



CIT's online guide for Virginia's technology entrepreneurs.

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Sales: Product Management

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Overview

What is a product? Webster's New World Dictionary defines a product as "something produced by nature or made by human industry or art." For technology entrepreneurs, products are better defined as "goods and services offered to buyers with the intent of providing value." Note that products include "goods" and "services," both of which must provide value to be successful. Goods and services are the products of businesses.



The customer experience is part of the product. When customers make buying decisions, the experience of purchasing the product, acquiring it, using it, and getting support for it when necessary are all part of the product. When you develop a product, you must make certain that you are developing the entire experience and not just the technology.

Because the entire product experience is part of product development, it is by its very nature a cross-functional team effort. The entire company must buy into the importance of their contributions to the overall success of the product. The team leader, often the Product Manager, is responsible for orchestrating the effort such that everything is done correctly and consistently.

There are two important perspectives to product development: (1) you must develop the right products and (2) you must develop the products right. In order to develop the right products, you must first gain an in-depth knowledge of your potential market's needs and wants. This means you must understand who your potential customers are, what they need, what motivates them to buy, and how much they are willing to pay to solve this problem. This comes from careful research and analysis of business needs before you start development.

There are three unique inputs to the every new product development effort: quality, cost, and time to market. These three are often in conflict with each other, so your Product Manager must be able to optimize the relationship based on your specific situation and the needs and expectations of your market.

Frequently Asked Questions

I have a Product...now what do I do now?

This is a common question for technology entrepreneurs who frequently start by doing the technical development. You should develop a product readiness checklist, a simplified example of which appears below. This list will be different for each product, but is equally important for both goods and services.

- Is there a complete product definition including marketing plan and business case? (i.e., do you understand how customers will learn about your product, who will buy it, why, what they will pay?)
- Is the technology complete and fully tested?
- Is the sales collateral written?
- Is the sales force fully trained to sell the product?
- Is the pricing model complete (including list prices, discount structure, etc.)?

- Are processes established for manufacturing, ordering, distributing, installing, billing, support, and updates?
- Have all operational processes been thoroughly tested in an alpha or beta test environment?
- Is a support plan and organization in place, either in-house or outsourced?

If you cannot answer yes to every one of these questions, then you've still got work to do. A product is a total lifecycle experience, not just a technology. If you answer no to any item on your checklist, then take the steps to establish processes, perform research, test, plan, etc. until all are complete. A product readiness assessment should be conducted by all product stakeholders that reviews each item on your checklist, identifying issues and judging whether their severity is sufficient to delay launch.

What is a Product Manager and why do I need one?

A Product Manager is responsible for the success of the product. This involves much more than just the development of products; it's the development of successful products, which make money and bring value to those who acquire them.

To do this, the Product Manager must be:

- Given the responsibility to achieve success (responsible for Profit and Loss with respect to the product);
- Empowered to lead the cross-functional team in developing the product; and
- Provided with necessary resources and support to achieve success.

The duties of a product manager comprise strategic direction and long-term planning, coordination of near-term tactical and development activities, and the day-to-day activities necessary to keep the development moving forward. The Product Manager is not necessarily the visionary behind the product but should possess the creativity to maximize the product success. This creativity must be accompanied by the discipline to research and validate ideas before implementing them. If the Product Manager is not the original product visionary, it is important that the visionary respect the PM's role as gatekeeper for new ideas. That is, the visionary must allow the Product Manager to validate ideas before making them part of the product.

How can I learn more about what my market wants?

There are many options for researching your market. First, there is a wealth of research available from market research firms such as Gartner, Forrester, IDC, and countless small firms and specialty organizations. These reports give a good overview of market size, demographics, spending habits, and competition.

For most products, more specific knowledge than that provided by purchased research is needed. You can do this yourself (or with the help of a market research consultant) through focus groups, surveys, and customer interviews. If you have a product prototype, you can solicit user feedback by allowing beta testers to use and comment on the product. Choosing your beta testers carefully and developing a strategy for obtaining their feedback will maximize the results of this type of research.

Many technology startups tend to ignore some of the greatest sources of research early in their product's life-cycle. That is, they do not carefully collect and analyze feedback from sales and customer support organizations. It is important to put processes and easy-to-use tools in place to capture this data from the beginning. For sales, collect reasons for successful closes as well as barriers that are deal killers. For customer support, track problems, resolutions, questions, and comments. If this data is collected in a database, it can then be provided to the Product Manager for analysis, further research, and incorporation into new releases, as warranted.

How can I evaluate my competition?

A key factor to identifying and assessing your competition is to keep an open mind. Competition is not

always obvious and is not always what it seems. Don't just look for direct competitors who have a product in your market space. You should also look for indirect competitors (i.e., anyone who has the potential for decreasing your overall market share).

Once your competitors have been identified, gather as much information on them as possible. Review their web sites thoroughly. Obtain copies of literature, advertising, and anything in the press. Visiting trade shows can be a very efficient way to gather this documentation. You can also find someone who can call competitors and request information from an independent source (i.e., not using your company name and "blowing your cover").

Once data is available, evaluate them not just on product features, but on all aspects of their business. When looking at product features, don't just look at functions. Look at the intangibles such as quality and service. When evaluating business capabilities look at the size of the company, its age, and its locations. Evaluate specific strengths and weaknesses against your own. Be honest - you're better off giving yourself a challenge than artificially minimizing the competition.

What is the role of Executive Management in product development?

The behavior of Executive Management in developing products can make or break the product success. Take the time to understand what is involved in developing products and then take an active role in creating a positive and innovative environment that maximizes the efforts of the team.

You must be willing to commit to the production of your company's product or service for the long term. This can be difficult for you because funding is often scarce. It is important to realize that building successful products takes time, so spend money wisely and manage resources carefully. Plan carefully to build in short development cycles, maximizing early revenues to pay for more complex developments.

History shows that a product's chances for success increase when executive management stays involved but collaborates with the team without controlling it. Take an active roll in all go/kill decision and take the time to make informed choices.

Create a productive organization with clearly defined roles and responsibilities, and then empower the team to do their job. Foster teamwork and collaboration and steer away from efficiency-robbing politics and unproductive internal competition.

Finally, accept failure as a part of product development. Recognize "excusable" mistakes and learn from them. Avoid getting consumed by the losses or overwhelmed by the successes. Maintain agility and an open mind to adjust when things don't go as planned.

What's the difference between "business requirements" and "technical requirements"?

Business requirements specify how the product will be used and how it meets the goals of the business. These requirements are usually more functional in nature and are frequently based on business processes. Technical requirements are developed from the business requirements by translating the functional requirement into one that specifies a technology. For example, your business requirements might state that "Sales representatives must be able to store and retrieve contacts based on location, business type, and priority." The resulting technical requirement might read "The product will contain a database of contact data with keys defined for city, type, and priority." Note that there is rarely a one-to-one mapping between business requirements and technical requirements, so it is a good idea to maintain traceability between the two for quality and testing purposes.

How are services "products" different?

Services products include any products that are delivered on an ongoing basis. Examples include:

- Internet services

- Hosted applications (e.g., ASP services)
- Telephone services
- Financial services
- Health care services
- Information Technology professional services

The key difference between services and goods is that services are intangible. Therefore, the process for delivering the services is critical to the customer experience. There is no "product" without this process.

Services should have a Services Definition Document just as tangible products have a Product Definition Document. Both should contain market data, a business case, and functional and operational requirements. For services, the operational requirements will likely be more extensive and more critical to the product's success.

When developing services, you should focus on delivery. Define and test repeatable processes. If the service is a telecommunications or data communications service, have processes for provisioning the service, supporting it, changing the service level, billing, and disconnecting the service. A clear service level agreement will set customer expectations.

For professional services, start with Service Definition Documents that define the portfolio of offerings on which you will focus. Define delivery processes for all phases of a project. Set standards for project management, requirements management, and quality assurance. Define the "standard" project activities for each service offering and tailor it to meet customer specific needs. At the end of each project, do an analysis and capture detail of the successes and shortfalls. Keep this data and put a process improvement plan in place to learn from it.

There is a lot to be done to develop a successful product. How do I accomplish this with limited resources?

A few years ago, when investment was readily available, start-ups had the option of developing a full-service product company. Now, the key is well chosen alliances and outsourcing partners. You should focus on what you do best. For example, if you have patentable technology, focus on the development of the technical solution and rely on partners for manufacturing, distribution, and support. You are going to give up some potential profit to these partners, but the cost of setting up these functions can be prohibitive. Once you have reached a certain size and success level, you can look at pulling some of the outsourced functions back in-house. This should not be done until you can achieve an economy of scale that will make it cost effective.

Glossary of Terms

Alpha Test

An Alpha Test assesses total product functionality, including processes and operations, in an internal environment. Internal "customers" purchase and use the product as if they were real customers, including ordering, installing, and calling for support.

Beta Test

A Beta Test is conducted similarly to an Alpha Test, except that users are "friendly" external users who agree to the terms of a Beta Test and also to provide feedback on the product. During the Beta Test period, all processes should be repeatedly tested and improved. Some products go through multiple releases during Beta Test before they are launched to all users.

Business Case

A Business Case is the business justification of the product, including market size, a defensible estimate of

the market share expected, and a financial model that shows profit and loss over the life-cycle of the product. Often the Business Case is incorporated into the Product Definition document, but sometimes the product requirements and description may be embedded in a Business Case document. Unfortunately, there is no clear standard among the thought leaders in this profession.

Competitor

A Competitor is anyone or anything that prevents you from obtaining market share. It is not limited to companies with competing technologies or even competing products. It is any solution to the problem that you are solving that will prevent customers from purchasing your product.

Launch

Launch is the point at which the product is released to the consumer market. However, the term is also often applied to the series of activities leading up to a commercial launch. Examples of such activities include advertising campaigns, trade shows, publicized product debut events, and the onset of sales campaigns. Since these are all costly activities, there are often one or more decision points leading up to a launch, including a detailed readiness assessment.

Market (n)

A Market (the noun) is a group of consumers for your product. It can be identified in the broad sense or segmented into smaller parts, such as "baby boomers," students, and financial services companies. Basically, a market is any group of buyers who can be identified by a set of traits or characteristics that influence their buying decisions.

Market (v)

The verb "to market" refers to a discipline applied to identifying, targeting, and reaching customers with the intent of selling a product or services. One of the most common misconceptions of a technologist with no formal business training is to use the words "marketing" and "selling" synonymously. In reality, the marketing organization tells the sales organization who to sell to. For example, marketing defines an advertisement and determines what publications to place it in to reach the intended audience (market). When someone calls the number in the advertisement, a sales person answers the telephone.

Market Segmentation

Market Segmentation involves taking a broad market and breaking it up into smaller markets that have common characteristics. For example, you can take the market of all baby boomers and divide it up into men and women, those with children, those that own houses, those that like to travel, or those who play golf. Demographic data is collected on the different segments to identify the likelihood of someone in a particular market segment buying a specific type of product.

Product

Products are goods and services offered to buyers with the intent of providing value. Note that Products include goods and services, both of which must provide value to be successful. From a customer point of view, a Product is not just the tangible, but encompasses the entire buying and owning experience. From a business perspective, the Product includes the profit and loss associated with its development and sale.

Product Concept

A Product Concept is the highest level of definition of a solution to a problem. It states the opportunity being addressed, the market targeted, a description of the solution, and an expected level of success. It is created during the early phases of product development to determine whether a product is worth the investment of developing it. Generally, this is just a few pages of data and is not costly to develop.

Product Definition

A Product Definition is a description of what the product should do from a functional point of view. It includes a definition of the market being addressed, a business case analysis, and a clear statement of the functional and operational requirements for the product.

Product Development

Product Development is the discipline of building and marketing products. It is not just the technical development but the development of plans, operational processes, and marketing strategies.

Product Roadmap

A Product Roadmap is a plan for releasing one or more product lines in phases. It determines what features are to be developed in different releases of a product over time. These are based on strategy and market analysis. An example of a strategic roadmap decision is to develop low-risk high-volume solutions first and then use early profits to develop higher-risk more expensive feature-sets later.

Opportunity

An Opportunity is a problem that is identified for which there is either no good solution or the available solutions is not fully adequate.

Key Issues

Map Your Product Strategy to Your Corporate Strategy

Without a strategy there is no direction for your business. Having an overall strategy for your business is great, but you should be careful to ensure that there is a specific strategy for your products that supports your overall business strategy. When new product ideas arise, they should be screened for compliance with the product strategy before being adopted into the product roadmap.

Do Your Up-front Homework

The early phases of product development, where you carefully analyze the needs of your market, are the most important. Studies have shown that success rates improve dramatically for those products where the developers do their up-front homework. If you fail to determine market needs before development starts, then you risk incurring substantial costs of retrofitting your product after development is complete.

Control Requirements Creep

Changing requirements is one of the greatest reasons products exceed their development budget and schedule. Often the entrepreneur, who is the visionary, is the biggest offender in this area. It is important to freeze requirements at some point and only change them through a controlled process that analyzes trade-offs based on the input of all affected stakeholders. You should also remember that all new requirements must be assessed based on market needs. Just because one high-profile customer requests something doesn't mean it's right for the entire market. You will walk a fine line when faced with such decisions, and they should not be taken lightly.

Take the Time to Understand All of Your Customers

Most products actually have multiple customers, but developers often fail to consider the value proposition for each customer type. As an example, if you are developing a product that you will resell through channel partners to end users, you are actually serving two customers: (1) the channel partners, who will need to make a profit and potentially enhance their offering by selling your product; and (2) the end users,

who ultimately buy and use the product. If either of these links in the chain breaks down, then the product suffers. For the product to succeed, channel partners must have incentive to sell and end users must have incentive to buy.

Don't Assume That Customers Will Like Something Just Because You Do

Entrepreneurs are often visionaries who have a product idea that meets a need they themselves have. Some of these products are ultimately very successful, but you should keep in mind that you are a market of one. For your product idea to be successful, you must identify and reach a much larger market. Carefully research the market and heed what you learn. Sometimes you will find that the needs of the broad market differ from your own. When that happens, build to the market!

Adapt to Market Changes

Markets are very fluid and you must be prepared to respond to changes. Research is an ongoing function; don't assume that you are done when you complete your initial research. Many great ideas have died before they were complete because markets changed.

Assess the Competition Thoroughly

Keep a very open mind when assessing your competition. Technology entrepreneurs are sometimes blinded by technology. They look for competitors building products based on a similar technology rather than looking at how potential markets are currently solving the problem or filling the need. Sometimes very simple, inexpensive solutions fill a need while fancy technical solutions fail to obtain market share.

Follow a Disciplined Development Process

Best practices in product development show that following a disciplined, gated process increases the odds of product success. Such processes enforce doing up-front homework first to ascertain the needs of the market. Decision points prevent throwing good money after bad when issues arise that affect the ultimate success of the product. While large product companies have pioneered these practices, start-ups that apply similar disciplines have achieved greater success than their undisciplined counterparts.

Develop and Test Operational Processes

Product testing involves much more than testing the technology. You must test all of the processes surrounding the product that affect the customer experience. If a product release fails to install properly or customers are not happy with the response from customer service representatives, it can destroy their confidence in your product and your company. Alpha and Beta test phases should carefully test all operational aspects of a product to make certain that most customers will have a good experience buying and using your product.

Resources

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CIT's Regional Directors offer confidential one-on-one consulting, technical data and information, one-stop access to expertise in the universities and federal laboratories, and referrals to a statewide network of partners that target a specific industry or business size.

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[Local PDMA chapter](#)

The DC Region's local organization for product development professionals.

[MarketResearch.com](#)

Aggregator of global business intelligence.

[Product Development and Management Association](#)

Thought leaders of product development and management.

[Product Development Institute Inc.](#)

Comprehensive research on best practices in new product development.

Industry-Specific Resources:[Initiative for Nanotechnology in Virginia \(INanoVa\)](#)

Promotes collaborative nanotechnology research, education, technology transfer and commercialization in Virginia.

[National Electronics Manufacturing Initiative](#)

Provides an environment in which partners and competitors alike can collectively anticipate future technology and business needs and effectively develop collaborative courses of action to meet those needs.

[VA Bio](#)

Promote the biotechnology industry in Virginia.

[Virginia Manufacturers Association](#)

An advocate in legislative, regulatory, taxation, environmental, workplace, business law, insurance, technology issues and an aggregator of business services for its members.

Books on Product Development and Management:[Winning at New Products: Accelerating the Process from Idea to Launch](#)

by Robert G. Cooper

[Product Leadership: Creating and Launching Superior New Products](#)

by Robert G. Cooper

[The Product Manager's Handbook: The Complete Management Resource](#)

by Linda Gorchels

[The PDMA Handbook of New Product Development](#)

by Milton Rosenau, Abbie Griffin, George Castillion, and Ned Anschuetz

[The PDMA Toolbook for New Product Development](#)

(edited) by Paul Belliveau, Abbie Griffin, and Stephen Somermeyer

[New Products Management](#)

by Merle Crawford and Anthony Di Benedetto

Cynthia Gilmer is Founder of Opus Plus and has over 20 years of experience in product development in the areas of product management, systems engineering, and product implementation.