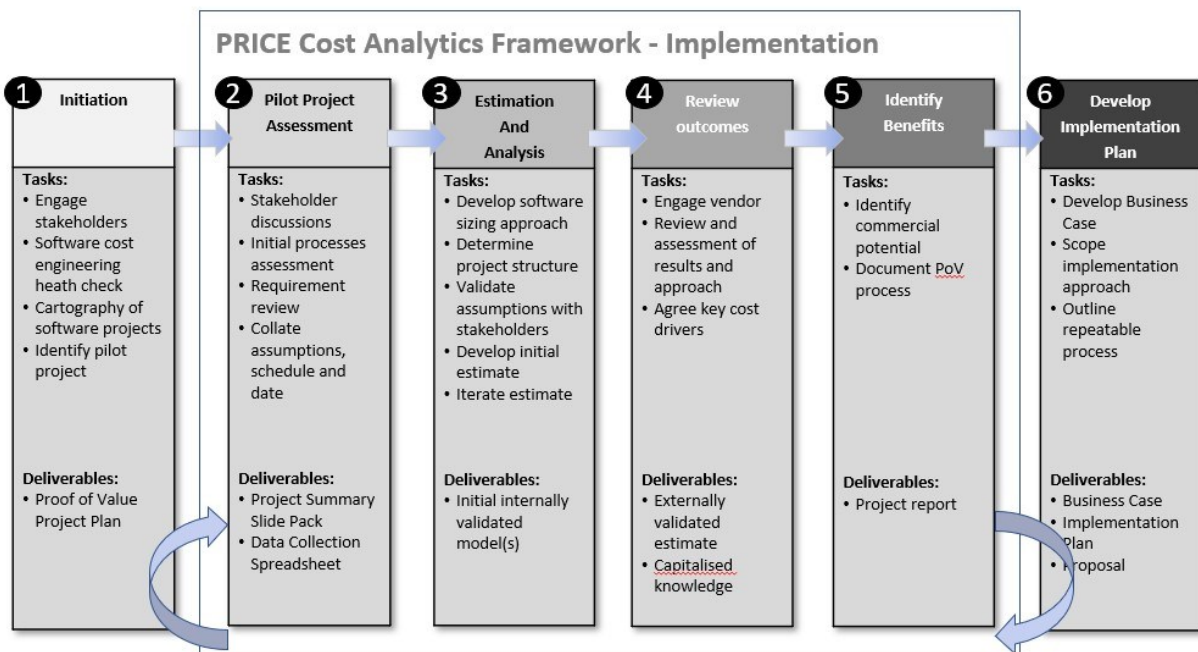
Ultimately providing a common vehicle for analysis, communication and continuous capitalisation of corporate information to improve future decisions

About PRICE Systems

PRICE Systems is considered the pioneer in the science of parametric (predictive) modelling and the creator of the first generally available cost estimation software.

As the most experienced cost estimating company in the world, PRICE Systems provide a range of agile and reliable estimation solutions.

We enable our clients to improve their cost management processes, and be confident in the costs, schedules and risk estimates used to drive their businesses.



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