GETTING THE FUZZ OUT OF THE FRONT END:
A System for Managing The Earliest Stages of Product Development
by
John Carter & David Vermette
TCGen, Inc.

In too many companies, the front end of product development remains as fuzzy as it was decades ago. Companies spend endless time revising product development project budgets, or fighting tactical fires with products about to ship, while ignoring the strategic management of the ideas that are the lifeblood of technology companies.

*Product concepts*, those vague ideas that *might be* tomorrow’s revenue generators, are your company’s future. And yet many companies manage these vital investments in a haphazard way, not because they’re unmanageable but because they do not have the right mental models and they do not have proven processes to realize their product strategy.

What managers don’t understand is that there are *two* components of portfolio management, and both must be done right to unlock the power of planning. A reliable approach for managing the fuzzy front end – an approach that will generate predictable results – requires:

1. A *yearly, systematic portfolio planning process*, tied to budgeting
2. A *monthly or continuous portfolio management process* for
   a) selecting the product concepts that will realize the company’s strategy
   b) making the decisions that will move them into the product pipeline

*A Portfolio For Product Concepts*

Your company has several portfolios:
- A portfolio of capital and other financial investments,
- A portfolio of products in the marketplace,
- A portfolio of projects currently in the development pipeline and,
- A *portfolio of product concepts yet to be developed*

We urge companies to think of their early stage product concepts, however vague or aspirational, as *an asset*, as a portfolio you can manage in a way
that is analogous to the other, more tangible portfolios. This is a simple but important shift in mental models. That piece of code a software engineer might be playing with when she gets a moment; that conversation a marketing rep might have with a customer that puts a lightbulb over his head; that widget an operative on the shop floor put together from two existing widgets; the drawing on a napkin, consisting of boxes and arrows, that a design engineer created over lunch – these are a portfolio of assets that your company owns. It needs to be managed as such.

Many of these ideas are worth little or nothing to your company. Others might be the next iPhone or Amazon, ready to disrupt markets, open up new categories and earn enormous revenues. So how can your company manage these vague concepts and ideas to leverage the best, weed out the rest, and develop them into viable products in the competitive marketplace?

It Begins With A Strategy
Without a product strategy, it is impossible to select the nascent product concepts that will become winning, marketable products. Think of your product development activity like a map that has the broad outline of the entire country on one level, and then as you zoom in, at a more granular level, has states or regions; and then at a yet more granular level your map displays the cities and towns that comprise your state or region.

A viable product strategy begins with
- A Vision: a broad statement of where you’d like your company to be (3-5 year horizon)
- A Strategy: steps you intend to take to achieve that vision (2-3 year horizon)
- Product and technology roadmaps, priorities and budgets: These relate to the specific programs that will realize the strategy

Agile Development – When it Makes Sense
Agile development is great – especially for incremental improvements. However, the portfolio process we describe below is an innovation incubator. Its purpose is to create truly new, bold, game changing concepts. Agile development, where the team iterates on a known solution, does not have its proper place here. But there is one important exception: Agile can introduce design thinking and an iterative approach to exploring elements of the concept, or to test a part of the concept for market acceptance.
Two Planning Systems for The Fuzzy Front End

To manage the fuzzy front end of development requires a system: a means of turning a vision, a strategy, and a set of more or less vague product concepts into a stream of products flowing steadily through the pipeline. We advocate two systems for turning your vision into a reality:

- A yearly Strategic Product Planning process that is synchronized to budgeting. This is a longer-term process that connects the vision to budgets and product priorities.
- A shorter-term Front End Management process that deals with the day-to-day decision making required to nurture infant projects in their early stages.

Why are two systems better than one? Having both a formal strategic product planning and an ongoing front end management process allows companies to respond to the changes that inevitably occur in fast-paced technology markets. Reviewing your product innovation future on only a yearly periodicity renders your company liable to getting blindsided by changes such as new competitors, technological advances or rapidly emerging markets. Two linked processes, one long term and one short term, allows both foresight and forward motion to make sure your company’s future innovations are well-managed.

Having two systems for managing the fuzzy front end is also effective because product innovation is only one facet of your Strategic Plan. Having a lightweight front end management process, in addition to the yearly plan, helps to maintain focus on the tasks necessary to launch the projects that will best realize your strategy, without being overwhelmed by other strategic initiatives contained in a comprehensive strategic plan (capital structure, infrastructure, M&A, marketing initiatives, etc.).

In short, having two systems provides your company with a product planning activity that is tied to yearly budgeting and that steers your company’s intent. It also means that your company has a real time process to manage those investments and ensures readiness for development. The two processes are linked but distinct. Strategy without ongoing management is ineffective; while managing product concepts without
adequate strategy and planning is often aimless and counter-productive. The system we advocate, with two related processes, undergirds planning with execution and increases the reliability of new product development.

**Defining The Two Systems**

The *strategic product planning* process integrates the strategy, roadmaps and budgets. It is a straightforward, left to right process tied to the yearly budgeting routine.

The *front end management* process is a lightweight, early stage activity that occurs before projects enter the formal, product development pipeline. This is where you nurture a motley collection of notions into a portfolio of product concepts that will decide your company’s future product portfolio.

The front end management process answers two main questions:

- Should we work in this area? (Does this project align with our strategic needs?)
- Are we ready to begin development? (Can we ensure we have a deterministic program?)

To ensure the success of either of these processes, it is important to have the right people on the decision-making committee. This body is usually weighted toward Marketing, Research, Engineering and possibly Corporate Development rather than Finance or Operations. This C-Level committee needs to specify the priorities and criteria that help managers to develop the right portfolio.

Often these criteria are the same as those used by venture capitalists. For example, the body might ask questions about the potential market size and expected market share; about the growth trajectory of the market; about the team and skill-sets required to develop and market the products; about the profile of the potential customer base; about existing competitors, etc.

Further, decision-makers should thoroughly explore program and technology risks *before* detailed product development begins.
A Strategic Planning Process for Innovation
First, let’s outline the strategic planning process and how to implement it. The yearly strategic product planning process is a small but vital facet of your company’s overall strategic planning activity. The strategic plan incorporates much more than a product plan, of course. A strategic plan takes into account all of the capital and assets within the company and how they will be deployed. The aim of the longer-term, yearly strategic planning system is to set priorities and budgets that help drive the organization towards its goals, year upon year. But how does product planning fit into this broader strategic planning activity?

The key is to have a system that connects long-term goals to the selection of product concepts or ideas. The portfolio of product concepts must be congruent with the company’s overall strategic direction. The strategic product planning process links together the company’s vision with the strategic steps required to realize that vision. It then connects the strategy to product and technology roadmaps – representations that allow decision-
makers to see the progression of products and technologies, and their changing relationships over time. Then these roadmaps need to connect to the yearly budgeting process to make sure that future products are prioritized and that they have the resources they need at this early, concept stage.

In short, a best-in-class strategic product planning system connects vision, strategy, and roadmaps, and results in budgets that will realize them. It provides the “plan of record” for investments in new product activities on a yearly basis.

**Steps for Creating a Strategic Product Planning System**

If your company does not have a clear way of managing product concepts, then the first step is to take your existing, annual budgeting process and determine how planning for product innovation fits into it. The strategic product planning process comes after the overall strategic plan for the year is formulated, but before the budgeting process is completed.

To take steps toward securing a more predictable future for your product portfolio, first take a hard look at your yearly Strategic Planning activity insofar as it relates to product strategy. It should describe a linear chain of logic from *vision to dollars*.

- Map out a yearly process that ties the vision all the way to the budget
  - Does the vision align to the strategy?
  - Does the strategy tie explicitly to the roadmaps?
  - Do the roadmaps tie explicitly to priorities and budgets?
- Create detailed swim lanes that show how the different groups feed one another
- Select the governance body and the criteria for the decision points along the way

**Figure Two: Schematic representation of the strategic planning process**
The beginning and ending point that frames this planning activity is the budgeting process. The strategy is not created from thin air each year, but is updated on a yearly basis. The financial allocations made during this process put in place the goal posts and this process connects Finance with product activities.

The governance body for this process must create criteria for the decision points around the product concepts as well as clear criteria for evaluating the product concepts. It needs to take into consideration also how the different groups and business units in the company will interact to transform these early-stage concepts into fully-functioning products.

The outputs from this yearly process then become the inputs for a system that manages products to completion and launches them into the marketplace.

**Steps for Creating a Front End Management Process**
The next step is to develop a shorter-term *front end management process* as an on-going activity that helps to feed the pipeline with the right projects, while helping teams to make the best decisions for the company’s future. This process handles the day-to-day tasks required to manage the portfolio of product concepts.

Many companies maintain that the fuzzy front end cannot have specific milestones and deliverables. We advocate the converse. Just as projects within the product development pipeline have gates, reviews and timelines, companies can manage the fuzzy front end of development in a not dissimilar fashion. An orderly front end management process uses rational decision-making to select the right projects to load into the pipeline. It also has milestones and budgets that are the measure of progress.

To define a robust front end management process:

- Create several (typically two) decision points that help to:
  - Manage orderly starting points for projects *that arise from the planning process or are new ideas congruent with that plan*
  - Ensure that they are staffed properly with the right resources
- Ensure that the projects will address the key issues in order to lead to fast and predictable development
- Ensure that there is a meaningful commercial potential

- Define the placement of these decision points
  - Select two points in time to review projects at a high level
  - **First Review:** ensures that the project is worthy of forming a cross functional team, and outlines the steps to test the hypothesis – this phase is complete when the effort transitions from one individual to a small team, typically 10-15% of the way down the path.
  - **Second Review:** ensures that the team demonstrates feasibility, reduces risk, and defines the broad parameters of the product offering. This phase should ensure that the team is ready to enter development, that the major risks are understood and the team is within a quarter or two of entering the formal development process.

**Figure Three: Schematic representation of the front end management process**

As in the strategic product planning process outlined above, selecting the right governance body for the front end management process is critical because this body will create the criteria for the decision points around product concepts. The decision-making body should include executives who oversee the critical functions in product innovation and strategy, such as Engineering, Marketing, etc. The governance body for this process may be the same group that helms the yearly strategic planning process, although the latter may Finance in addition to the other functions. The same skills are required to oversee both bodies and having the same body govern both processes provides management continuity.

A robust front-end product innovation system also includes a related set of deliverables that proposed programs (products, technologies, and investigations) must pass through in order to ensure that the team has considered the risks as well as the proposed program’s fit with the strategy.
These deliverables may include:

- **First Review/Approval**: The leadership team reviews the hypothesized opportunity for strategic fit and approves or denies requests for further investment.
- **Market Assessment**: Validates and documents the under-served market need.
- **Commercial Feasibility Assessment**: Describes the target segments, target customers and documents the commercial potential.
- **Technology Assessment**: Summarizes proposed technologies, missing elements, critical partners, and known technical risks.
- **Second Review/Approval**: The leadership team reviews the submission of a request to enter the product process and approves or denies requests for further investment.

Other documents the team may produce include:

- **Business Case**: Includes relevant estimates for placement volumes, activation rates, consumables trail, cannibalization, ASPs, NPV, IRR, payback period, gross profit, and operating profit. Also may include an explanation of the business risks.
- **Business Assessment**: Verifies commercial and regulatory (where applicable) readiness.
- **Early Phase Report**: Provides evaluation of technological feasibility, manufacturability and costs.
- **Updated Portfolio Roadmaps**: Prioritizes newly approved projects.

**Do the Work Up Front**

The foregoing list of deliverables shows that a team may perform a great deal of detailed work before a project enters the pipeline. The purpose of these documents is to ensure that the very best, innovative concepts enter the pipeline and that they have the greatest chance to deliver their expected value on a pre-determined schedule. If vague, fuzzy concepts populate the pipeline then the result too often is vague, fuzzy offerings – created at a huge expense.

By placing clear gates, with clear, formalized deliverables, around hypothesized programs, the team and decision-makers clarify whatever can
be known, reducing risk, ensuring more predictable results, and bringing a measure of clarity to the fuzzy front end.

Although the details of the design and functionality of a new concept will become clearer as the project proceeds, we nonetheless advocate putting in place a loose but consistent structure up front, along the lines of the two processes described above. Our experience suggests that companies that carefully define as much as they can at the stage when products are mere hypotheses, refine their markets, reduce uncertainty, avoid risks, and produce products more predictably and reliably. Accompanied by a formal, yearly strategic planning process, a front end management process will help load your company’s pipeline with the very best – and only the best – product concepts.

**Conclusion: De-Fuzzing The Front End**

The most striking product innovations are the result of *both* strategic planning and the careful nurturing of innovative product ideas. And yet companies not only fail to have systematic processes for dealing with both of these aspects of their future product portfolio – many insist that it is impossible to have any such system. Many teams continue to argue that the pre-development, concept phase is by nature fuzzy and uncertain and that it cannot be improved. We hold that programs in this phase can be “de-fuzzed” and the inherent risks and uncertainty reduced if companies create a consistent system like a set of lighthouses along the coast that guide a ship through the fog.

By lighting a way through the foggy weather, teams begin to realize the value in the assets inherent in their organization – those innovative ideas and concepts in the minds of their people. These concepts are the future of your company’s product portfolio and yet one approach – a very common one – is to throw up one’s hands, claim that innovation cannot be managed, and leave your future to chance.

We say that a better approach is to try to bring these concepts, no matter how vague and fuzzy, into some kind of order: create criteria for evaluating them in terms of your company’s strategy and vision, and then to create clear decision points that allow your team to select the very best options.
A fuzzy front-end tends to lead to a fuzzy future for your product innovation efforts. Best in class companies remove the fuzz from the front-end to ensure a more successful future; and they do it with a system that incorporates two different timelines – one performed yearly, and another that occurs throughout the year. By incorporating a systematic approach to planning and management, your company gives itself the best chance of realizing the value of your portfolio of product concepts.

*If you’d like to discuss how to take the fuzz out of the front end of product development contact John Carter at jcarter@tcgen.com.*