

Chapter 2

EFFECTIVE PRODUCT PLATFORM PLANNING IN THE FRONT END

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1. THE VALUE OF PLATFORM PLANNING IN THE FRONT END

Platform Planning is increasingly being adopted by companies seeking to provide customization while maximizing economies of operation. Platform Planning is defined as the proactive definition of an integrated set of capabilities and associated architectural rules that form the basis for a group of products. When implemented effectively, Platform Planning can provide distinct benefits in cost and market leverage to provide a competitive edge in the marketplace.

Platform Planning is often decoupled from Product Strategy, resulting in platform capabilities that do not meet specific customer needs or are left “dormant” because they do not support a specific product. This misalignment results in dissatisfied customers, stranded investment, and ultimately, missed opportunities in the market.

The benefits of Platform Planning are most effectively realized by implementation in the Front End of product development. The *front end* of product development is where the overall product strategy is defined and the elements of a potential new product or platform are identified. It is here that an alignment between key markets, customer requirements, and underlying platform capabilities can yield the greatest benefits for downstream platform leverage (see Figure 2-1).

Lack of Platform Planning in the Front End can result in a number of pain points. These include:

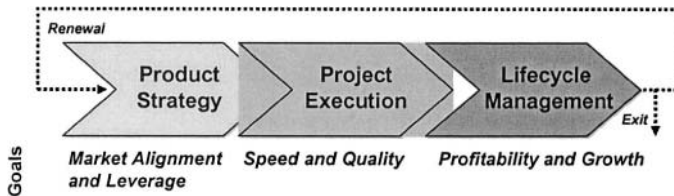


Figure 2-1. Phases of product development.

1. Limited horizons for Platform Planning, resulting in product “one-offs”,
2. Technical feasibility is not understood at a sufficiently early date,
3. Concurrent product/platform development decreases product leverage,
4. Inefficient platform leverage and un-integrated architectures,
5. Limited view of platform investments needed for future product growth,
6. Product functionality is compromised as tradeoffs are made and features dropped to maintain schedules, and
7. Unscalable infrastructure that is not able to support growth.

Ultimately, this results in higher capital costs, slower time to market, and lost revenue opportunities. In order to minimize these pain points and maximize value from advanced Platform Planning, PRTM developed a five-step methodology that it uses:

1. Establishing a common language and terminology,
2. Defining a product strategy and value proposition,
3. Tapping the voice of the market,
4. Identifying the vector of differentiation, and
5. Developing product/platform roadmaps.

We explore of each of these steps in the following sections.

2. ESTABLISHING A COMMON LANGUAGE AND TERMINOLOGY

Lack of a common language and set of operating terms for Platform Planning can often derail efforts for engineering, marketing, and product management functions to coordinate their activities effectively. These functions often “talk past” each other, resulting in disagreement and stasis. Alignment on a common set of operating terms is critical before Platform Planning can proceed. Key terms for effective Platform Planning include:

- *Market* – A large group of customers who have common set of problems/needs, and who purchase a common group or class of products to solve those problems.

- ❑ *Portfolio* – Groups of projects funded from a common investment pool and managed by a common management team.
- ❑ *Product Platform* – A set of platform elements and architectural rules that enable a group of planned product offerings. Key characteristics of a product platform include: (1) Architectural rules/standards governing how technologies and subsystems (“platform elements”) can be integrated; (2) Defines the basic value proposition, competitive differentiation, capabilities, cost structure, and life cycle of a set of product offerings; and (3) Supports multiple product offerings from a single platform, permitting increased leverage and reuse across the product line.
- ❑ *Product* – Products are specific instances of a platform that may have minor or major deviations from the basic platform.
- ❑ *Product Line* – A grouping of products that share similar features, functionality, or lineage to help reach a larger share of the market.
- ❑ *Elements* – Building blocks of a platform that can be varied within certain platform constraints.

Time invested in establishing a working set of terminology and gaining agreement from all the stakeholders involved in a Platform Planning effort will save significant cycles later in the planning process.

3. DEFINING A PRODUCT STRATEGY AND VALUE PROPOSITION

The underpinning of an effective platform plan is a clearly defined Product Strategy (see Figure 2-2). The Product Strategy should be guided by the overall strategy for the company or business unit, including priority markets that should be pursued as well as clear targets for financial returns.

The focus of a platform plan is how to derive value from leverage. Leverage comes in several forms. First is *Cost Leverage*, which is characterized by several qualities. It involves the reuse of product technology across product lines, which includes similar parts, processes, materials, interfaces, and subsystems; the identification of commonality between product lines to enable platform building blocks; and use of platform building blocks to reduce the cost of development, manufacture, and service. *Market Leverage* is the second major form of leverage. It includes reuse of product technology across market or market segment boundaries, a focus on commonalities in customer needs across markets, and development of flexible/modular systems to accelerate time-to-market.

Achieving leverage in Platform Planning is the artful balance between commonality and distinctiveness. Conditions in which platform leverage is

difficult to attain are new and undefined markets where specific customer requirements are being satisfied for the first time. In mature markets, platform leverage is more achievable given a known set of customer segments, customer requirements, and track record of product performance. It is in this environment that effective leverage can spawn a whole new category of product without dramatically increasing development cost.



Figure 2-2. Platform strategy in developing a product strategy.

For example, the new VW Beetle reinvigorated a product line that had been dormant for many years. However, the Beetle was based on a platform that supported multiple VW and Audi product lines. As a result, incremental product development costs were kept to a minimum. Incremental investment was isolated to the differentiating elements of the product – styling, interior, and performance. Significant efficiencies were created by sharing the “non visible” elements like the power train, suspension, steering and electrical systems.

The benefits of Platform Planning are measured along several dimensions. These dimensions include cost and complexity reduction, reliability, flexibility, market responsiveness, and simplicity. Cost and complexity reduction are measured by decreases in capital investment required to develop multiple platforms that will in turn only support a limited number of products and product lines. The degree to which a single platform can enable multiple product variants results in lower development cost allocation per variant, and therefore quicker return on investment.

Complexity reduction is a major benefit of effective Platform Planning. Complexity is the “hidden cost” that impacts profit margins as product portfolios proliferate. Through effective Platform Planning, unnecessary and non-valued added complexity can be eliminated from the portfolio. Savings are generated through reduced SG&A (Sales, General, and Administrative) brought about through leaner sales and marketing organizations and reduced product support. Cost of Goods Sold (COGS) are reduced through efficiencies in the supply chain, negotiating better terms with suppliers, and reductions in direct and indirect manufacturing costs. All savings flow directly to the profit line of the business.

Equally as important but perhaps less quantitative are the benefits enabled by simplicity in design and architecture. The same drivers of cost and complexity reduction also allow subsystem design with elegant interface architectures producing rich variety within the sub-function without causing disruptions to any other subsystem. This can result in a customer-pleasing level of features and variability with minimum parts and interfaces.

4. TAPPING THE VOICE OF THE MARKET

Profit producing and customer pleasing products are lost without tapping the Voice of the Market. Understanding the Voice of the Market ensures that Platform Planning is not overly influenced by internal drives for efficiency. Capturing the Voice of the Market requires a robust process in the front end to use a “customer grounded” ideation process to identify customer requirements and concepts. By customer grounded, we mean a process that allows the company to immerse itself in the customer’s environment, and learn about their problems first hand. These customer insights are then translated through “customer voices” into customer requirements. Customer requirements then become the basis for generating concepts that meet the customer requirements. Concepts are then aligned against customer need, company capabilities, and other screening criteria to identify the most promising candidates. The output is customer grounded concepts that are translated into winning solutions by using requirement alignment tools like QFD (Hauser and Clausing, 1988) and S-QFD (Quality, Function, Design).

Concepts can take different “pathways” depending on their level of innovation and scope of impact. For example, a concept might provide a promising new enabling technology that is not ready for commercialization, but holds significant potential. This technology should be “spun off” to a separate yet linked technology development process for nurturing and development.

A concept might be a derivative product that taps into an existing platform capability and allows the company to address a new market segment. This concept then enters the traditional product development process for development.

Finally, a concept might be a “platform”, demonstrating the potential to support multiple market segments and as well as meet multiple customer requirements. This type of concept holds the greatest potential for return as well as potentially requiring the greatest level of capital investment. It needs to be carefully vetted in a subsequent more detailed requirements generation process where capital investments are coupled with revenue expectations.

5. IDENTIFYING THE VECTOR OF DIFFERENTIATION

Effectively capturing the Voice of the Market provides the inspiration for identifying the Vector of Differentiation. The Vector of Differentiation (VoD) is the defining characteristic that the platform will deliver over a period of time that will enable it to meet the target segment’s needs while providing a competitive advantage in the market. There is a one-to-one map between the Vector of Differentiation and product platform—if a distinct VoD cannot be defined; there is not a basis for a distinct product platform.

Vectors of Differentiation are usually built along four major competency dimensions (see Figure 2-3). These include:

- ❑ *Innovation* – unique and fundamental features or capabilities enabled by a robust innovation capability within the company.
- ❑ *Lower Customer Costs* – lower total cost of ownership which entails both a lower purchase price and lower cost of operation.
- ❑ *Breadth and Coverage* – products that span a price and performance space, enabling capturing significant market share capture.
- ❑ *Higher Performance* – increased product performance yielding increased customer productivity and effectiveness.

Vectors of Differentiation are decomposed into Defining, Supporting, and Segmenting Elements within a Platform Planning context. *Supporting Elements* are at the lowest level of the platform architecture, and provide a baseline level of functionality. Without them, the product cannot operate; however, they do not provide a significant competitive edge. *Defining Elements* provide a competitive edge and are the basis for leverage across an entire product line. *Segmenting Elements* address market segment specific customer value propositions and may actually add cost to the platform.

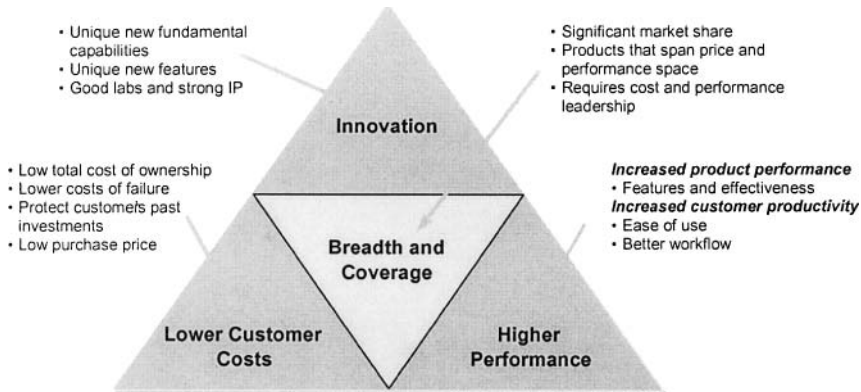


Figure 2-3. Developing the vector of differentiation.

For illustration, think of a financial services product like a credit card. For a credit card product, the Supporting Element is usually the billing or transaction processing system. Without it, the product is inoperable but it does not provide a substantial point of differentiation. The Defining Element could be a unique rewards program capability that when leveraged, enables a series of derivative product line extensions like loyalty cards while being supported by a unique Vector of Differentiation in the market (in this case, Innovation). Finally, the Segmenting Element could be a unique offer to a specific segment like the teen market that adds cost, but provides access to a unique and lucrative audience.

6. EXAMPLE: PLATFORM PLANNING FOR A LARGE AUTOMOTIVE SUPPLIER

A \$1B plus OEM automotive supplier need to diversify its customer base in order to ensure its success in the market. However, its product architectures were inflexible, costs were high, and the design bookshelf was not current. In addition, complexity was out of control, driving high manufacturing costs and poor utilization of design engineering resources.

In order to address these issues, a Core Strategic Vision was developed through a comprehensive assessment of the market and internal competencies. In addition, defined product platforms, derived from market requirements and organized by vectors of differentiation within product portfolio, were established. Finally, a platform and product migration plan to balance strategic priorities, short-term commitments, and headcount constraints were developed.

The results were significant. Variable cost savings of 15% were identified while concurrently increasing product flexibility and functionality, by migrating to platform-based strategies. In addition, utilization of product development resources was improved by 18% while unique product architectures were reduced from 17 to 3 globally.

7. PUTTING IT ALL TOGETHER: PRODUCT/PLATFORM ROADMAPS

The platform plan comes together in a Product/Platform roadmap. A Product Roadmap (or Release Roadmap) is a planning document that indicates the expected timing of product offerings from product platform(s); examples can be found in Chapter 5. It is usually in the form of a high-level Gantt chart showing the timing of planned future releases and expected duration of major development phases. The roadmap becomes the plan of record for platforms and the products that will be enabled the platforms by showing how product functionality and capabilities are expected to evolve over time for each product.

Most importantly, the product/platform roadmap enables the management team to visualize product/platform timing, cadency, linkages, and synchronization between different levels of the product offering. For example, it can help identify if there is a “one to one” relationship between a platform and a product, indicating little to no leverage. It can identify whether technology development and platform availability are out of cadence, thereby impacting market delivery timing. It can show the products and product families enabled by the platform, their expected life cycle, and when or whether investments will need to be made to the underlying platform. In summary, the product/platform roadmap is the visual summation for the platform strategy and is used by management to help guide platform investment or rationalization decisions over the platform’s useful life.

8. CLOSING REMARKS

In closing, to fully realize the benefits of platform planning, execution needs to begin in the front end of product development. By following the five key steps outlined in this chapter, product development functions can ensure that platforms precede product line plans, resulting in lower overall product development costs and products that better meet customer needs.

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Methods and Applications

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