Global Product Life Cycle Management

Improving product profitability amidst global competition through global sourcing.

WHITE PAPER

February 2009

Powered by 12,000 engineers | Multi Industry and Domain Expertise | High Impact IPs and Solution Accelerators | Risk Sharing Partnerships | 1000+ Product Engineering Projects Successfully Delivered

HCL

TABLE OF CONTENTS

Product lifecycle	4
Investment Phase	5
Harvest Phase	6
Decline Phase	7
Business Models for Product Partnership	8
Concluding Remarks	11
About HCL	12

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Manage

1. Disruptive Innovation
2. Increasing Product Life
3. Reducing Shelf Life
4. Demotivated Employees
5. Technology Change

Hi-Technology Product companies in the 21st century are facing new challenges from global players altering the landscape of competition. Disruptive innovations are happening in incremental timeframes and customers are demanding higher quality products at price points lower than yesterday's costs. Although the pace of innovation and improved quality has increased the life of products, it has also reduced their life in the marketplace leading to long and expensive end of life cycle phases. Customers are demanding more value for their capital investments through product enhancements and uninterrupted support while competitors are developing products based on newer technologies. The company's most valuable assets, the employees, meanwhile are getting demotivated having to work on the same product for multiple years while the industry is moving ahead with newer technologies.

The question then is how does a product manager or a business leader leverage past success, manage the present and prepare for the future while remaining competitive in this global economy?

This HCL whitepaper examines a typical product life cycle and explores the variables available for a product manager to maximize the product's success in each of these phases. It also looks at some of the successful and evolving business engagement models available for product managers to best manage these lifecycle variables leveraging global partners.

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Understand

1. Product Profitability
2. Profitable Product Portfolio

The Product Life Cycle

The viability or success of a product is defined by the fundamental business equation that cost offsets revenues to determine profits or losses.

Product profitability equation (P0)
Product profit (P0) = Total revenues from the product (R0) - Total cost of product (C0)

This profit though is not uniform over time and varies at different stages of its life in the market. A typical product's life cycle involves an investment phase, a harvest phase and a decline phase as shown in Figure 1. To manage the variations in the cash flow, companies maintain a portfolio of products in different life cycle phases as shown in Figure 2. As is evident from the figures, a profitable portfolio has the many products with long harvest phases and shorter investment and decline phases. A few variables in each lifecycle phase managed effectively can help achieve this portfolio.

Figure 1: Product Life Cycle Phases

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Control

1. Innovation
2. Time to Market
3. NRE Cost

Figure 2: Product Portfolio

Investment phase

The product is conceived and developed in the investment phase. Majority of the product costs are incurred in this phase with zero revenues. The primary variables for the product manager in this phase for top line growth are innovation and time to market. The primary variable influencing the bottom line is non recurring engineering (NRE) cost.

Innovation

Focused innovation requires the product manager to deploy the best in class resources to new product conception and development. Innovation in the product conception stage also requires quick evaluation of multiple product alternatives, analyzing design trade-offs and arriving at the best feature set possible to fit the market needs. This might require multiple iterations of modeling, simulation, prototyping and testing which have to be accomplished within the constraints of schedule and budget.

Time to Market

Faster time to market through a shortened product development cycle can be achieved by a global workforce working on the product round the clock. It can also be achieved through innovation in the product development work process.

NRE Costs

Part of the NRE costs can be lowered by moving part or complete development of the product design to lower cost destinations with well defined service level agreements on productivity, quality of output and IP protection through Non-disclosure agreements.

Product profitability equation (P1)
Improved Product profit (P1) = R1 (Product Revenue (R0) + Δ time to market + Δ product innovation) – C1 (Cost of product C0 – Δ NRE cost)

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Consider

1. Product Improvement
2. Developing Product Platforms
3. Building Product Solutions
4. Value Engineering
5. Manufacturing Globally
6. Offshoring Customer Support

Harvest Phase

In this phase the product sales grow and mature in the market. The primary variables the product manager has for top line growth are incremental product improvements, developing 'product platforms' and developing solutions around the product. The primary variables for bottom line growth are reducing per unit costs and cost of servicing customers.

Product Improvements

Incremental Product improvements based on market feedback and competitor products which can help in incremental sales require quick turn around times. Such turnaround times can be achieved through a fast response team comprising a global product team working in tandem with the product marketing team.

Product Platforms

Innovation around the product to develop a platform for multiple product lines is a way to maximize returns from the NRE cost incurred in developing the product. This calls for effective capturing, reuse and redeployment of IP to develop 'Spin Off' products.

Product Solutions

Developing solutions around the product for key customers is another tactic to supplement the product sales

Value engineering

An important part of the harvest phase is a systematic study and improvement in the ratio of function versus cost for all functionalities of a product. This helps in reducing per unit cost of the product with every incremental release.

Global Sourcing and Manufacturing

Manufacturing products at locations that offer the best cost-quality points along with best practices in supply chain management is fast becoming an industry leveler in lowering unit costs of products.

Offshored Customer Support

Offshoring technical support services help maintain a high availability and quality of service at a low cost to business. Offshoring is also helpful for quick ramp up of technical support staff in periods of high activity like new product launches, incremental product improvements and maintenance releases.

Product profitability equation (P2)
Improved Product profit (P2) = R2 (Product Revenue R1 + Δ Product Improvement + Δ Product Platform + Δ Product Solutions) – C2 (Cost of product C1 – Δ Value engineering – Δ offshored customer support)

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Revitalize EOLC

1. Product Reengineering
2. Legacy Product Support
3. Supply Chain Optimization
4. Obsolescence Managament

Decline Phase

As newer technologies are adopted in the industry, the sales of the product invariably start to decline and eventually the product is phased out of the market. The primary variables available for the product manager in this phase for top line management are product enhancement & reengineering and Legacy product support and for bottom line management are supply chain optimization and obsolescence management.

Product Reengineering

Product reengineering, the first logical step in extending a product's shelf life requires a thorough analysis of the cost benefit and more importantly the company's product portfolio. This is because reengineering has a threshold after which the product requires re-certification and also needs to undergo all the processes (and hence the cost) of new product development.

Legacy Product Support

After the product is phased out of the market, support still needs to be offered to honor contractual obligations. This can lead to incremental revenues after product phase out through legacy product support services and annual product maintenance contracts.

Supply Chain Optimization

In the decline phase characterized by declining sales in the product, the product supply chain can be restructured by reducing the cost of component sourcing, manufacturing and logistics in line with the EOLC sales patterns.

Outsourced Obsolescence Management

Component obsolescence is an increasing threat especially for product owners using commercially of the shelf components to speed development and reduce NRE costs. Outsourcing obsolescence management with well defined service level agreements not only reduces the cost but is also an effective risk management tool.

Product profitability equation (P3)
Improved Product profit (P3) = R3 (Product Revenue R2 + Δ Product Reengineering + Δ Legacy Support) – C3 (Cost of product C2 – Δ Optimized Supply +Chain – Δ Outsourced Obsolescence)

A brief analysis of the product portfolio using incremental sales and net margins as dimensional variables as shown in Figure 3 further adds clarity in the use of the lifecycle variables for improving portfolio profitability.

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Analyze

1. Product Portfolio
2. Collaboration Readiness

Figure 3: Product portfolio analysis

Successful hi-technology companies clearly know when to bring the right products to the right markets and maximize the returns on the product. They control the various product lifecycle variables to their advantage and leverage the capabilities of companies around the world to achieve this.

Business Models for Product Partnership

Some companies' expectations of their product development partners overtime have changed from design and engineering milestones to overall success of the product in the marketplace. They have embraced the risks of globalization (geo-political, investment, IP protection and increased complexity), managed them well with their partners and realized the benefits of such global partnerships such as increased flexibility and speed of response to market changes and fluctuating business cycles, innovation and R&D capabilities beyond the walls of the company, re-deploying the company's workforce to core business areas and managing lean and profitable product portfolios with few or no cash dogs.

Many other companies coming out of the 'silo' thinking are deciding how much to share and how much to 'let go' to their partners. There are several parameters which determine an organization's readiness for collaboration and the level of partnership they can undertake and some of them are listed in Figure 4.

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Study

Organizational Readiness

Business Decision maker involvement in product development	Product development is owned by Engineering team	Product development jointly owned by Engineering, Marketing and Sales	Product development executive sponsorship with C-level executive jointly with heads of Engineering, Marketing, Sales and Manufacturing
Level of Collaboration	Teams feel threatened to share work and limit partner involvement to short term skill set augmentation	Collaboration is tactical to manage short term exigencies in areas of bandwidth choke and in non-core 'legacy' products	Collaboration is strategic with the key objective being overall profitability of the company's product portfolio
IT support collaborative product development	Collaboration through email, telephone and physical meetings	Some collaboration tools exist to facilitate work flow and decision making within the organization	Systems, policies and tools in place for collaboration across geographies and with multiple external entities
IP protection and knowledge sharing	IP and all other knowledge artifacts protected by individuals and shared with others on a case by case basis	Groups or teams own the knowledge artifacts and are shared within and externally on need basis. Some policy exists for knowledge sharing	Comprehensive policies exist on IP protection and knowledge sharing. Several levels of protection through contractual agreements and access control.
PARAMETER	**LOW**	**ORG. READINESS**	**HIGH**

Figure 4: Organizational readiness for Collaboration

Depending on the organization's readiness and analysis of existing product lifecycles and portfolio, Figure 5 shows some of the business models that have been successfully implemented and practiced by product companies with their product partners.

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Study

Business Engagement Models

Engagement Models

Time and Material contract with well defined work packages. Vendor has no responsibility outside contracted delivery of the work package.

Benefit: Reduced cost of development, SLA driven schedule adherence and quality assurance.

Output based fixed price model with partial transfer of product development to vendor (Eg: S/W/ Hardware/ Mechanical/ Manufacturing) with program managed by outsourcer.

Benefit: Engineering risk spread, Complete program control, Suitable for large developmental programs and core products of the outsourcer.

Output based fixed price model with transfer of project management to vendor with contractual agreement to complete the work package within the mutually estimated effort and timeframe.

Benefit: Shared engineering risk, Release of management bandwidth, Locked product cost.

Output based partnership transferring complete new product development from concept to manufacturing to vendor with the end goals aligned to engineering milestones and manufactured product delivery.

Benefit: Complete engineering risk transfer, Suitable for products with well defined market size.

Outcome based risk reward partnership with vendor goals aligned to incremental sales of reengineered product. Upfront investments in knowledge transfer, tools and equipment shared by outsourcer and vendor in varying ratios.

Benefit: Business upside from non-core products with minimal investment and shared risk.

Outcome based risk reward partnership for EOLC product with vendor goals aligned to cost savings realized.

Benefit: Significant cost savings realized in R&D, SCM, Technical support and maintenance.

EOLC product partnership with complete transfer of product ownership from R&D to Sales to technical support along with key product resources re-badged by vendor.

Benefit: Significant risk offload improving financial characteristics of product company.

Product partnership across

- New Product Development
- Product Certification
- Product Improvement
- Product Platforms
- Product Solutions
- Value Engineering
- Global Manufacturing
- Product Technical Support
- Product Reengineering
- Legacy Product Support
- Supply Chain Optimization
- Outsourced Obsolescence Management
- End of Life Product Management

Figure 5: Business Engagement models for Product Partnership

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Experience

Engagement Case Study

The case study shown in Figure 6 is an example of how a product company successfully engaged with its offshoring partner to unlock the value of its engineering resource base by transitioning the management of an end of life cycle product suite.

Business Model Innovation Case Study

Problem

A leading Fortune 100 company wanted to realign its resources from a legacy product suite to new products. This product suite comprising 8 products was once the company's flagship and hence had a global customer base of over 20000 enterprises including many Fortune 500 companies. With resources being moved to next generation product development, the company found it increasingly difficult to manage the increasing inflow of technical support requests in L1, L2 and L3 categories.

HCL Solution

The solution identified was to transition the entire product management to HCL in a phased manner. This partnership was an outcome based risk reward partnership with multiple end goals like addressing quality issues, increasing end customer satisfaction, reducing product sustenance costs, increasing feature velocity (thereby increasing new revenue opportunities) and finally preparing customers for migration to next generation product.

Business Results

- Process improvements resulted in a 40% reduction in team size.
- Base code stability was improved with a 50% reduction in defects found.
- L1, L2 case volume reduced by 50% within seven months of takeover
- 100% of the client's engineering team was transitioned to next generation product development.

Figure 6: Case Study - Business Model Innovation

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Talk to HCL

1. Business Aligned R&D
2. Transformational Partner
3. Global Product Ecosystem

Concluding Remarks

A global economy offers huge potential for accelerated innovation and opens new markets. But only those companies which are able to adapt to these new market conditions by developing strategies to suit this changing scenario as well as executing them well, will be able to capitalize on this potential. A significant step in this transformational journey is to engage a strategic business aligned global product partner. HCL with its best in class capabilities assists product companies develop a global ecosystem to drive innovation, control costs and reach markets faster helping companies realize their potential.

HCL has worked with product engineering companies for over three decades co-creating successful products across geographies. We have leveraged our experiences and research to develop a product development ecosystem comprising technology alliances, product testing and certification facilities, prototyping and simulation facilities, manufacturing partnerships and tie-ups with COTS component manufacturers. This enables HCL to provide product companies a flexible partnership across all the phases of the Product Lifecycle as showcased in Figure 7.

PRODUCT LIFECYCLE PHASE	PRIMARY VARIABLES	HCL ENABLERS
Investment	• Focused Innovation • Shorter Time to Market • Reduced NRE Cost	• Product development expertise across multiple domains with 245+ customers • Flexible and scalable manpower with 7000+ professionals in Engineering and R&D practice • Intellectual property across domains to reduce NRE cost and development time • Independent Verification and Validation Service
Harvest	• Product Improvement • Product Platforms • Product Solutions • Value Engineering • Global Sourcing and Manufacturing • Offshored Technical Support	• Depth of expertise servicing customers across the value chain including OEMs, Component vendors and Standards bodies • In house test labs, product certification and low volume manufacturing facilities • Product development eco-system with several manufacturing vendor tie-ups • Several successful engagement models from service delivery to risk sharing
Decline	• Product Reengineering • Legacy Product Support • Supply Chain Optimization • Outsourced Obsolescence Management	• Expertise in EOLC product management with 30% of HCL's s/w projects in end of life • Technical Customer Support services from level 1 to level 3 • Complete EOL product ownership and risk transfer including R&D, SCM, Technical support and Product Maintenance

Figure 7 : HCL Enablers for the Product Life Cycle Variables

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HCL

CUSTOM APPLICATION SERVICES

ENGINEERING AND R&D SERVICES

ENTERPRISE APPLICATION SERVICES

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IT INFRASTRUCTURE MANAGEMENT

BUSINESS PROCESS OUTSOURCING

ABOUT HCL

About HCL Technologies

HCL Technologies is a leading global IT services company, working with clients in the areas that impact and redefine the core of their businesses. Since its inception into the global landscape after its IPO in 1999, HCL focuses on 'transformational outsourcing', underlined by innovation and value creation, and offers integrated portfolio of services including software-led IT solutions, remote infrastructure management, engineering and R&D services and BPO. HCL leverages its extensive global offshore infrastructure and network of offices in 20 countries to provide holistic, multi-service delivery in key industry verticals including Financial Services, Manufacturing, Aerospace & Defense, Telecom, Retail & CPG, Life Sciences & Healthcare, Media & Entertainment, Travel, Transportation & Logistics, Automotive, Government and Energies & Utilities. HCL takes pride in its philosophy of 'Employee First' which empowers our 52,714 transformers to create a real value for the customers. HCL Technologies, along with its subsidiaries, had consolidated revenues of US$ 2.0 billion (Rs. 8300 crores), as on 30th September 2008. For more information, please visit **www.hcltech.com**

About HCL Enterprise

HCL is a $5 billion leading global Technology and IT Enterprise that comprises two companies listed in India - HCL Technologies & HCL Infosystems. The 3-decade-old Enterprise, founded in 1976, is one of India's original IT garage start-ups. Its range of offerings spans Product Engineering, Custom & Package Applications, BPO, IT Infrastructure Services, IT Hardware, Systems Integration, and distribution of ICT products. The HCL team comprises over 58,000 professionals of diverse nationalities, who operate from 20 countries including 360 points of presence in India. HCL has global partnerships with several leading Fortune 1000 firms, including leading IT and Technology firms. For more information, please visit **www.hcl.in**