Business Fit Framework™

s2m®

Guide to Identifying and Managing Uncertainty in Product Development: Business Fit Framework® (BFF)

INTRODUCTION TO THE BFF SOFTWARE APPLICATION AND A CASE STUDY

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Contents

The advantage of a hosted business intelligence software application that will help you make an informed decision on a product idea before spending the big bucks.

Follow four simple steps to product success:

1. Start with a product idea.

2. Assign a robust cross-functional team to participate in a one-and-half to two-hours product evaluation review meeting.

3. Use the BFF software application to identify and manage your biggest product uncertainties and constraints for that product idea.

4. Using the BFF, the project team works on reducing and tracking product uncertainties and risks that have the biggest impact.

Output

Ability to make the right project decisions, leading to product success.

An Introduction to the BFF

Over the last 15 years of consulting at Strategy 2 Market, Mary and Kathy have witnessed the pressures and daily frustrations with existing product development processes.

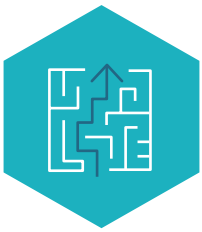
Common themes across many companies included: missed launch dates, missed sales goals, internal conflict, budget overruns, and the release of the wrong products into the marketplace. Often, the most common stressor was a feeling of uncertainty: Is this the right product at the right time?

Mary and Kathy went on a mission to improve the product development process by addressing uncertainty and risk head-on.

They developed a process called Exploratory PD, that ultimately identifies and manages the biggest product development uncertainties and risks.

Out of this process they developed the BFF software tool. They recently received a grant for the BFF in 2018 from the National Science Foundation (NSF) STEM I-Corp program through the University of Chicago.

Part of the grant included interviewing product development professionals about uncertainty and risk in product development. These professionals represented a number of different industries and ranks. The BFF tool is built based on the input from these professionals, more than 20 years of product development consulting experience, pilots and extensive secondary research.



The Challenges of Product Development

To innovate successfully is exceedingly difficult in today's environment, which often is characterized by volatility, uncertainty, complexity, and ambiguity. In some industries, change in the external environment is so radical that it can be hard to identify or predict. Customer preferences are in flux, uncertainty is lurking in new technologies, and unexpected competitors are offering better solutions.

We find that project teams often evaluate uncertainty and risk based on personal experience, without the benefit of a broader community experience or objective, reliable data. This introduces bias when rare events and new trends are completely missed, or when recent events take on too much importance.

The BFF tool has incorporated various behavioral economic techniques to compensate for these and other sources of bias: a decision-making framework, reference class forecasting and nudges. Future enhancements will utilize new techniques in artificial intelligence and Bayesian learning models to leverage the experience of the broader community of users and improve risk identification and evaluation.

Artificial Intelligence, predictive analytics, machine Learning, big data etc...

WHAT DOES THIS ALL MEAN TO YOU?

Helping your team to make better product decisions.

In a recent study of North American companies, respondents estimated that, on average, 40% of products fail in the marketplace.[1] In some industries, it is as high as 70%. This results in loss of valuable resources, time, and reputation. Finding ways to reduce uncertainty is important.

Uncertainty in product development arises for many reasons.

Here are some signs to look for:

- Lack of information
- Lack of experience
- Decisions that have not yet been made
- Outcomes that cannot be known or controlled for by the product developers
- The presence of a potentially incorrect or flawed assumption [2]

40-70% of new products

result in loses of valuable resources, time, and reputation. Finding ways to reduce uncertainty and risk is paramount to developing successful products.

If you can't identify uncertainty and risk, you can't measure and monitor it. You're basically operating in the dark. The BFF makes risk and uncertainty of your product idea visible at the start. Now the team can measure and demonstrate progress throughout the project.

[1] S. K. Markham and H. Lee, "Product Development and Management Association's 2012 Comparative Performance Assessment Study," Journal of Product Innovation Management 30 (3) (2013).

[2] Assumptions are particularly prevalent in business cases, where the preparer assumes certain unknowns or conditions are true to assess the feasibility and desirability of a project. These assumptions are often not validated throughout the project and become a source of unrecognized risk.

The BFF

The BFF analyzes the uncertainties and risk associated with new products. Instead of rushing into a project because it is a "great idea," the team is more likely to succeed if it uses the BFF to guide its efforts.

The BFF leads the team through a process of looking for uncertainties and constraints in four areas where they are most likely to arise in product development (Exhibit 1):

- External Factors
- Product ot Technical Feasibility
- Business Configuration (see next page)
- Commercial Feasibility

We refer to these four areas as pods in the BFF. While strategy helps guide market-product fit and business fit, the BFF helps guide the product development team in understanding not only important commercial feasibility and product or technical feasibility, but also the constraints of external factors and the organization's Business Configuration. Ultimately, the team is looking for a solution that delivers the desired product, given the constraints of the business and the environment.

The BFF guides the team in identifying important uncertainties. Once these have been identified, the team can develop the means to confidently learn and experiment to reduce uncertainty, reduce risk, and adapt to product development challenges. The reduction of uncertainty and risk is the recorded in the Assumptions Tracker.™

Exhibit 1. The Business Fit Framework®

BUSINESS CONFIGURATION

We use the term *Business Configuration* to refer to the resources, assets, activities, processes, technologies, capabilities, and choices that result in the products the company creates and delivers to the targeted customers. We intentionally choose this term over business model, a term that has long been used to describe a careful construction of the organization's activities and assets to make money by delivering specific value propositions to targeted customers. A painstakingly assembled business model works well when you have a stable market and consequently identify a sustainable competitive advantage.

Today many industries are not stable. At the extreme, they are experiencing rapid, discontinuous change across the external environment. Strategy, which once meant building and protecting a position, now calls for changing the configuration of the business so teams can rapidly learn about the external environment and launch new products. Reconfiguring includes redeploying resources, creating or discarding capabilities, and pursuing new markets. Reconfiguring also includes changing organizational structure, culture, decision processes, and assumptions. The carefully planned business model becomes a casualty of the need to continually adapt.

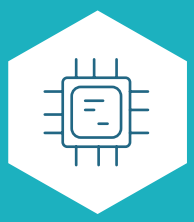
Therefore, to recognize the evolving nature of the organization, we refer to Business Configuration. It includes the elements of the traditional business model but also recognizes that additional factors need consideration.

RESOURCES

ASSETS

ACTIVITIES

PROCESSES



TECHNOLOGIES

CAPABILITIES

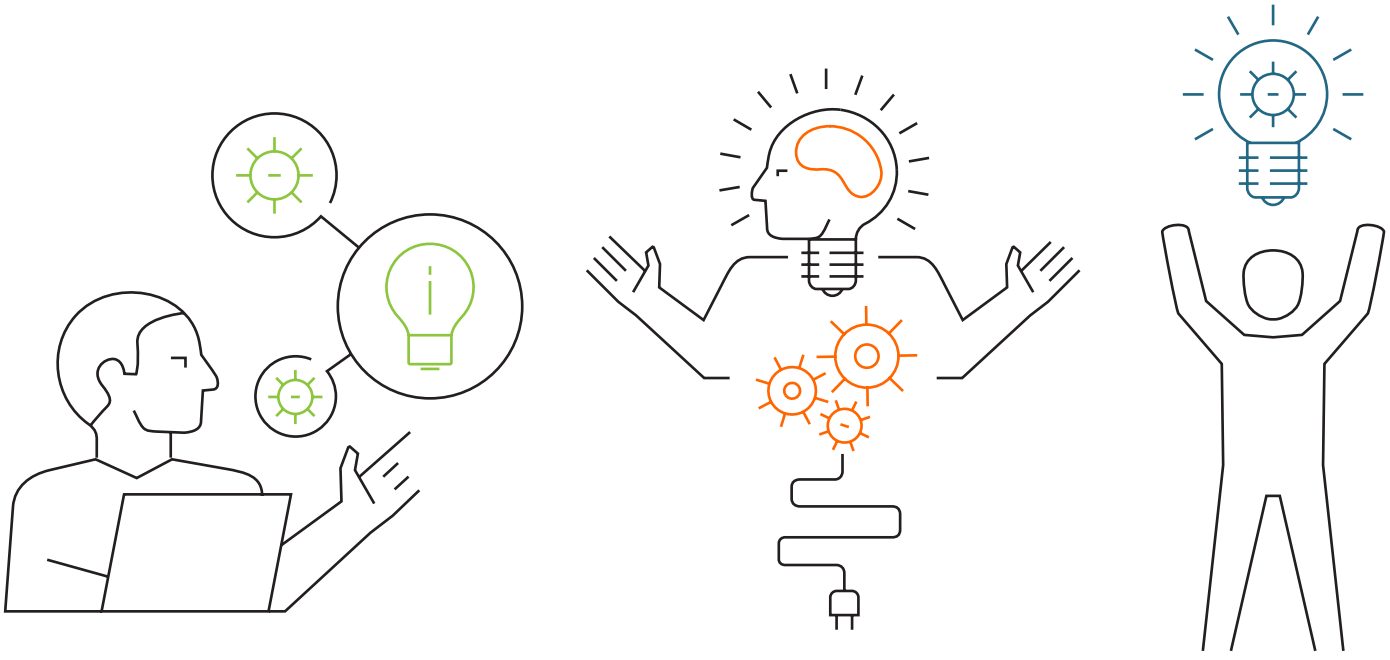
CHOICES

Work as a Cross-funtional Team

We can't stress how important it is that the BFF is evaluated as a cross-functional team, instead of a member of the team talking to each department separately for their input. Sharing and collaboration across disciplines leads to the identification of some of the most elusive risks.

The team should represent multiple disciplines. We highly recommend the following members of the team be present, including but not limited to: product management, engineering, sales, finance, marketing, regulatory, supply chain, and operations.

Once the team is assembled, we have seen our pilot teams take approximately one-and-half to two-hours to evaluate the four BFF pods: commercial feasibility, product or technical feasibility, external factors, and fit with the Business Configuration.



The pods serve as key thought starters for identifying uncertainties and risk related to the product. Multiple dimensions of a product are represented in the pods. Within the BFF software application, the team is prompted through a series of assumptions to identify any uncertainties, risk, or constraints with the product idea.

As the team uses the BFF tool to identify uncertainties and risk associated with a product idea, it should begin to put forth ideas about its options for resolution. In some cases, team members may quickly realize the company cannot break a constraint. Other constraints may lend themselves to solutions or workaround that are within the company's ability to address. Suppose a product needs a particular skill set that the company doesn't have, like a Bluetooth engineer. The team may decide the company can afford to eliminate that constraint by hiring an engineer or outsourcing this skill set, or the company may have a headcount freeze, so the assumption about hiring is not valid, and this changes the solution.

The team will find that some uncertainties and constraints can be resolved and reduced to an acceptable level. In some instances, uncertainties cannot be resolved (or will be too expensive to resolve), and the team must determine whether the project is too risky to proceed.

In the initial process of reviewing each of these pods, the team should keep the analysis at a high level for each product. Particularly early on, before the product has been well defined, there may be many areas of uncertainty. As the team learns more, the uncertainties and risk become more evident. The following case study provides an overview of how a project team used the BFF.

Case Study

This case study illustrates a company's use of the process just described. It has been modified to protect our client's intellectual property.

Company:

Industrial division of a Fortune 500 company

BFF Participants:

Cross-functional team members representing product management, engineering, operations, supply chain, sales, and marketing.

Situation:

A new product concept (nickname: Smarty) was proposed that would incorporate smart technology into a mature product category. The device is used in freighters, including containers and bulk. The application of smart technology to this device would be new to the category and new to the business unit. Smarty was prompted by the need for a preemptive strike, since there was a fear that smart technology in adjacent categories might be incorporated into other products that this customer segment uses.

In freighters, space is limited, so reducing the size of the device was an ongoing need. Another ongoing need was reducing cost. Compared with the current 45-year-old product, Smarty would be much smaller and would fit into the freighter control room of the future. Additionally, it would reduce operating costs through its failure prevention service (continuous monitoring and predicting).

The cross-functional team started the BFF with the evaluation of the Commercial Feasibility Pod, since they were most comfortable with this area of the product.

Commercial Feasibility Pod

A product's commercial feasibility refers to whether the product would be differentiated and valuable. In evaluating the cells within the Commercial Feasibility Pod, the team determines whether there are any constraints that the product can't meet or any important uncertainties to be resolved. To do so, the team evaluates the competitive landscape of the product and category.

The team is also evaluating potential profitability. In the initial evaluation, this doesn't require a detailed forecast of return on investment (ROI) or net present value (NPV). However, at a minimum, the team should be able to make some general predictions: Will anybody buy? If so, how many? This may lead to some early-stage prototyping by the team to gain a better understanding of customer needs and if there is any commercial interest.

Commercial Feasibility Pod Implications. The user studies were identified as a major constraint, due to budget limitations during the current fiscal year. The user studies would have a ripple effect in determining market size, willingness to buy, unmet needs, value proposition, and profitability of the product. The team also realized that the user studies would be a key component of determining Smarty's technical feasibility. Still, the team was fairly positive that Smarty could be very profitable, especially with the added recurring revenue that the 45-year-old product lacked.

Product/Technology Feasibility Pod

The next pod, Product/Technology Feasibility, investigates the company's ability to make a product that meets the intended customer need, given the product and technology requirements and the company's resources. Within this pod, the team discussed questions aimed at uncovering any potential product or technology uncertainties and constraints.

These factors are especially important to evaluate if the product is new to the company or new to the world. Identifying these concerns will help the company determine whether the added risks of a new product are acceptable. In our experience, taking on products without understanding the product or technology constraints often results in product launches that are over budget and late.

Product/Technology Feasibility Pod Implications. During the evaluation of the Product/Technology Feasibility Pod, the team verified the importance of conducting the user studies. If the team couldn't validate that Smarty would solve a customer's problem, then the best option would probably be to put the project on hold. Also, other constraints included the lack of internal resources to develop the smart technology and uncertainties about management commitment. The team members were feeling defeated, but they needed to continue since they had promised management a full BFF evaluation on Smarty.

External Factors Pod

The External Factors Pod raises questions related to how the company would have to adapt to factors outside the company. The cells in this pod can uncover opportunities as well as constraints. In discussing this pod, the team is trying to determine significant external constraints that may contribute to the demise of the product. These factors are usually outside the control of most companies, unless the company has significant ability to influence government policy and regulations.

The team may have difficulty evaluating these factors, since they can be continuously in a state of flux, as in the case of the economic climate, trends, and government regulations. It is important for the team to identify any potential constraints and to determine signposts that signal potential external changes that may affect the product. External factors are particularly important for companies that develop products in highly regulated and hypercompetitive industries.

External Factors Pod Implications. The team identified the need for user studies once again. The studies would be imperative, since the team needed to determine if Smarty was a priority over other technologies that were being introduced to the operators. Team members were also very confident that they could demonstrate cost savings once they got a workable prototype in front of the customer.

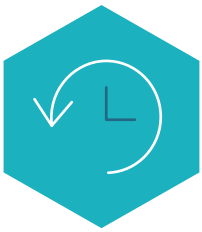
Although there has been talk of alternative modes of transportation, the team didn't see this as an immediate threat. The team felt that the technology and worker acceptance of the smart technology were more of an opportunity than a constraint. Team members started to feel more upbeat and thought that perhaps they could talk the management team into conducting the user studies within the year, especially since they were aware of how budgets were padded.

Business Configuration Pod

The Business Configuration Pod can also uncover opportunities as well as constraints. The questions associated with this pod consider whether the business can support and leverage the product being evaluated. Exploring the cells of the Business Configuration Pod helps the team consider the way the company creates and distributes a compelling value proposition that customers are willing to pay for at a price that yields an acceptable profit.

Recall that a company's Business Configuration refers to the resources, assets, activities, processes, technologies, capabilities, and choices that enable the creation of the new product. Too often, in our experience, companies take on a product development project, only to discover late in the process that the company is missing key business elements, such as the appropriate distribution channels, expertise in key technologies, or the ability to serve new customers. Thus, the Business Configuration embodies the constraints on choices in product development by determining what the business can currently support. It also identifies key areas of uncertainty, such as where the business lacks knowledge and experience.

Business Configuration Pod Implications. During the evaluation of the Business Configuration Pod, the team identified the major internal constraints for Smarty. Not surprisingly, the user studies were again identified as a constraint for understanding the customer base, due to the budget required. Other constraints included the need to extend the sales and service channels, as well as the added cost that would be incurred with new manufacturing capabilities, testing equipment, sales training and internal resources. The team was also concerned that developing Smarty internally would be very disruptive to the organization, but team members thought they could overcome this if they developed Smarty within a Skunk Works structure.



Wrap-up: The BFF Management Review

Although the product manager and engineers were initially major supporters of Smarty, going through the BFF review tempered their enthusiasm. The perspectives of the other team members gave them a more realistic view of the project.

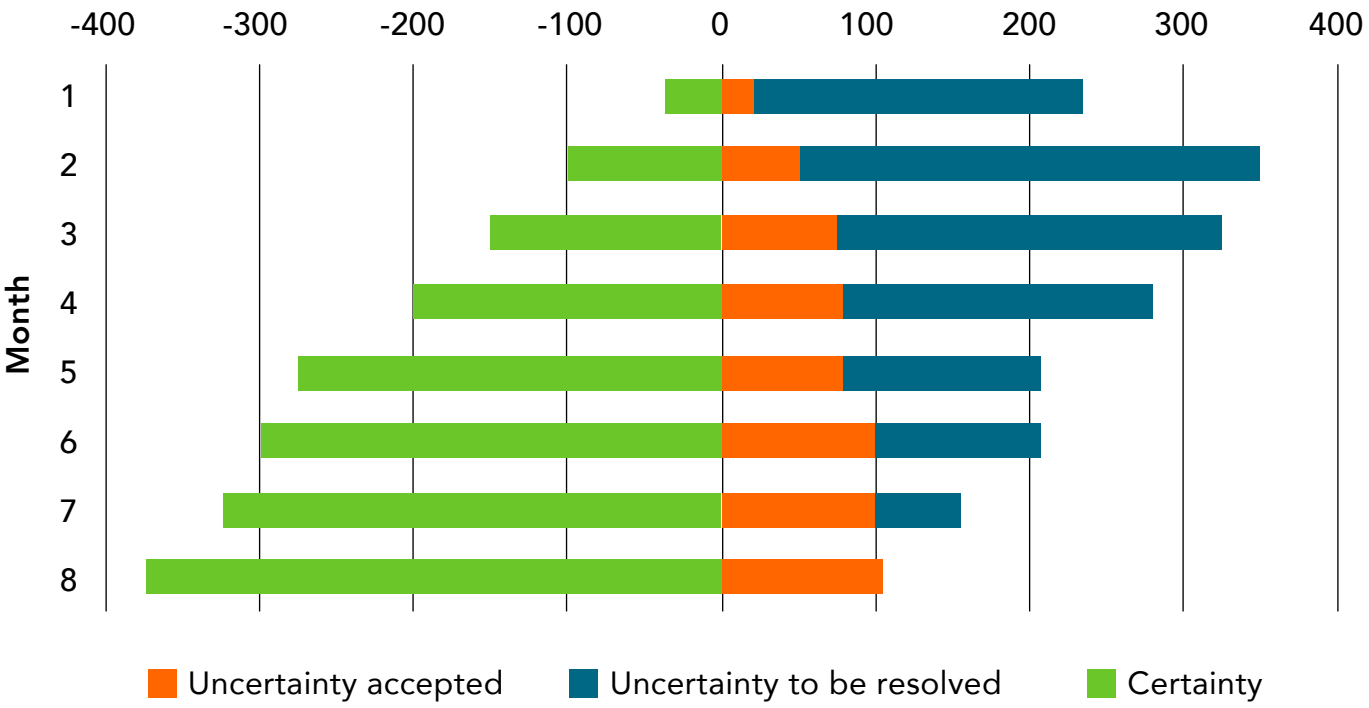
The BFF process of identifying and evaluating the biggest product idea uncertainties made the team more confident when discussing Smarty with the management team. During the management meeting, the project team discussed the opportunities, constraints, and uncertainties, giving a holistic view of Smarty.

They also provided recommendations on which assumptions were most important to address and recommendations for next steps. One of the biggest priorities was the current budget, which made the proposed market studies impossible.

Fortunately, the meeting with management went very well, due in large part to the open culture and objective discussion of the findings. Management agreed with the importance of the market study and recommended that the team phase the studies and the cost.

Getting this green light from the executives allowed the team to begin by resolving the most important uncertainties: the owners' needs and priorities. The team used the BFF Assumptions Tracker™ to track the reduction of uncertainty for the project over time. During month two the team added additional assumptions, but they were able to reduce the level of uncertainty over the next eight months (Exhibit 2).

Exhibit 2. Project Certainty Profile Over Time



Resolving this uncertainty proved Smarty's commercial and technical viability. They were also confident that the company's infrastructure could support the product. External factors were still very dynamic, but the team felt that uncertainty was reduced to an acceptable level, and it was accepted by management.

Overall benefits for using the Business Fit Framework, included:

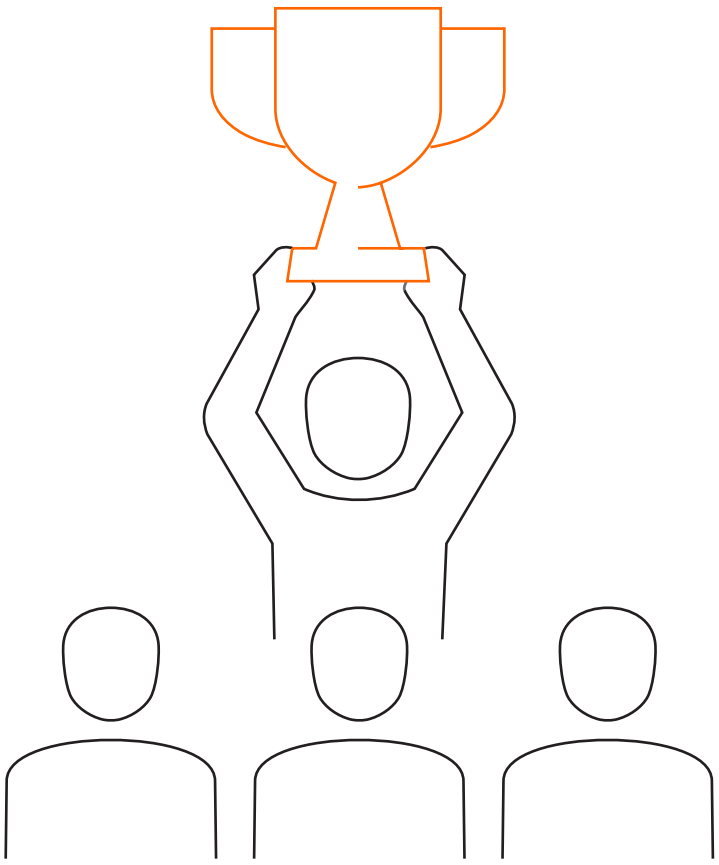
- Improved decision-making
- A unified view of the product idea across different disciplines and departments with buy-in
- Ability to react to unexpected competitive threats and disruption
- Speed to market
- Ability to recognize if a project needs to be killed quickly
- Product development costs were in control and resources were optimized

Ultimately, the Business Fit Framework enabled the company to be more strategic in its investment decision, and to navigate the major mishaps encountered in developing products.

In Closing

The case of Smarty illustrates how the BFF application software can help companies manage the complex nature of product development in a changing environment. As the managers of this business unit realized, uncertainties and risk in a changing environment are not always known and static. The BBF tool assisted the project team in making better decisions as well as tracking and reducing product development uncertainties and risk.

Because of the BFF's flexibility and broad perspective, it aligns well with traditional product development processes, as well as with next-generation product development processes, such as Exploratory Product Development (ExPD®), that seek to adapt to uncertainty and rapidly drive down risk.



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Mary Drotar and Kathy Morrissey, co-founders

Mary and Kathy went on a mission to improve the product development process by addressing uncertainty and risk head-on. They developed a process called Exploratory PD, that ultimately drives down and manages the biggest product development uncertainties and risks. Out of this process they developed the Business Fit Framework® (BFF) software tool. They recently received a grant for the BFF in 2018 from the NSF STEM I-Corp program sponsored by the University of Chicago. Mary and Kathy are both graduates of the Booth School of Business at the University of Chicago. Kathy also received a MS in statistics from Carnegie Mellon University.

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What customers are saying

Here is some feedback from some current customers on the Business Fit Framework

★★★★★

"It was very thorough and made us think about many different things when entering the US market."

—VP of Engineering / Mid-cap industrial company

★★★★★

"It aligned our cross-functional team on what it would take to develop this new category!"

—VP of Engineering / Large-cap industrial company

★★★★★

"A unified look at risks across different departments is an imperative part using this software."

—VP of Product Management / Automotive supplier.

★★★★★

Academics discuss uncertainty and risk in product development, but they don't do anything about it. The BFF offers the solution to this complex problem."

—VP of R&D / Fortune 500 medical device company

★★★★★

"This is particularly important for Corporate Incubators and integrating the downstream business."

—Corporate Incubator lead / Fortune 500 company

★★★★★

"We did not really consider many of these factors prior to the BFF session. This session really opened our eyes to the risk and uncertainty we would take on with this new product idea."

—Director of R&D and Innovation / Industrial conglomerate