

Optimizing Profitability Decisions over a Product's Lifecycle

CIMdata Commentary

Key takeaways:

- *Predicting product and portfolio profitability is becoming more difficult as products become more complex and business models change*
- *Identifying and modeling cost drivers and using collaborative decision making to optimize enterprise-level costs early in the development cycle enables revenue, cost, and profitability targets to be achieved while minimizing risks and supporting brand strategy*
- *Tata Consultancy Services has a framework that provides tools to support the complete product lifecycle allowing systems, processes, and analytics as well as services to be used to plan, implement, and support product portfolio profitability management*

Managing profitability of individual products and portfolios of products is a critical function in all businesses. If they are not profitable the company will not survive. As products and the processes that support the lifecycle (i.e., design, production, service, etc.) become more complex profitability management has also become more difficult.

Profitability management is much more comprehensive than the basic portfolio management and cost tracking activities traditionally done within a PLM solution. Profitability Management must enable a profitability model that helps decision makers choose which areas of the product portfolio have the greatest impact on overall profitability of the company so that appropriate resources can be allocated and managed to maximize the organization's goals. Profitability management is also a key functional domain defined in CIMdata's product innovation platform model that is often weakly supported by today's commercially available PLM solutions.

Profitability Management Issues

Historically, product pricing, costing, and portfolio data have been stored in information silos and loosely coupled at best. At worst they have been, and in many cases are still being managed independently leading to uninformed decisions that can have significant impacts on company finances, and ultimately shareholder value.

In many cases, pricing and costing silos are not homogenous and each have their own sub-silos. Additionally, pricing is being driven by many loosely related or even unrelated factors such as target markets, volume forecasts, brand image and equity, incentives, competition, and of course cost. These categories of pricing data are commonly stored in multiple spreadsheets, if they are captured at all. In the case of future products, volumes and revenue are especially difficult to understand and forecast because there is no historical data. Poor forecasts driven by the disparate and disconnected data lead to wrong product mixes (hopefully not wrong products!), leaving money on the table.

Costing complexity includes raw material, components, tooling, direct labor, and many other elements. Further complicating costing is the question "Which cost?" There are many

different answers such as prototype volume cost, production volume cost, etc. Allocation of overhead also can make significant differences in cost values.

Pricing complexity is driven by sales forecasts. Predicting sales is difficult because predicting volume has a lot of uncertainty. Some of the variables are controllable, but many are not, so it is difficult to maximize profitability.

The growth in complexity has been well documented as both products and business models evolve to be more complex. Product complexity has increased due to the addition of electronics, software, increasing compliance requirements, and many other factors. Business models are more complicated due recurring revenue from product and service subscriptions as well as more elaborate globalization, localization, and supply chain issues and interrelationships.

The silos that contain pricing and costing data are typically disconnected and accessing, let alone using, this information to perform sensitivity analysis over the product lifecycle or across a portfolio of products, or to evaluate potential changes is difficult. Without accurate analysis capabilities effective product profitability optimization during product planning and development is close to impossible.

Profitability Management Benefits

Managing profitability requires sales, product, production, and support strategies to be aligned and optimized. The concepts are simple to understand, but difficult to put into practice. Optimizing profitability can be thought of as eating an elephant; how do you do it? One bite at a time. But, where to start?

A fair question is: what are the benefits of changing current business practices to maximize product and product portfolio profitability? Competition is everywhere. So, how can profitability management support the business?

By analyzing the market, fewer product variants can be used to cover a given market reducing cost and improving margins. A good example is to compare the revenue of Apple's product lines with any of its competitors. Apple generates much more revenue per product. This leads to more efficient production, distribution, logistics, and support. Maximizing margins does not mean just eliminating the low volume variants. Strategic use of low volume variants can maximize margins and prevent competitors' niche products from gaining a foothold in the market.

In most markets, customer satisfaction is a key component of business health. By including customer requirements as part of profit maximization, properly executed profitability management can help ensure that customers get the right products when they want them, with the right services. Happy customers equal more predictable revenue and volume.

Profitability Management Solution

Since individual product and product portfolio profitability are dependent on a multitude of factors spread over the product lifecycle, a holistic strategy is necessary to manage and maximize it. The strategy must be supported by a solution or framework that can integrate models from the business areas that impact profitability including sales, marketing, portfolio planning, design, production, distribution, and service.

The solution must include decision support tools to increase forecast accuracy (i.e., sales volumes, product variants, pricing, etc.) and to develop, allocate, and manage target costs

(i.e., design, material, tooling, manufacturing, logistics, etc.) especially during development, but also after launch and through life. In addition, the solution must support scenario evaluation to gauge the impact of changes to variables and support the identification of the key variables that have the most impact on profitability.

Developing and implementing such a strategy can be transformational to a business. It is a large and complex project that must be managed as a program with a roadmap and strong scope and project management.

TCS's P3M Offerings

Tata Consultancy Services (TCS) is one of the largest global enterprises focused on providing IT services, consulting, and business solutions. Their more than 300,000 employees support virtually all industries. In their most recent fiscal year TCS had revenues of \$13.4 billion, with 16% year over year growth.

TCS has developed a framework to support and enable profitability management for individual products as well as portfolios of product. TCS refers to this framework as product portfolio profitability management (P3M). P3M simplifies the complex integration of specific processes, systems and analytics capabilities to achieve an Optimized Enterprise Cost (OEC) for the product that would result in the desired profitability. It uses sales, volume, and cost models of product portfolios over the complete lifecycle as model elements (i.e., sales forecasts, brands, markets, product costs, warranty, logistics, services, etc.) to perform what-if analyses. Model elements can be varied to identify sensitivities, enabling control of the key cost drivers early in the lifecycle.

Analytics capabilities are embedded in the product development process to deliver a consistent, data-driven approach in two critical areas – first, for improved forecasting of volume, mix and pricing, and second, for robust determination of Target Costs for the product family. These target costs are further allocated down to all sub-systems and components within the product and drive a design-to-cost strategy necessary to achieve the OEC which, in turn, would result in desired profit margins. Governance models in the framework are designed to foster the right behaviors within the product development organization, such as a primary objective of optimizing the end product, versus individual components.

TCS leverages existing enterprise solutions, such as PLM and ERP, allowing data to be referenced rather than replicated into yet another silo. By abstracting enterprise solutions and data within their existing frameworks TCS is able to use those solutions as platforms and take advantage of advancements as they roll out.

Business transformational solutions like P3M are unlikely to ever be delivered out of the box, so services, tailoring, customization, and support will be necessary. TCS's experience across industries and functions within those industries allows them to adapt the P3M framework to their clients' needs and work with them to address the intricacies of implementing product portfolio profitability management.

TCS uses an agile methodology to front load cost targets early in the lifecycle and manage profitability as the product progresses, and internal and external changes happen. The framework includes scorecard functionality so feedback on planned versus actual profitability and other benefits can be used to drive decisions.

According to TCS, the framework has been used to manage margins in the automotive industry, support design to cost and warranty programs for a farm equipment manufacturer, improve operation costs and margins for a marine engine company, and to improve new

product development (NPD) process reliability for an automotive Tier 1 supplier. TCS claims that net results across industries have been:

- Material cost reduction— 10 to 35%
- Design time reduction— 30-50%
- Defect rate reduction— 25-60%

Conclusion

Managing the profitability of a product or portfolio of products is difficult due both to product and business environment complexities. The reality is this problem requires analyses way beyond the capabilities enabled by spreadsheets. To effectively address the complexities and challenges that currently exist, companies need to have a holistic approach and strategy that leverages their strengths and reduces the impact of their weaknesses. The number of elements that impact profitability of a product or portfolio of products can be large, and identifying which have the most impact on profitability is not always obvious. There is not a single out-of-the-box solution to address this problem. The solution is a combination of technology and processes architected and deployed to support the people that develop, produce, and support the product or portfolio.

TCS has developed a framework that treats the elements that drive profitability as systems and manages complete profitability models as a system of systems that operates over the full product lifecycle. By providing up to date profitability feedback via this approach, management is able to make better decisions sooner, maximizing profitability for both the short- and long-term. TCS has proven that it has the technical and consulting experience to adapt their solution to meet the requirements of companies in multiple industries.

Profitability management is a core process in any company, but few companies do it well due to the complexity of the details. CIMdata sees TCS's framework and associated services as a good example of a solution that can help companies improve the effectiveness of their profitability management strategy.

About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through international conferences. To learn more about CIMdata's services, visit our website at <http://www.CIMdata.com> or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.