DISCOVER TO DELIVER

Agile Product Planning and Analysis

Ellen Gottesdiener and Mary Gorman

The following material is an excerpt from Ellen and Mary's book.

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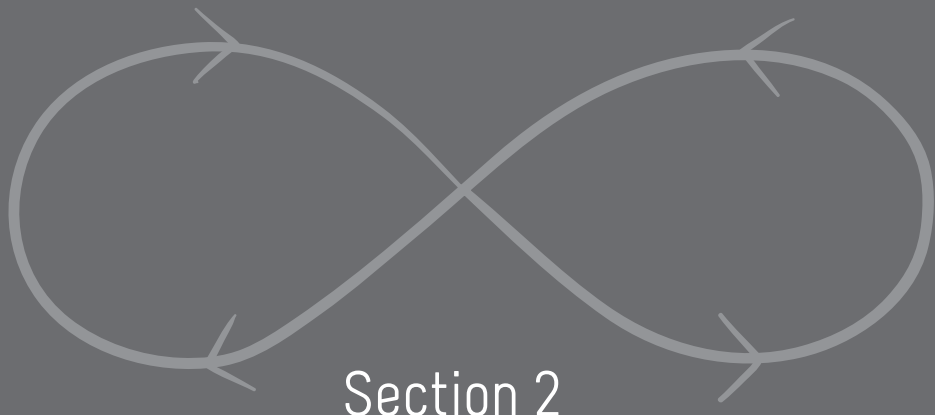
Published by EBG Consulting, Inc.
Printed in the United States of America

Library of Congress Control Number: 2012943771

ISBN 978-0-9857879-0-5
10 9 8 7 6 5 4 3
Third printing, January 2017



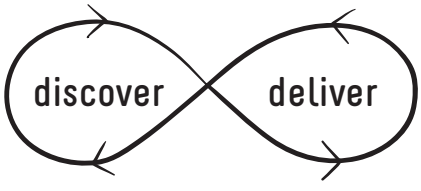
Section 2

BIG CONCEPTS

BIG CONCEPTS

Discover to Deliver™

Agile/Lean software development teams evolve products through the ongoing, interwoven activities of *discovery* and delivery.

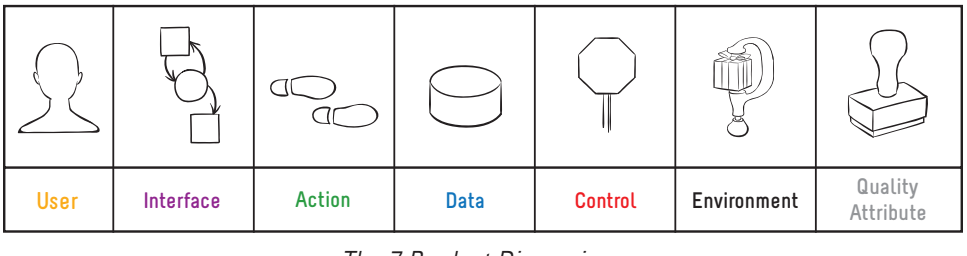


Product

To create a *product*, you identify and build the *product options* that will provide value.

The Product

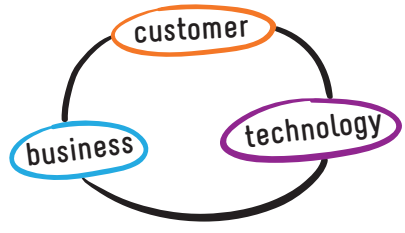
As you discover and deliver each product option, you look at it in terms of the 7 Product Dimensions.



The 7 Product Dimensions

Product Partnership

Customers, business people, and technology experts form and sustain a *partnership*. These three types of *partners* collaborate throughout product discovery and delivery.



Product partners fall into three groups

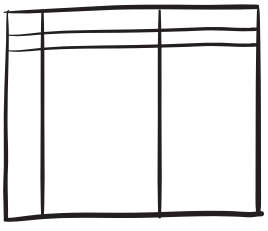
Value

You identify the *value* you seek from each product option, and that value drives your planning as you discover and deliver the product. Value is the end, and the product options are the means, to obtain this value. Each product option presents benefits and risks, and you assess these as part of determining the option's value.

To assess a product option, the partners determine its value

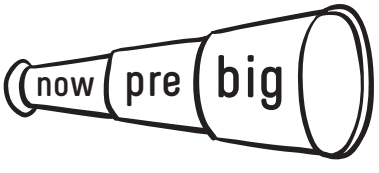
Plan

You allocate the chosen product options to a *plan*.



The partners create a plan for delivering the product options

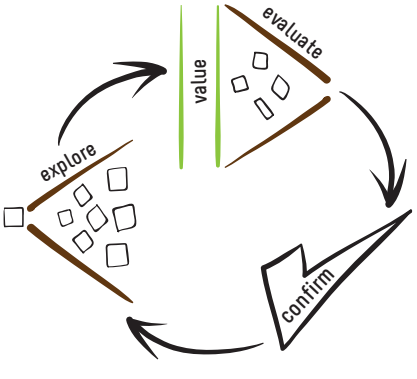
You use three *planning views*, or time horizons.



Three planning views are useful for planning

Structured Conversation

You use the structured conversation for ongoing, systematic, and collaborative discovery and delivery of product options.



The Structured Conversation

Product

A product provides value to stakeholders.

A product is a software application, system, device, service, or combination that provides value to customers and business partners. The product may be created for internal or external use. It may be software and services, or may be a system composed of hardware, software, and services.

How do you discover and prepare product options? How do you make sure you have a holistic view of the product? How can you be sure you're building the right product?

A product is the result of many decisions you make throughout discovery and delivery—decisions that are driven by feedback from partial implementation and continual delivery.

Product Types

You can develop your product using a variety of means. If it's an internal product, it might be developed by your IT (information technology) group, an external party, or some combination; or you might acquire it as a packaged solution (e.g., COTS, or commercial off-the-shelf, software), which you might configure for your organization. You may develop an external product for sale to other organizations or consumers, or you might develop it under contract with an external technology partner.

Vision: Source for the Product

A *product vision* is the long-term concept of the product. The vision outlines the product's key benefit or purpose as well as its differentiators and advantages. The vision explains how the product contributes to your organization's strategy. The product must have value

so that buyers will be willing to exchange money, time, or some other resource for it. The vision itself may evolve over time, as the organization or its business needs evolve, or you receive feedback from the market or users.

The 7 Product Dimensions

						
User	Interface	Action	Data	Control	Environment	Quality Attribute
Users interact with the product	The product connects to users, systems, and devices	The product provides capabilities for users	The product includes a repository of data and useful information	The product enforces constraints	The product conforms to physical properties and technology platforms	The product has certain properties that qualify its operation and development

The 7 Product Dimensions give the partners a holistic, comprehensive understanding of the product. No single dimension, by itself, is sufficient. Throughout ongoing structured conversations, the partners ask:

- What users have goals related to this product?
- What interfaces are needed?
- What actions are needed?
- What data are acted on?
- What controls must be enforced?
- What environments will the product operate in and be developed in?
- What quality attributes constrain and control the product?

These dimensions may be categorized as *functional* (users, actions, data, and controls) and *nonfunctional* (interfaces, environments, and quality attributes). For more about how the 7 Product Dimensions interrelate, see Section 3, The 7 Product Dimensions. For more about how the partners explore, evaluate, and confirm product options, see Section 4, The Structured Conversation.

Discovering Options

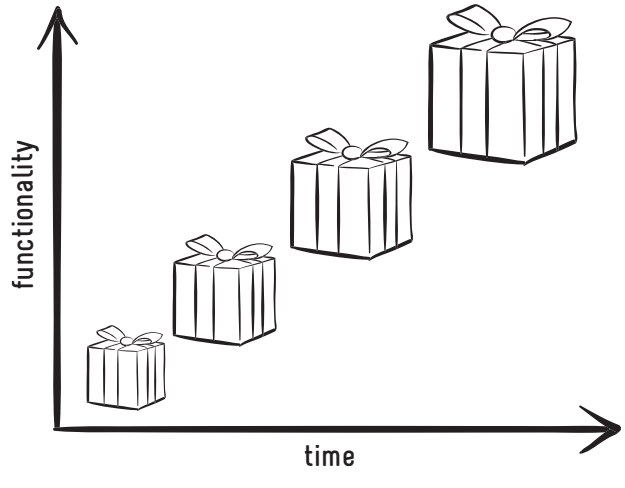
Regardless of the initial size of the *product need* —expressed as a feature, *use case*, or story – you use the structured conversation to quickly explore alternatives for the 7 Product Dimensions, uncovering possibilities—options. Each option is a choice for fulfilling the product vision.

You might define product options in various formats, such as stories, one-line titles, story descriptions, and so on. You might add sketches, models, prototypes, examples, tests, and the like. Regardless of how product options are represented, you use all 7 Product Dimensions to efficiently and effectively clarify the options.

As partners, you evaluate the potential product options, identify the highest-value options, and assemble them into cohesive sets—candidate solutions. A candidate solution can take different forms. It might be an increment of the product, a prototype, a specific, thinly sliced user story, or even as simple as a partial implementation of an interface with little or no functionality.

Continuous Product Delivery

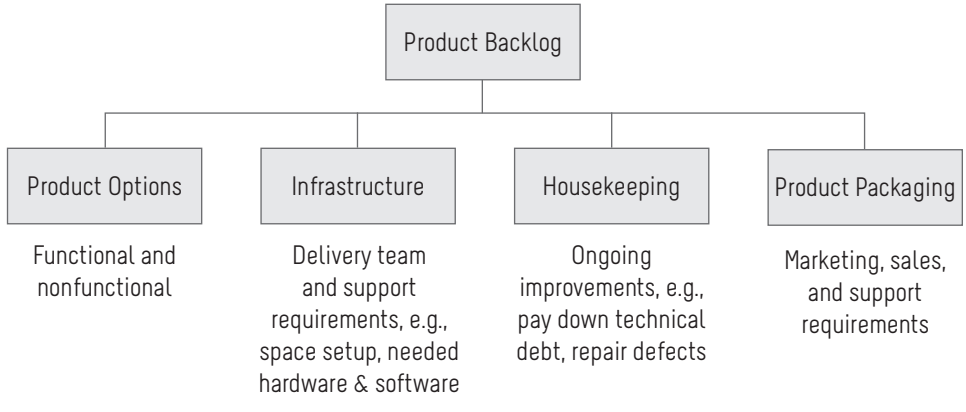
Over time, the product evolves in functionality and increases in value as additional options are incorporated.



The Product Backlog

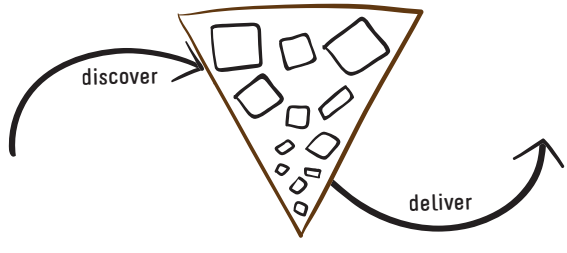
Your *product backlog* is a catalog (or queue) containing unrealized product options at varying levels of detail. The *backlog items* are tentative; they don't represent a guarantee of what will be delivered or how it will be delivered. Rather, backlog items represent possibilities for the product.

Some teams include infrastructure, housekeeping, and product packaging items in their backlog. Others integrate those elements into product options.



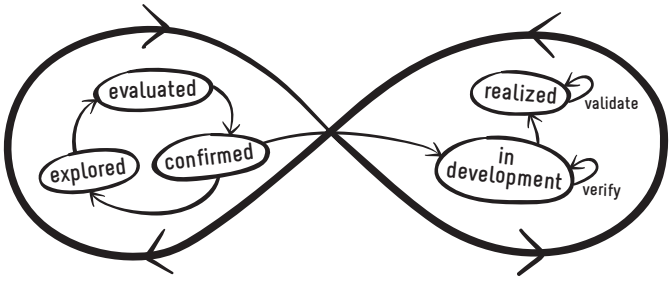
Product Backlog Item Categories

A typical product backlog contains a mix of product options across all three planning views. A healthy product backlog is dynamic, continually evolving as you discover and deliver product options.



Product Backlog Dynamics

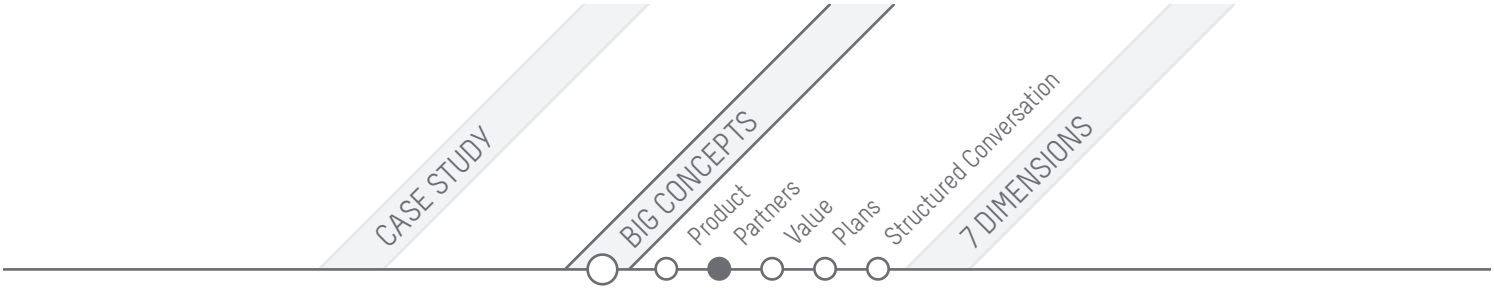
As you discover, you continually explore and evaluate options to assemble candidate solutions. You confirm your shared expectations for the candidate solution. Over time the product evolves as candidate solutions are realized.



Lifecycle of Backlog Item Diagram

Rather than accumulate and manage a great many possible product options, Agile/Lean teams focus on exploring and choosing the next-highest-value options at any given point in time. In this way, you limit the number and age of backlog items.

Ideally, the life expectancy of most backlog items from discovery to delivery is short. This makes economic sense, because small, lean backlogs (or queues of product development work) enable faster delivery (Anderson 2010, Reinertsen 2009).

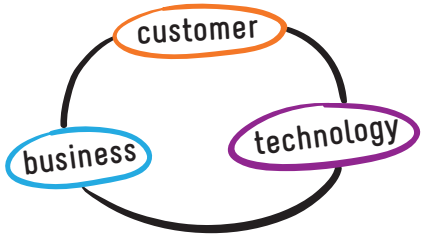


The Product Partnership

Product teams explore and evaluate product options and plan development through a partnership of business, customer, and technical stakeholders.

A *stakeholder* is anyone with a stake or interest in the product. Stakeholders may include people from the business side of the organization, technical people, and internal customers, as well as people from outside the organization such as external customers, regulators, or suppliers.

Successful products incorporate the perspectives of diverse stakeholders—what we call the product partnership. Collaborating as partners, these people reach a shared understanding of the product options and decide which options to deliver at a given point in time.



Product Partnership

Who should be in your product partnership? What are their perspectives?
What's the right mix of perspectives for this product?

The product partnership involves various types of people, each with unique perspectives.

Characteristics of the Product Partnership

A good product partnership has these characteristics.

Attitude: The partners envision and deliver a product together, focused on goals and not roles.

Cross-Discipline: The partners offer a mix of disciplines, experience, and viewpoints. They combine their knowledge and capabilities to leverage opportunities and solve problems.

Product Life Cycle Perspective: Partners are engaged during the product's entire life cycle, from discovery through development, deployment, training, maintenance and enhancement, customer and technical support, and retirement. They value each release as the actualization of the unfolding product vision. Post-delivery, the partners confirm that the delivered product options achieved the anticipated value.

Commitment: A stable group of core partners provides consistency and heightened productivity. Specialists may be brought in occasionally to provide specific skills or knowledge.

The Product Champion

The product partnership benefits from having a leader to balance all the perspectives, reconcile differences, and make final decisions about the product. We like to call this partner the product champion; others use the term *product owner*.

This leader is a master of both long-term (strategic) and short-term (tactical) thinking. The product champion may hail from product management (if the product is for commercial sale) or from a line of business (if the product is for internal use). Alternatively, the product champion may be an experienced technologist with deep business *domain* expertise.

In some cases, the product champion role may be filled by two people—typically, a technical architect and a business domain expert. For large, complex products, the product champion may form a product council or advisory group (we recommend no more than seven people) representing cross-functional perspectives.

Product Partner Types

Customer Partner Roles

User

- Interacts with the product to achieve the product's stated goals
- May be a human, an interfacing system, or a hardware device
- Includes support users (e.g., help desk staffers, installers, operators, trainers)

Example Motivations

- Give me a satisfying experience
- Don't slow me down
- Enable my work
- Entertain me
- Help me self-actualize

Buyer

- Purchases product

- Enhance my bottom line
- Give my users a satisfying experience

Adviser

- Provides guidance about purchasing the product
- Influencer, advocate

- Enhance my customer's bottom line

Business Partner Roles

Sponsor

- Authorizes, legitimates, or pays for product development or for the purchase of a commercial software product
- For government software, usually a department manager
- For internal IT products, usually a business manager
- Other titles: backer, benefactor, buyer, guarantor, owner, gold owner

Product Champion

- Studies market opportunities
- Identifies high-value customers
- Ensures that the needs of diverse users are satisfied
- Monitors market trends, customer segments
- Articulates a compelling product vision
- Ensures alignment with company strategy and with other products in the portfolio
- For commercial software, usually a product manager
- Other titles: ambassador, product manager, product visionary, product owner

Provider

- Provides products or services that support the product
- Participates in a business-to-business relationship

Adviser

- Provides vital business information about the product
- Shares knowledge of policies and regulations
- Includes subject matter experts in audit, change management, finance, legal, human resources, operational support, process design experience, training, sales and marketing, etc.

Example Motivations

- Realize my business case
- Maintain or improve my market position
- Protect my revenue
- Comply with regulations (e.g., human safety, financial, privacy, environmental)

- Keep or increase my user base
- Ensure my market viability and timeliness
- Increase my customers' satisfaction, reduce my customers' displeasure
- Meet or beat the market trends

- Keep or increase my partners' satisfaction
- Achieve my own business case

- Enhance our organization's performance

Technology Partner Roles

Builder

- Designs, builds, buys, tests, deploys, delivers, supports the product; referred to as the delivery team
- Internal or third-party vendor
- Includes architects, business analysts, data and database administrators, developers, installers, operations staffers, testers, training and help desk staffers, user experience experts, etc.

Adviser

- Provides vital product information: implementation, information technology, governance and compliance, installation, operational support, technical architecture, training
- Includes subject matter experts: auditors, operators, trainers, etc.

Example Motivations

- Offer a high-quality software product
- Offer smooth, continual delivery of product value

- Share my knowledge of rules and regulations

Value

A product delivers value when it provides a fair return in exchange for time, money, goods, or services.

A successful product delivers value that is aligned with the product's vision and *goals*. You make product decisions at every turn throughout discovery and delivery based on value, balancing multiple considerations and perspectives.

Value can change depending on timing, market demand, and emerging technologies. You assess product value continually. Post-delivery, you compare the actual value achieved to the anticipated value to determine whether the objectives have been achieved.

What do you want in this product? How can you identify the most valuable options? What might threaten product value? Heighten value?

The partners use value to evaluate options.

Desirable and Feasible

Valuable products are both desirable and feasible.

Desirability is the worth or utility of the product to stakeholders.

Feasibility is the realistic expectation of success given your financial, technical, market, and organizational constraints. Feasibility is about being able to build the product at a price that will return the desired tangible and intangible results.

Tangible and Intangible

Value can be tangible and easy to measure, such as increasing or protecting revenues or reducing operating costs. Or value might be more intangible and difficult to measure, such as enhancing the product's likeability and convenience.

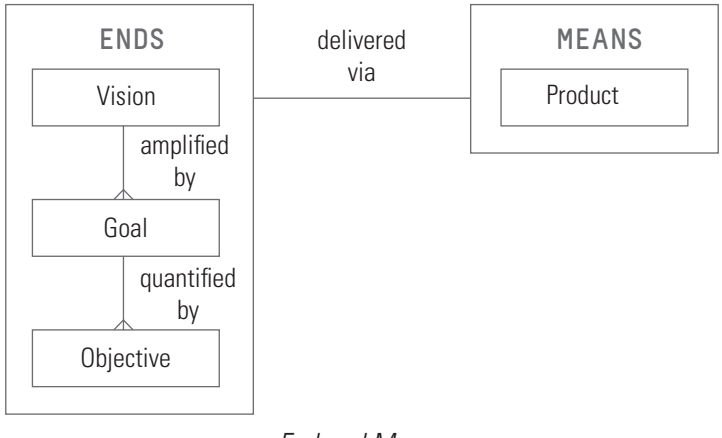
When you deliver a product that satisfies the customers' stated and implied needs, you can reap many benefits. When you fail to deliver a customer-satisfying product, you suffer numerous risks.

Ends and Means

Ends are the desired outcomes expressed in the product's vision, goals, and objectives. Ends are ways to describe and quantify a product option's anticipated value.

A goal is a target result and is quantified by objectives. An objective is a specific measure that quantifies the goals (ideally SMART: Specific, Measurable, Attainable, Realistic, and Time-based). Together, the vision, goals, and objectives represent the ends—something the organization seeks to accomplish.

Means deliver the desired ends. Ends are neutral of "how" the product is discovered and delivered.



End and Means

Value Is in the Eye of the Beholder

The partners have differing perspectives on value. To arrive at optimal product delivery choices, you need to consider all three perspectives—customer, business, and technology. You can't achieve value without focusing on the customer. Customers value a product for numerous reasons. For example, it solves their problems, it is pleasing to use, or it secures their personal information. Or a customer might value a product that provides a positive visceral reaction, a feeling of enhanced self-worth, or self-actualization.

The user and the buyer may have differing perspectives of the product's value.

A handy tool for exploring a product option's value is IRACIS (pronounced "ear ras cuss"). (Adapted from Gane and Sarson, 1979)

IR: Increase revenue—provide new or enhanced products that people want to buy, and protect existing revenue streams.

AC: Avoid costs (or loss)—reduce expenses and protect revenue.

- Avoid operating costs by introducing operational efficiencies (e.g., reducing delays, duplication, rework, and other forms of waste).
- Avoid penalties due to regulatory violations or adverse events.
- Avoid cost of delay in going to market.
- Avoid lost revenue due to not having competitive features.

IS: Improve service—deliver higher quality, such as greater accuracy, speed, or usability.

Additional factors may be required in your assessment of value. For example, the organization may be less concerned about cost implications and more focused on defining a value-driven cost structure. And intangible value, such as gaining customer trust or learning new technologies, may also be in play.

Value Considerations

A value consideration is a variable used to assess the value of an option. All three types of partners have value considerations.

In addition to revenue, value considerations may incorporate broader values around the context of product usage, design elements, market differentiation, learning, long-term product serviceability, and more.

customer	Personal, Visceral: Convenience Cost, conversion, learning: Cost savings Usage: Physical environment
business	Alignment and Readiness: Align with vision, goals, objectives Differentiation: Market fit, Competitive positioning Cost, Time, Revenue Protection: Cost of delay Expertise: Expertise to discover, install, train, and service the product
technology	Alignment and Readiness: Readiness of technical infrastructure (full, partial, not at all), technical feasibility Cost and Time: Reduce future cost to service Quality Attributes: Data quality, integrity, synchronization Expertise: Expertise to design, build, transition, deliver, install, train, and service the product

Sample Value Considerations

Evaluation: Weighing Benefits and Risks

The partners continually make value decisions about product options. They synthesize multiple factors – their value considerations, benefits, and risks.

Benefits favorably impact the product's value. They provide positive outcomes for the partners. For example, customers might value the benefits of saving time or enjoying an appealing look and feel. The business partners might value financial gains, improved customer loyalty and trust, and enhancements to their customers' bottom line. Technology partners might look at the benefits of leveraging existing assets and competencies.

Risks may unfavorably impact a product's value. A customer might consider a product with insufficient support a risk. The business partners might see a risk in delaying delivery of the product. The technology partners might consider the use of unfamiliar technology as a risk.

When you evaluate the potential risks of a product option, you consider each risk's probability and impact. You might choose either to avoid a risk or to take actions to mitigate it. In some cases there might be value in exploiting a risk. Taking a risk might result in a favorable outcome, even in increased value.

Other factors such as cost, dependencies, market trends, product lifecycle, and cost of delay often are included in the evaluation.

The result of evaluation is a decision on what to build—a candidate solution. The decision aligns with the ends (the product's vision, goals, and objectives).

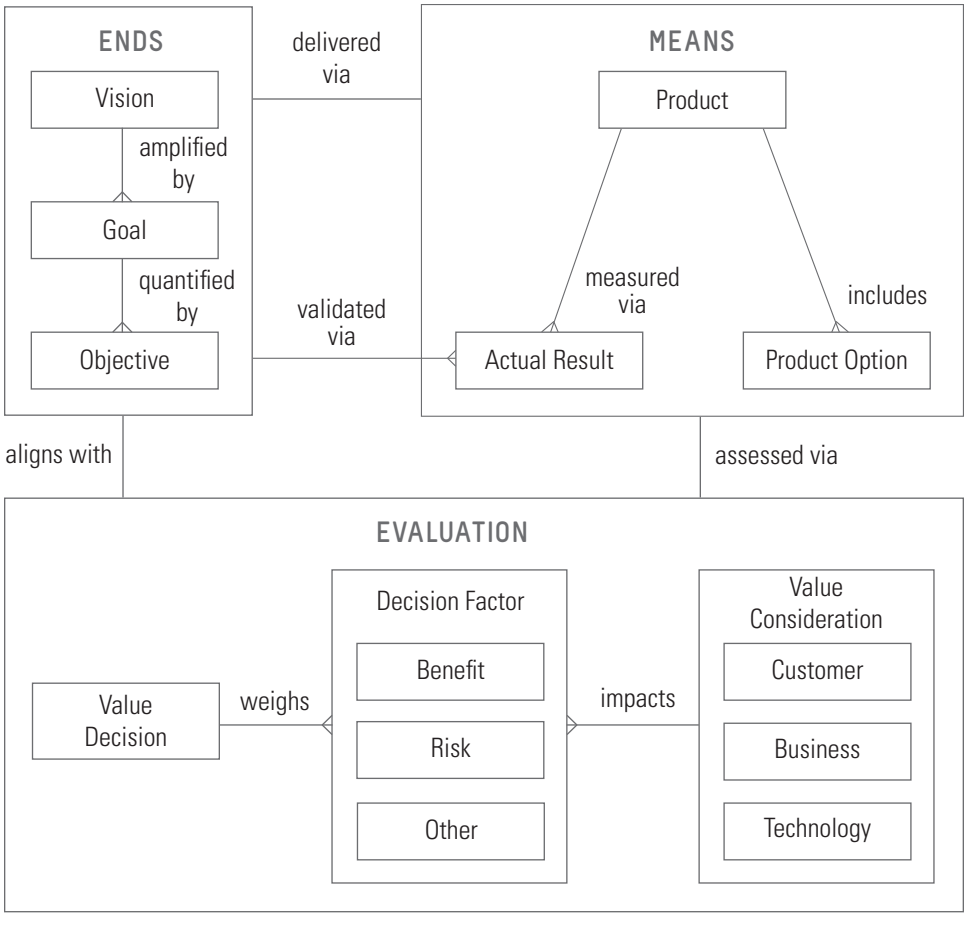
A candidate solution might be more or less robust, depending on whether the market and the product are new or mature. If the partners are confident their candidate solution will deliver value, they are more likely to deliver a more robust version of the solution. On the other hand, if the candidate solution is innovative or the partners are less certain of the outcomes, they may choose to minimize their investment by delivering a less costly candidate solution such as a prototype, demonstration, or partial implementation of the candidate solution.

Validated Learning

The product's ends—goals and objectives—are assumptions, not certainties.

Did customers perceive greater convenience or enjoyment (customers' values)? Did the business acquire more customers or reduce operating costs (business values)? Was the product developed with good use of existing technology assets or did the development team learn how to use new, innovative technologies that will increase its technical capabilities (technology values)?

Wise business and technology partners need evidence that the delivered product actually realizes its goals and objectives. They compare the assumptions with post-delivery actual results. This validation provides feedback that is essential for continual learning. The learning helps the partners as they evolve the product.



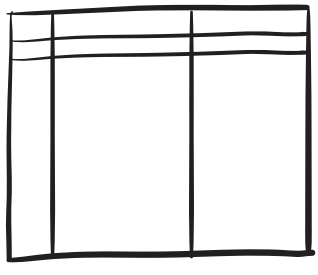
Business Value Model

Plans

A plan represents the partners' allocation of candidate solutions to time horizons.

Plans are the partners' best estimates of what might be delivered during a given *planning horizon* to achieve value. Plans are used to assign funding and to allocate people and resources to product development.

A planning horizon—the period of time that the plan covers—might be strategic (such as a plan for the entire product or product portfolio) or tactical (for immediate delivery). As you continually discover, deliver, and evaluate the product, your planning improves.



Plans

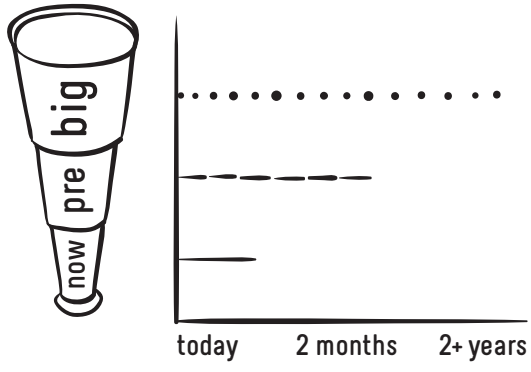
What are plan time horizons? What level of detail is appropriate for your plans? What is the basis for plans?

The team creates various plans, and the granularity varies depending on the planning view.

The Three Planning Views

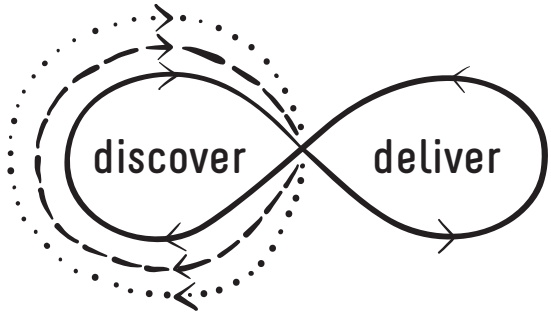
As you hold continual, value-driven conversations, each product option evolves, often transitioning through all three planning views in its lifetime.

A product option may start as a general idea—such as a feature that will fulfill some aspect of the product vision. As time passes, it is explored, evaluated, and reevaluated, and it may eventually be allocated for delivery. The product option gets more fine-grained (detailed) as you descend the planning view hierarchy. As a result, plans and estimates become increasingly fine-grained.

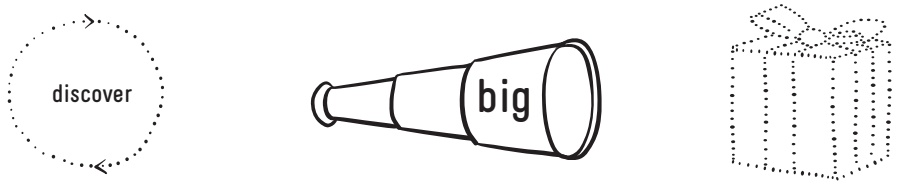


3 Views on a Timeline

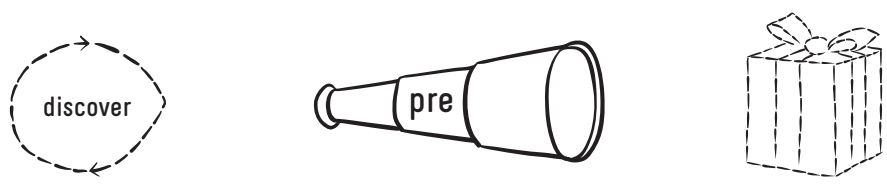
You don't necessarily start with the Big-View. Instead, you might define scope at a high level and then define product options for the Pre-View (your first release). From there, you might dive into the Now-View (your first iteration or release). This "jump right in" approach may help the team develop a rhythm of continual delivery.



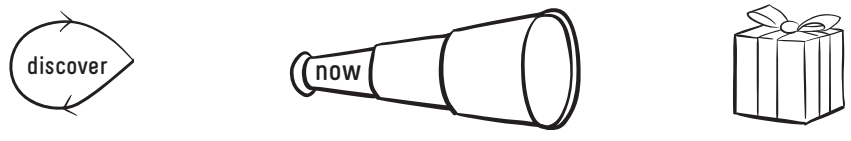
Wants: generalized, high-level product options wanted to realize the product vision over time.



Needs: product options needed for the next release.



Requirements: product options required, with sufficient detail to develop.



Product Options: Wanted, Needed, Required

Plans by Views

Plan Name	View	Plan's Purpose	Participating Partners
Product roadmap, portfolio roadmap	Big-View	Identify delivery cycles for product's highest-value options	• Sponsor, strategic product champion • Business executives representing product management, marketing, sales, strategy, lines of business • Strategic technology advisers
Release plan, product queue	Pre-View	Identify the product's highest-value options to deliver in the next release	• Strategic and tactical product champions • Entire delivery team • Technology advisers
Iteration or sprint plan (for timebox delivery); Product queue (for flow delivery)	Now-View	Identify highest-value options to deliver in current delivery cycle	• Tactical product champion • Entire delivery team

Roadmaps

The Big-View plan—the one that outlines how the product will evolve over time to realize the product vision—is typically called a product roadmap.

Various kinds of product roadmaps communicate different things to different audiences. *Commercial products* often have internal and *external roadmaps*. An *internal roadmap* is used to communicate with internal stakeholders. An external roadmap, a subset of the internal roadmap, reveals your product vision and features; engages customers, investors, and external partners; promotes market innovation; or shakes up the marketplace. It excludes candidate solutions you don't want to share externally for a number of reasons (e.g., to maintain flexibility, to delay commitment, to allow time for determining feasibility, to retain strategic or competitive advantage). Cadences for roadmaps vary. A time-based roadmap shows which product options will be delivered at regular releases, key milestones, industry occurrences, or market events. Other roadmaps are based on business readiness, regulatory compliance, or market needs.

The Impact of Risks and Dependencies on the Plan

Risks and dependencies, both internal and external, constrain the plan. You may choose to avoid risks or consider ways to mitigate their impact on the plan. Dependencies include people (e.g., teams or organizations), other systems, suppliers, infrastructure (networks, devices), and organizational readiness. There may be risks related to the product (delivering the wrong product, at the wrong time, to the wrong market), technology, and the team (not being co-located, being unfamiliar with the product domain, having an unavailable product champion). You account for dependencies and risks so that you can deliver candidate solutions in the optimum sequence, minimize rework, and maximize business, customer, and technical value.

Plan Essentials

Collaborative: Plans are based on collaborative decision making by the product partners. You balance your understanding of the product options with a hard-nosed assessment of which are most valuable for the next planning horizon.

Flexible: You need the flexibility to adjust the product plans at any time based on what you've learned from stakeholder feedback, new information, and market conditions. Post-delivery, you continually validate released solutions to learn how to adapt the product or possibly even terminate it.

Ongoing: The product evolves as enhancements and extensions are added until it is retired, replaced, or withdrawn. If you achieve sufficient value sooner than expected or if you're not gaining the expected value, it may be best to end development.

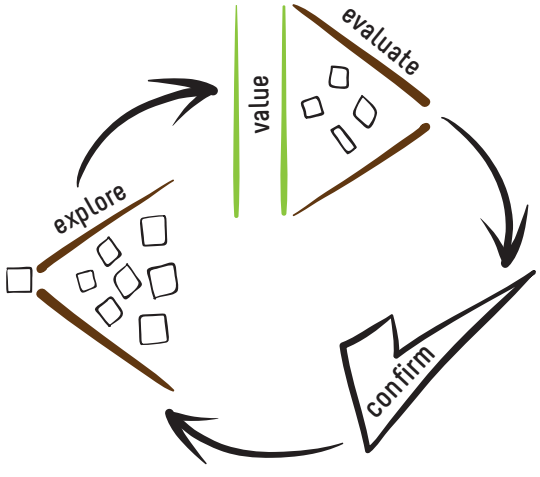
Appropriately defined: A plan includes a theme (which might include the customer segment being served), candidate solutions and their acceptance criteria, preconditions (e.g., committed sponsor, funding, people to implement the plan, technologies in place), and risk mitigation actions.

The acceptance criteria serve as essential ingredients for negotiating and allocating the optimal product options. You also decide when you will validate that the anticipated outcomes (objectives) match the actual results.

Structured Conversation

The partners use structured conversations to discover product needs by continually exploring and evaluating product options, crafting candidate solutions, and confirming that they will meet business objectives.

The structured conversation is a metaphor for the ongoing, systematic, and collaborative discovery and delivery of product options. It's a creative process that supports the product partners as they holistically and iteratively learn about product options.



The Structured Conversation

How do you collaborate to build a shared, holistic understanding of product options? How do you decide what to deliver? How do you allocate candidate solutions to different delivery cycles? How do you verify that you're building the right product—before it's delivered? How do you validate that you've built the right solution after delivery?

The structured conversation is a lightweight framework that guides the partners as they learn about the product's possibilities and decide what to deliver.

Shared Learning

The 7 Product Dimensions support a holistic and integrated way to learn about the product. The partners explore each of the 7 Product Dimensions of a product option, evaluate each option to identify the most valuable and cohesive candidate solutions for the next planning horizon, and confirm that the selected candidate solutions meet the intended goals.

The structured conversation is used in any planning view for continual collaboration.

A key benefit of this iterative approach is that the technology partners learn more about business imperatives, and the product champion and other business experts learn more about the technical aspects of the evolving product. As your team members question, challenge, and clarify the filtering criteria, you all deepen your understanding of the business domain and the options that will provide value. This continual learning improves your ability to estimate, uncover, and manage uncertainties and risks and to raise questions for further discovery.

Advantages

The structured conversation is usable in all problem domains, leverages the discipline of analysis, is quick to learn and efficient to use, engages all product partners, and deepens their knowledge of product options. The structured conversation helps you to optimize value, minimize delays, mitigate risks, and clarify shared expectations.

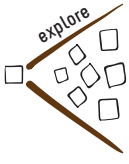
You converse with the end in mind—using acceptance criteria as tangible measures to explore and evaluate product options and validate your hypothesis about the value of the candidate solution. Whether you're enhancing a mature product or creating a new and innovative one, you can use the structured conversation. The timeframe for discovery and delivery tends to be very short (e.g., daily or even hourly) for innovative products, and longer (e.g., weekly, monthly, quarterly) for mature products.

The ongoing structured conversation may be called discovery, pruning, preparing, optioning, or refining product options. The conversation's cadence varies depending on the team's *delivery method—timebox or flow.*

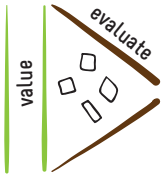
Teams taking a timebox approach have weekly or biweekly planning sessions. Teams using flow (*Kanban*) may replenish the *input queue* when a slot opens or after a review. This might be referred to as *upstream* discovery or queue replenishment.

Explore, Evaluate, Confirm

The structured conversation is a creative and disciplined way to build shared understanding and make decisions. It involves three key activities: explore, evaluate, and confirm.



You explore options for the 7 Product Dimensions, using the product vision, goals, and objectives as your guide. You use expansive thinking to uncover multiple options or possibilities.



Using the business goals, objectives, and value considerations as your filter, you evaluate each option's benefits, risks, and dependencies. You make decisions and identify the high-value candidate solutions. Then you allocate each candidate solution to a delivery cycle.

You define acceptance criteria to verify and validate each candidate solution.

Explore, Evaluate, Confirm Product Options

Conversing Across Views

You converse continually across the three planning views. As the planning horizon gets closer, you move the product options from possibilities (wants) to probabilities (needs) to actualities (requirements). This successive elaboration incorporates diverse stakeholder perspectives, transparent decision making, systematic thinking, and deep learning.

Discovery may start at any view and move to any other view. You might begin in the Now-View or Pre-View and find that you need to move back up to the Big-View—and vice versa. Wherever you begin, you draw on scenarios and tangible examples to help you explore product options.

Enriching the Conversation

As you conduct your structured conversation, you can use a variety of tools to creatively engage the partners to quickly explore and evaluate product options. As in all conversations, the partners talk, listen, and use analytical thinking, which thrives on logic, reduction, and ranking. You might aid the conversation by using examples to make the options concrete.

A robust structured conversation employs visualization. You use analysis models to draw relationships and dependencies and depict product options using analysis models. You might employ high-tech tools as well as low-tech media such as whiteboards, walls, and charts. Your visuals might be temporary, or they might be repurposed for documenting, building, and packaging the product (see Section 6, Tools & Techniques).