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# "Business Concept Proofing 3.0" - A New Model for Validating and Testing Product Ideas in the Digital Environment

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ABSTRACT

This paper introduces a new action-oriented Model for Validating and Testing Product Ideas tailored for the needs of the digital entrepreneurs. The "Business Concept Proofing 3.0" model synthesizes elements from established frameworks such as the Stage-Gate model, Lean Startup methodology, and Design Thinking while integrating digital tools and resources such as Google Trends, Large Language Models, Social media analyses, Launch platforms, etc., to facilitate continuous market validation. Emphasizing resource efficiency and adaptability, the model provides a structured yet flexible approach that guides entrepreneurs from idea validation to product launch. Through illustrated case scenarios, the model demonstrates its applicability in real-world settings, offering a pragmatic tool for navigating the complexities of online product development. This paper contributes to the growing body of literature on digital entrepreneurship by presenting a model that bridges the gap between existing models and the dynamic needs of the digital age.

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## 1. Introduction

The rapid evolution of the digital landscape has transformed the way businesses are conceived, developed, and launched. Online entrepreneurs, particularly solo entrepreneurs and small online businesses, encounter distinct challenges that traditional New Product Development (NPD) models often struggle to address. These models, while valuable, are typically designed for larger organizations with more resources, assuming a level of stability and predictability that is often absent in the dynamic digital marketplace (Cooper, 1990; Ries, 2011). As a result, there is a pressing need for a more agile, resource-efficient approach that leverages the power of digital tools throughout the product development process.

This paper introduces a Streamlined Model for Validating and Testing Product Ideas, specifically tailored to the unique needs of online entrepreneurs. The proposed model integrates key elements from established NPD frameworks such as the Stage-Gate process (Cooper, 1990), Lean Startup methodology (Ries, 2011), and Design Thinking (Brown, 2008). However, unlike traditional models, which may be too rigid or resource-intensive for small-scale online ventures, this model emphasizes flexibility, speed, and continuous validation—critical factors in the fast-paced digital environment.

One of the primary challenges for online entrepreneurs is the need for rapid market validation with limited resources. Traditional NPD models often involve lengthy and costly processes that are not feasible for individuals or small teams operating in competitive digital markets (Sethi & Iqbal, 2008). The proposed model addresses this by incorporating digital tools such as Google Trends and Keyword Planner, enabling entrepreneurs to quickly assess market demand and competitor activity (Choi & Varian, 2012). These tools provide real-time insights (historical and current), allowing for informed decision-making and reducing the risk of pursuing unviable ideas. Regarding the competition inelegance, solopreneurs can adopt straightforward methodologies such as the Competitive Analysis Grid (Barringer and Ireland, 2016; Aaker and Moorman, 2017; Gangwal, 2023).

The digital-first approach of this model also aligns with the growing body of literature on digital entrepreneurship, which emphasizes the importance of agility and iterative development in online business contexts (Nambisan, 2003; Blank, 2013). By integrating continuous feedback loops and emphasizing early validation, the model allows entrepreneurs to pivot quickly in response to market feedback, thereby increasing the likelihood of success.

Key features of the model include:

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1. Simplifying the process of new product development focusing on early validation and testing of business and product ideas
2. Integration of contemporary digital tools for market validation
3. Emphasis on low-resource methods suitable for entrepreneurs and small teams
4. Distinguishing among idea validation, concept validation/testing and product testing
5. Flexibility to pivot based on feedback while maintaining a clear structure

This paper aims to bridge the gap between traditional NPD theories and models, and the practical realities faced by online entrepreneurs. Through the development and application of this streamlined model, we seek to provide a valuable tool that not only addresses the limitations of existing frameworks but also enhances the ability of online entrepreneurs to navigate the complexities of the product development in the digital environment.

## 2. Literature review

The development of new products is a critical process for maintaining competitiveness and fostering growth in any business, but the unique demands of online entrepreneurship require a tailored approach. Traditional New Product Development (NPD) models, such as the Stage-Gate process developed by Cooper (1990), have long provided structured frameworks for guiding product development from ideation to commercialization. The Stage-Gate model's sequential approach, which divides the NPD process into distinct stages—idea generation, preliminary assessment, concept development and testing, business analysis, product development, test marketing, and finally, commercialization—has been widely adopted across various industries. However, despite its success in managing risk and ensuring thorough evaluation at each stage, the Stage-Gate model has been critiqued for its rigidity, particularly in fast-paced environments where market conditions and customer preferences can shift rapidly (Sethi & Iqbal, 2008).

In response to these limitations, more flexible methodologies have emerged, most notably the Agile and Lean Startup approaches. The Agile methodology, originally developed for software development, emphasizes iterative cycles of development, continuous feedback, and rapid adaptation (Conforto & Amaral, 2016). This iterative nature makes Agile particularly suitable for environments characterized by high uncertainty and the need for speed. Similarly, the Lean Startup methodology, popularized by Eric Ries (2011), focuses on rapid prototyping, customer feedback, and iterative product development. The core of the Lean Startup approach lies in the concept of the Minimum Viable Product (MVP), which is a basic version of the product designed to test hypotheses about the market with minimal resources. This methodology advocates for a build-measure-learn loop, where continuous learning from customer feedback guides subsequent development steps. Both Agile and Lean Startup methodologies offer greater flexibility than the Stage-Gate model, yet they often lack the comprehensive structure that some entrepreneurs might require, particularly those who are new to the product development process.

Another influential framework that has gained prominence is Design Thinking, which focuses on human-centered design by emphasizing empathy, ideation, prototyping, and testing (Brown, 2008). Although not a traditional NPD model, Design Thinking's principles are increasingly being applied to product development, particularly in contexts that require innovative solutions to complex problems. Design Thinking encourages deep engagement with end-users to understand their needs and pain points, which informs the ideation process. The iterative nature of prototyping and testing in Design Thinking aligns well with the requirements of online entrepreneurs, who must be attuned to the rapidly changing preferences of digital consumers. However, while Design Thinking provides valuable insights into user-centered design, it does not offer a fully developed framework for managing the entire product development lifecycle.

Despite the advantages offered by these newer models, there remains a significant gap in frameworks that are specifically tailored to the needs of online entrepreneurs. These individuals or small teams often operate with limited resources, tight timelines, and in highly competitive digital markets where speed and agility are paramount. The traditional models tend to assume access to substantial resources and organizational structures that solo entrepreneurs or small online businesses may not possess. For instance, while the Stage-Gate model provides a clear and structured approach, its applicability diminishes when applied to the fluid and dynamic environments typical of online entrepreneurship. Moreover, the Agile and Lean Startup models, while flexible, may still fall short in providing the necessary guidance for entrepreneurs who need to make quick, data-driven decisions using the digital tools available to them.

The integration of digital tools into NPD processes represents a crucial evolution in the field. Nambisan (2003) highlights the role of virtual customer environments in facilitating customer co-creation and feedback, which is essential for validating ideas early in the development process. The increasing availability of digital tools such as Google Trends, Keyword Planner, and social media analytics platforms has transformed how entrepreneurs can gather real-time data on market trends, customer behavior, and competitive landscapes. These tools enable entrepreneurs to validate their ideas with a level of precision and speed that was previously unattainable. For example, Choi and Varian (2012) demonstrate how Google Trends can be used to predict economic indicators, providing a valuable resource for entrepreneurs to assess market demand. However,

despite the potential of these tools, there is a lack of comprehensive models that fully integrate them into the NPD process, particularly in the context of online entrepreneurship.

In the literature on entrepreneurship, there is also growing recognition of the importance of early and continuous validation in the product development process. Kornish and Ulrich (2014) emphasize that the number of ideas generated is a strong predictor of success in finding exceptional opportunities, underscoring the need for broad idea generation before narrowing down to the most promising concepts. Girotra et al. (2010) add to this by comparing ideation processes, finding that hybrid approaches, which combine individual and collaborative efforts, tend to produce both a larger number of ideas and ideas of higher quality. Marion et al. (2012) examined the use of social media tools in NPD, finding that these platforms can enhance idea generation and customer engagement. These findings suggest that entrepreneurs, particularly those operating in online environments, would benefit from models that not only encourage broad ideation but also provide clear mechanisms for validating and refining these ideas early in the development process.

Concept testing is another critical area in NPD that has evolved significantly with the advent of digital technologies. Traditional concept testing methods, such as focus groups and surveys, remain relevant but are increasingly complemented by digital methods like A/B testing and crowdfunding platforms. Ozer (2009) provides a comprehensive review of concept testing methods, categorizing them into qualitative and quantitative approaches. More recent studies, such as Brem et al. (2019), explore the use of crowdfunding not just as a fundraising tool but also as a means of concept validation, providing entrepreneurs with both market feedback and early-stage financing. Similarly, Kohavi et al. (2009) discuss how controlled experiments on the web, such as A/B testing, can be used to quickly and cost-effectively test product concepts. Csordás and Gáti (2014) explored the use of social media for idea validation. These digital methods allow for rapid iteration and refinement based on real-world feedback, which is particularly advantageous for online entrepreneurs who need to adapt quickly to changing market conditions.

Product testing has also been transformed by digital technologies. The concept of the MVP, as introduced by Ries (2011), allows entrepreneurs to test the core functionalities of a product with minimal resources before committing to full-scale development. This approach has been widely adopted in software development and other digital products, where the ability to quickly iterate based on user feedback is critical. Lenarduzzi and Taibi (2016) conducted a systematic mapping study on MVP approaches, highlighting the variety of MVP types and their effectiveness in different contexts. For physical products, Thomke and Bell (2001) proposed a framework for optimal product testing that balances the costs of testing against the potential benefits of product improvements. While their work focused on traditional manufacturing, the principles can be adapted for entrepreneurs producing physical goods for online markets. Additionally, traditional test marketing methods have been adapted to digital environments, where entrepreneurs can leverage online marketplaces like Amazon and Etsy to test their products in real-world conditions at a lower cost and with broader reach (Maculescu, 2024; Toolify.ai, 2023)

While these models and methods offer valuable insights and tools, there is still a need for a comprehensive, yet simplified and action-oriented model that integrates these elements specifically for online entrepreneurs. Such a framework should combine the structured approach of traditional models with the flexibility and speed of Agile and Lean methodologies, while also leveraging the unique advantages of digital tools. It should provide clear guidance for each stage of the product development process, from idea generation and validation to concept testing and product launch, while allowing for continuous iteration and feedback. By addressing these gaps, a tailored NPD model can significantly enhance the ability of online entrepreneurs to navigate the complexities of digital product development, ultimately increasing their chances of success in the competitive online marketplace.

## 3. Methodology

The development of the Streamlined Model for Validating and Testing Product Ideas for online entrepreneurs was guided by a multi-faceted methodological approach designed to integrate existing theoretical frameworks and practical insights. The methodology consists of three interrelated phases: an integrative literature review, conceptual framework development, and validation through illustrative scenario application. Each phase builds upon the previous one, creating a cohesive process that ensures the model is both theoretically robust and practically relevant for the target audience.

The foundation of this research is the integrative literature review, which is particularly suitable for synthesizing knowledge in new or emerging fields (Torraco, 2005). This approach goes beyond summarizing existing literature; it involves synthesizing diverse sources to identify gaps, generate new insights, and propose a comprehensive framework that addresses the specific needs of online entrepreneurs. The review encompassed traditional NPD models such as the Stage-Gate process (Cooper, 1990), as well as more contemporary approaches like Agile methodologies (Conforto & Amaral, 2016) and Lean Startup principles (Ries, 2011). Additionally, the review examined the integration of digital tools into the NPD process, drawing on research by Nambisan (2003) and Choi and Varian (2012) to explore how virtual environments and real-time data analytics can enhance the validation of business ideas in the digital context.

Building on the insights gained from the literature review, the next phase involved the development of a conceptual framework. This framework was constructed using the methodology outlined by Jabareen (2009), which is well-suited for addressing multidisciplinary phenomena such as new product development in the context of online entrepreneurship. The process began with mapping selected data sources identified in the literature review, followed by extensive reading and categorization of the data to identify key concepts relevant to the NPD process for online entrepreneurs. These concepts included idea generation, market validation, concept testing, and early product development, each of which was integrated into a cohesive framework that aligns with the digital-first approach of modern online businesses.

A key aspect of the conceptual framework development was the synthesis and integration of these concepts to create a model that is both structured and flexible. The framework incorporated the structured stages of traditional models like Stage-Gate, while also embedding the iterative cycles and feedback loops characteristic of Agile and Lean methodologies. The integration of digital tools was a critical component, ensuring that the model leveraged the advantages of data-driven decision-making and rapid validation techniques. This integrative approach allowed for the creation of a model that addresses the gaps identified in the literature, particularly the need for a flexible, low-resource, and digitally integrated NPD model tailored for online entrepreneurs.

The final phase of the methodology involved validating the conceptual framework through illustrated scenario application. This phase aimed to demonstrate the practical applicability of the model by applying it to hypothetical scenarios. The scenarios were developed to be relevant to the model's intended audience and their potential to illustrate the model's effectiveness in guiding the NPD process from idea validation to product launch. The application of the model in these scenarios provided an opportunity to refine and adjust the framework based on observed outcomes, ensuring that it is both theoretically sound and practically viable.

To enhance communication with both academics and the model's target users, we have introduced the name **"Business Concept Proofing 3.0."** The term Idea Proofing refers to the validation and testing methods for product ideas, while 3.0 signifies the integration of digital tools, including AI, within an online environment. This modernized approach reflects the evolution of idea validation in the digital age, leveraging advanced technologies to streamline and optimize the process.

In conclusion, the methodology employed in this research is characterized by its integrative and iterative nature, ensuring that the Streamlined Model for Validating and Testing Product Ideas is both grounded in existing theory and responsive to the practical needs of online entrepreneurs. By synthesizing insights from the literature, developing a comprehensive conceptual framework, and validating the model through illustrated scenarios, this research contributes to the ongoing evolution of NPD models in the digital age.

## 4. Model Overview and theoretical background

To introduce the Model and initially elaborate on its theoretical background, we first present a simplified chart and a concise explanation of the phases (Figure 1).

The Streamlined Model for Validating and Testing Product Ideas - **"Business Concept Proofing 3.0."** is designed to guide online entrepreneurs through the complex process of bringing new products to market in the digital environment. This model integrates elements from established New Product Development (NPD) frameworks, such as the Stage-Gate process (Cooper, 1990), Lean Startup methodology (Ries, 2011), and Design Thinking (Brown, 2008), while also embedding digital tools and techniques that are crucial for success in the fast-paced online marketplace. The model emphasizes a structured yet flexible approach, allowing for continuous iteration and feedback at each stage of the development process.

The model begins with the Ideation Phase (**I. Idea Generation and Validation)**, that is critical as it provides the raw material for the subsequent phases of validation and testing. While the model acknowledges that entrepreneurs may already possess preliminary ideas, it also recognizes the iterative nature of the process, where preliminary ideas may be refined or altered based on early feedback (Kornish & Ulrich, 2014). The use of tools like brainstorming, mind mapping, and individual ideation techniques can be valuable in generating a wide range of potential ideas. During the Idea Validation, the entrepreneur uses digital tools such as Google Trends and Google Keyword Planner to analyze search interest and validate market demand (Choi & Varian, 2012). These tools provide critical insights into the viability of the idea by assessing market trends and consumer interest. Additionally, a competitive analysis is conducted to identify the strengths and weaknesses of existing competitors, helping to refine the concept and decide whether to proceed or pivot (Porter, 2008). Customer surveys may also be employed to gather direct feedback from potential users, which is essential for confirming market interest and/or further refining the product concept (Gruner & Homburg, 2000). The outcome of this initial phase is the preliminary product concept, which, given the highly iterative nature of the process, will require further development in the subsequent phases.

Once the idea has been validated, the entrepreneur moves on to **Concept Phase (II. Concept development and Testing).** In this phase, the model advocates for the use of strategies such as waitlists, presales, or simulated sales to gauge market demand and generate interest (Frederiksen & Brem, 2017). These methods are particularly effective for online entrepreneurs as they provide early indicators of potential success while minimizing resource expenditure. The decision to pursue one approach over another depends on the

entrepreneur's objectives, the type of product being developed, and the available resources. For instance, waitlists can help build a community of early adopters, while presales and simulated sales can offer insights into market readiness and pricing strategies.

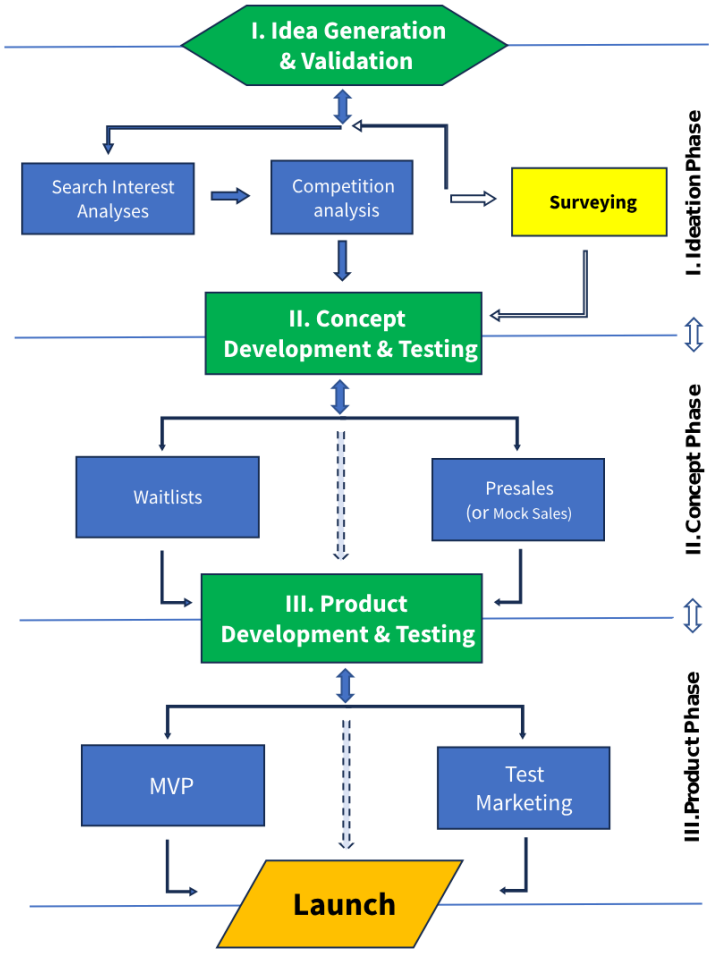


**Figure 1. Business Concept Proofing 3.0. – a model overview**

Following concept testing, the product enters the last, **Product Phase (III. Product development and testing**, where an MVP (Minimum Viable Product) could be created. This MVP allows the entrepreneur to test the market with a functional, though not fully developed, version of the product (Ries, 2011). For digital products, this might also involve launching a beta version, while for physical products, a limited test marketing campaign could be conducted to gather further feedback and refine the offering (Thomke & Bell, 2001). The iterative feedback loop at this stage is crucial, as it enables the entrepreneur to make necessary adjustments based on real-world data and user input.

The final Product phase, should culminate in the product's market introduction, in the model referred as the **Launch**. However, the model recognizes that the product launch is merely the beginning of the journey. Post-launch activities such as strategic marketing and continual adaptation to customer feedback are essential for long-term success (Cooper & Kleinschmidt, 1986). By continually refining the product and strategy, entrepreneurs can optimize their offerings to better meet market demands and achieve sustained market presence.

Our **Business Concept Proofing 3.0.** model for validating and testing business ideas builds upon the foundations of traditional NPD frameworks while adapting them to the unique challenges of online entrepreneurship. By integrating digital tools and emphasizing iterative validation, the model provides a practical and actionable framework that increases the likelihood of success for solo entrepreneurs and small online businesses operating in rapidly changing digital markets (Blank, 2013). The model's flexibility allows entrepreneurs to pivot and adapt as needed, ensuring that their products remain relevant and competitive throughout the development process.

## 5. "Business Concept Proofing 3.0." Model - Components and Flow

The **Business Concept Proofing 3.0.** model is structured around a series of interconnected phases and (sub-activates) that guide online entrepreneurs from initial idea generation to product launch (Figure 2

and Table 1). Each component of the model is designed to build upon the previous, ensuring a cohesive and iterative approach to product development that is both flexible and resource-efficient. This section delves into the detailed reasoning behind each stage of the model, highlighting the tools, techniques, and decision points that facilitate the successful progression of a business idea through the development process.

**I. Idea Generation and Validation**

The **Idea Generation and Validation** phase is the starting and foundational component of the model. Idea generation, as the first sub-activity of this phase, is crucial in the entrepreneurial efforts, forming the foundation for new ventures and product development (Desouza et al., 2009; Bezovski et al., 2021). In the model diagram (Figure 2), this activity, labeled as "**Ideation, (Pre)selection & Refinement**," involves developing new ideas or refining existing ones through creativity and other various techniques and methods. These include traditional approaches like brainstorming or mimicking successful concepts (imitation innovation), as well as innovative tools like random idea generators, Q&A forums, and the latest AI technologies, such as Large Language Models (LLMs). Tools such as personal SWOT analyses and idea scorecards can be employed to evaluate and prioritize ideas, ensuring that only the most promising advance to the next stage (Kornish & Ulrich, 2014). The goal is to generate, refine, and improve ideas—whether newly conceived or pre-existing—ensuring a solid base for the next steps of the innovation process. Additionally, the model acknowledges that idea generation and validation is not a linear process but rather an iterative cycle where ideas are continuously refined based on feedback and new market insights discovered in the following steps.

Once preliminary idea(s) has been (pre)selected, the entrepreneur moves into the Idea Validation. This step is critical for assessing the viability of the business idea before additional resources are committed to the process. Here, the model emphasizes the use of **Search Interest Tools** like Google Trends and Google Keyword Planner. These tools are invaluable for entrepreneurs due to their simplicity and the reliable, real-world search data they provide from target customers. Google Trends is adept at identifying emerging trends or declining industries/niches, while Google Keyword Planner offers insights into search query volumes (Choi & Varian, 2012) and competition levels (for ads), providing a measure of demand and (potential) profitability. Both tools may present insights across regions and languages and also suggest related search queries to further refine the initial idea. Notably, low search volumes and/or absence of competition in the Google Keyword Planner may indicate a lack of demand. However, such ideas warrant further exploration if the product is innovative or if the demand (still) latent.

Next step in the model is the competitive inelegance. **Competition analysis** methodically identifies and evaluates rivals to ascertain their strengths, weaknesses, strategic approaches, and market positions and also confirm existence of paying customers. This analysis helps entrepreneurs identify gaps in the market that their product could fill, as well as potential challenges posed by established players (Porter, 2008). This analysis is also important for idea validation as it provides insights into market size, profitability, and the intensity of competition (Bezovski et al., 2024). Key outputs from this analysis, such as anticipated product features and pricing strategies, are vital for further validation.

For solopreneurs and small teams, conducting a competitive analysis can be daunting due to the significant investment of time, resources, and expertise required. The vast influx of information in today's business environment can lead to an overload, making it challenging to identify new competitors and formulate strategic decisions (Donohue & Murphy, 2016). Nonetheless, solopreneurs can adopt straightforward methodologies like the Competitive Analysis Grid (Barringer and Ireland, 2016; Aaker and Moorman, 2017; Gangwal, 2023), to scrutinize key competitors and their principal attributes. Furthermore, social media analysis can be an effective tool for gathering insights about competitors. For social media insights, platforms like Hootsuite, Sprout Social, and BuzzSumo can be incredibly useful (Newberry, 2023). Tools such as SimilarWeb, Semrush, Ahrefs, and SEOquake can provide valuable data on web traffic, keyword rankings, and SEO metrics (Ortiz, 2021; Wade, 2022), while the Wayback Machine offers a glimpse into historical website changes. Although many of these tools are commercial, they typically offer free trial periods that suffice for competitive analysis at this stage.

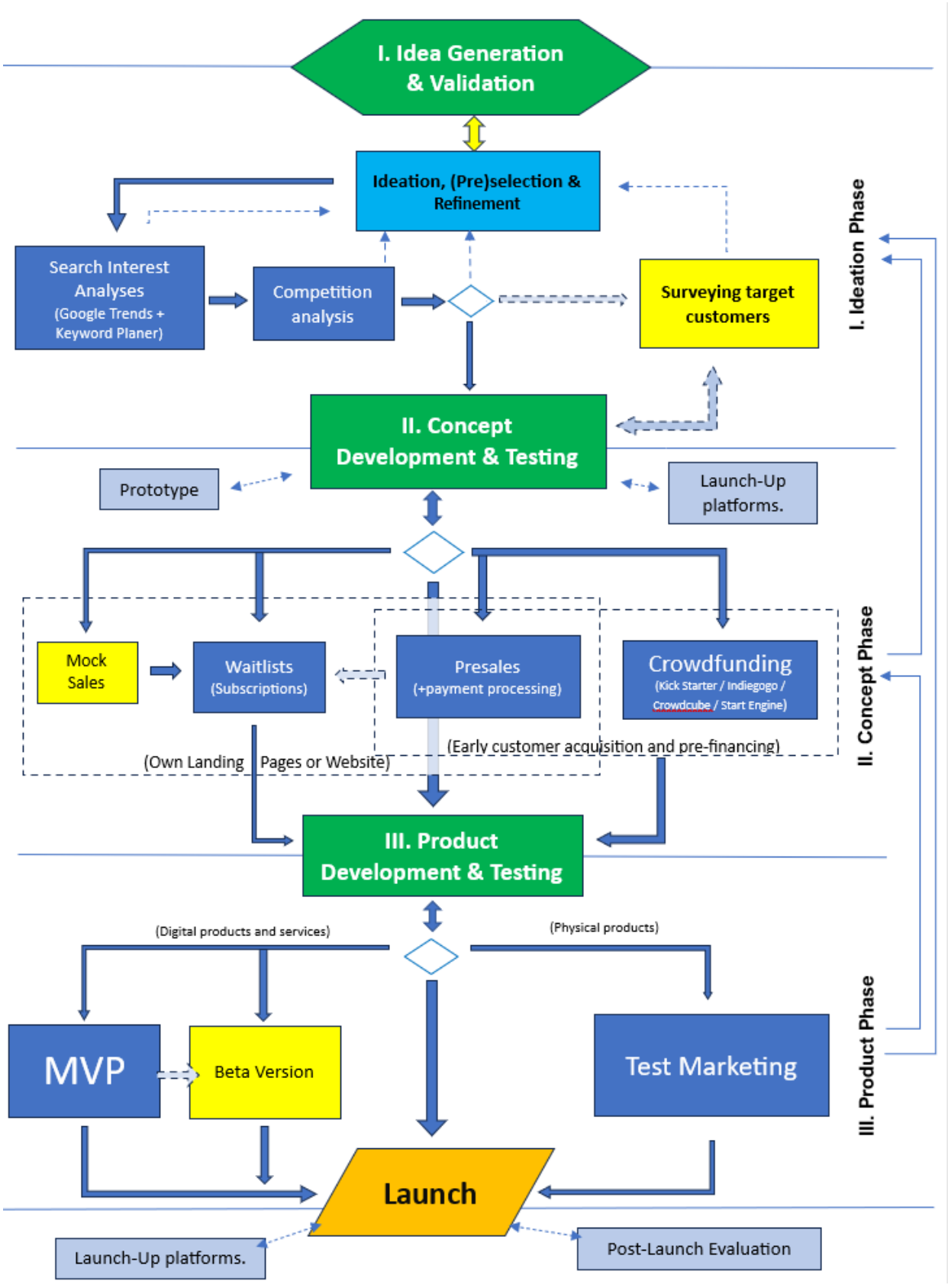


**Figure 2. Business Concept Proofing 3.0. – a New Model for Validating and Testing Product Ideas**

The insights garnered from competitive analysis can be instrumental in refining initial concepts or may lead to a decision to abandon or redevelop an idea if the competitive landscape proves too daunting. This aligns with the Blue Ocean Strategy, which advocates for redefining business concepts to sidestep direct competition (Kim, 2005).

A pivotal decision in the Idea Validation phase (the first important decision point in the model) revolves around the necessity of conducting a **customer survey**, given that it demands resources, expertise, and time, potentially postponing further steps. Early customer feedback through surveys or interviews, which can provide direct insights into consumer preferences and pain points, further refining the idea before advancing to the next phase (Gruner & Homburg, 2000). Should the analyses of search interest and competitive landscapes fail to confirm market demand and the existence of a willing customer base within the targeted industry or niche, a customer survey could provide clarity on whether to proceed with or abandon the envisioned idea. Conversely, in scenarios where demand appears robust, a survey serves as a critical litmus test; inability to engage the intended audience might suggest either the entrepreneur's limited reach or an oversaturated market. Additionally, a customer survey could be deferred to later stages, such as after the business concept has been fully developed, or conducted in parallel to gather insights at different points in the process. For instance, an entrepreneur persuaded of strong market demand might leapfrog to initiating pre-sales or rapidly developing a Minimum Viable Product (MVP) for presentation to the target audience. The decision to conduct a survey (now or later), however, hinges on several factors, including the availability of resources, the size of the required investment, the urgency of product development, and the level of risk tolerance. Balancing these considerations ensures that the process is aligned with both strategic goals and operational constraints, allowing for informed decisions that optimize the chances of success in later stages.

**II. Concept Development and Testing**

The **Concept Development** and Testing phase follows, where the validated idea is subjected to real-world testing through low-resource methods. First step is to develop a business concept where entrepreneurs are encouraged to utilize strategic Models like the Business Model Canvas or its adaptive variant, the Lean Canvas. These tools provide a multifaceted view of their concept, ensuring a comprehensive understanding and readiness for subsequent testing phases. Additionally, leveraging AI Language Tools such as ChatGPT, Google's Gemini, or Bing's Copilot can streamline the refinement of business strategies and product concepts, enhancing development efficiency. The concept developments step starts the second phase of the model but it does not imply that entrepreneurs shouldn't go back for example, to validate the concept using customer surveying methodology.

The second key decision point in the model occurs after concept development. Entrepreneurs should determine whether to proceed with concept testing and, if so, which method(s) to use. Common options include developing a prototype, building a waitlist, initiating presales, conducting simulated (mock) sales, or presenting the business concept on launch platforms. However, if there is compelling customer feedback or a need for rapid product development, entrepreneurs may opt to bypass concept testing and for example, move directly to creating a Minimum Viable Product (MVP).

Developing a **prototype** could be one of the initial steps in concept testing. Prototypes come in many forms, ranging from interactive digital interfaces like clickable or UX prototypes for software products to tangible representations such as 3D mockups, animations, and functional prototypes. These prototypes serve not only to gather valuable customer feedback (as outlined in the previous phase) but also to support the various concept testing methods discussed below.

One of the most straightforward and effective methods to test product concept is through **product launch platforms** as Product Hunt, Beta List, and Indie Hackers. These platforms are known for their role in spotlighting emerging products, with a particular focus on the tech industry. They offer a prime venue for startups and developers to either conduct initial tests or officially launch their products, providing invaluable feedback and market insight that is essential for refining the product concept before taking further steps. These platforms can not only gather valuable feedback but also help generate initial waitlists (see below).

To go further into concept testing, the entrepreneur could opt for waitlist, mock sales, presales or crowdfunding. Each method serves to gauge market interest and secure early validation without the need for a fully developed product. For instance, building a **waitlist** allows entrepreneurs to measure interest and build a community of early adopters who are likely to convert into customers upon product launch (Frederiksen & Brem, 2017). **Presales**, on the other hand, can generate early revenue and provide tangible proof of market demand, while **simulated sales** test consumer intent by mimicking the purchasing process without completing the transaction. These methods enable entrepreneurs to make informed decisions about whether to proceed with full-scale product development or pivot based on the feedback and data collected during this phase. **Crowdfunding**, although similar to pre-sales, leverages established platforms like Kickstarter, Indiegogo, Crowdcube, and Start Engine to reach their existing communities, instead of building own platform (a website).

**III. Product Development and Testing**

The Product Development and Testing, is the third and final phase in the model. A starting element here is the decision point that represents a critical juncture in the product development journey. If the entrepreneur has achieved successful concept testing in previous phases - for instance, generating a significant volume of pre-sales - they may opt to bypass certain intermediate steps. This allows them to proceed directly

to developing the full product and launching it to the market at a faster pace, addressing the expectations of pre-ordering customers.

Anyhow, when the decision is that the product testing is critical, the process splits based on the nature of the product being developed. For digital products and services, the process typically involves creating a Minimum Viable Product (MVP) and/or Beta Version. On the other side, "Test Marketing" represents the pathway for physical products. An **MVP** represents the core functionality of the product, allowing for early market entry and iterative development based on user feedback (Ries, 2011). This pathway might also involve launching a **beta version** that is functional but not fully polished, enabling the collection of user feedback to inform subsequent iterations. For physical products, a limited production run can serve as a form of **test marketing**, where the product is sold in controlled quantities to gauge consumer response and identify areas for improvement (Thomke & Bell, 2001). Entrepreneurs can leverage online marketplaces such as Amazon, eBay, or Etsy to test-market their products in real-world circumstances, at a lower cost and with broader reach (Maculescu, 2024; Toolify.ai, 2023).

The iterative nature of this phase, regardless of the selected method, ensures that the product is continuously refined and optimized based on real-world usage data, increasing the likelihood of success upon full-scale launch.

**The Launch** marks the culmination of the development process and the introduction of the product to the market. The model emphasizes that the launch is not the ultimate end of the New Product development, but the beginning of a new process of continuous improvement and market adaptation. Entrepreneurs are encouraged to leverage strategic marketing and sales efforts to maximize the impact of the launch while continuing to collect and analyze customer feedback (Cooper & Kleinschmidt, 1986). This feedback is critical for ongoing product iteration, ensuring that the product remains aligned with customer needs and market trends over time. The model's built-in flexibility allows entrepreneurs to pivot or refine their strategies post-launch, adapting to changing market conditions and consumer preferences as necessary.

**Table 1. Business Concept Proofing 3.0. – Techniques and tools**

| Phase & Sub-Activity | Techniques and Tools used |
|---|---|
| **I. Idea Generation & Validation** | |
| ***- Idea Generation*** | Involves developing new ideas or refining existing ones through creativity and other various techniques and methods |
| Ideation | Brainstorming, creativity, (mimicking) imitation innovation, random idea generators, Q&A forums, Large Language Models (LLMs). |
| Preselect ideas | (Personal) SWOT analyses, Idea scorecard |
| Refine ideas | Google Trends, Google Keyword Planner, Competition analysis, customer feedback |
| ***- Idea Validation*** | Critical for assessing the viability of the business idea before additional resources are committed to the process |
| Search Interest Analyses | Google Trends - identifying emerging trends or declining industries/niches<br>Google Keyword Planner - insights into search volumes (demand) and competition ad levels (profitability) |
| Competition analysis | SWOT, Competitive Grid, social media analysis (Hootsuite, Sprout Social, and BuzzSumo), Web analyses (SimilarWeb, Semrush, Ahrefs,, SEOquake Wayback Machine), Blue Ocean Strategy |
| Surveying target customers | Early customer feedback through surveys or interviews<br>1. Developing questionnaires (LLM)<br>2. Forms for collecting responses, (Google Forms)<br>3. Distributing questionnaires (Snowball sampling, Social media, Paid Advertising) |
| **II. Concept Development & Testing** | |
| Concept development | Validated ideas are refined into well-defined and more tangible concepts. (Value Proposition Canvas, Gallen Magic Triangle, Business Model Canvas, Lean Canvas). LLMs (ChatGPT, Google's Gemini, or Bing's Copilot) can be leveraged to generate content and assist in the process. |
| *Prototype* | Clickable prototypes, UX prototypes, Animations, 3D mockups, 3D prints, etc. |
| *Launch-Up platforms* | Presenting the concept on Product Hunt, Beta List, and/or Indie Hackers |

| | |
|---|---|
| Mock Sales | Simulates the selling process to gauge consumer intent without completing the transaction (requires own platform/website access to target audience) |
| Waitlists | Measure interest by presenting the concept and build a community of early adopters (requires resources and platform to gather subscriptions) |
| Presales | Directly testing the envisioned product while simultaneously generating revenue to support further development. (Requires own platform/website, payment processing and access to target audience) |
| Crowdfunding | Similar to pre-sales, leverages established platforms like Kickstarter, Indiegogo, Crowdcube, and Start Engine to reach their existing communities |
| **III. Product Development & Testing** | |
| MVP (for digital products and services) | A Minimum Viable Product represents the core functionality of the product, allowing for early market entry and iterative development. |
| *Beta version* | Functional digital product but not fully polished, enabling the collection of user feedback to inform subsequent iterations. |
| Test Marketing (for physical products) | Test the product in real-world conditions where controlled quantities are sold to gauge consumer response and identify areas for improvements. Marketplaces to leverage (Amazon, eBay, Etsy etc.) |
| ***Launch*** | Marks the culmination of the development process and the introduction of the product to the market. |
| Launch-Up platforms | Announcing the product lunch on Product Hunt, Beta List, and Indie Hackers |
| Post-Launch Evaluation | Critical for ongoing product iteration, ensuring that the product remains aligned with customer needs and market trends over time |

Overall, "Business Concept Proofing 3.0." as a Streamlined Model for Validating and Testing Product Ideas provides a structured yet adaptable framework that guides online entrepreneurs through the entire product development lifecycle. By integrating well known and simple Techniques and digital tools (Table 1), emphasizing continuous validation, and allowing for iterative development, the model addresses the unique challenges of online entrepreneurship in the digital age. Each component and flow within the model is designed to minimize risk, optimize resource allocation, and increase the likelihood of a successful product launch and sustained market presence.

**6. Application of the Model**

The practical application of theoretical models and frameworks is essential for validating their effectiveness and relevance in real-world contexts. Illustrated scenarios, in particular, serve as a valuable tool for demonstrating how a model can be applied to specific situations, providing tangible examples of its utility and adaptability (Yin, 2018). By presenting detailed, context-rich scenarios, researchers and practitioners can gain a deeper understanding of the model's components, decision points, and potential outcomes, thereby reinforcing its theoretical foundations while highlighting its practical implications. This section presents a series of illustrated scenarios that apply the Model to diverse online entrepreneurship contexts.

The illustrated scenarios (Table 2, Table 3 and Table 4) were carefully constructed to cover a range of business types, product categories, and market conditions, ensuring that the model's versatility and adaptability are thoroughly tested. Through these scenarios, the effectiveness of the model in guiding entrepreneurs from initial idea generation to successful product launch is validated, showcasing its practical value in real-world settings.

**Table 2. Illustrated Scenario #1: Alex's AI-Powered Content Calendar**

| **Scenario #1:** Alex's AI-Powered Content Calendar (SaaS) | |
|---|---|
| **Phase & Sub-Activity** | **Techniques and Tools used** |
| **I. Idea Generation & Validation** | |
| Ideation | Alex, a digital marketer, recognized the need for an AI-powered tool to streamline content planning and scheduling for social media managers. |
| Search Interest Analyses | Google Trends revealed a spike in interest in "AI marketing tools" and "content scheduling". Google Keyword Planner revealed moderate to low search volumes for "AI content planner" with low competition. |

| | |
|---|---|
| Competition analysis | Using SimilarWeb and Ahrefs, Alex analyzed competitors' traffic, features, and pricing models. He identified a gap for an AI tool specifically tailored for small to medium-sized businesses with freemium options. |
| Customer survey | In several relevant Reddit communities, Alex asked questions regarding pain points in content scheduling and potential use of AI content planer. Responses indicated that there is genuine need for such tool especially those with a freemium option for beginners. |
| **II. Concept Development & Testing** | |
| Concept development | Alex developed a Lean Canvas to outline his business model and key value propositions. The help from ChatGPT came very handy for him |
| *Prototype (Clickable)* | Alex used Figma to create a high-fidelity, clickable prototype of the main features of his SaaS product, including the AI-powered content suggestion interface and scheduling calendar.. |
| Waitlist | Alongside the prototype, Alex set up a landing page using GetResponse, showcasing key features and collected over 150 email addresses for a waitlist. He drove traffic using his personal profiles at LinkedIn, X (Tweeter) and Facebook. |
| **III. Product Development & Testing** | |
| MVP | Alex hired an experienced freelance developer through Upwork to create an affordable, basic version of the AI content calendar. The MVP included core functionalities such as content topic suggestions, optimal posting time recommendations, and a simple scheduling interface. The MVP's basic features were offered for free, while the unlimited AI functionalities were available through a monthly subscription. He presented the MVP to his subscribers and used a free LinkedIn ads coupon to drive additional traffic. |
| *Beta version* | After the fully functional product was developed, it was introduced as a Beta version, to the 30 most active users, offering them a 3-month free trial in exchange for regular feedback and usage data. |
| ***Launch*** | Based on insights from the MVP and the beta version, Alex introduced three subscription plans: (1) ***Freemium - $0***, offering basic AI functionality with limits, (2) **Growth - $5**, providing unlimited AI functionality, and (3) ***AI Boost - $19***, which included advanced AI features. He announced the full product launch on Product Hunt, securing the top position for the day and third for the month. Additionally, he showcased the tool on Indie Hackers and relevant Reddit communities, while continuing his LinkedIn Ads campaign. |
| Post-Launch Evaluation | Alex continuously monitors user feedback, churn rates, and feature usage and requests. He regularly updates the AI queries/algorithms based on user data and emerging social media trends. |

**Table 3. Illustrated Scenario #2: Emma's Personal Styling**

| **Scenario #2:** Emma's Virtual Style Coach (Online Service) | |
|---|---|
| **Phase & Sub-Activity** | **Techniques and Tools used** |
| **I. Idea Generation & Validation** | |
| Ideation | Emma, a fashion stylist, identified a growing demand for personalized styling services that could be delivered remotely. Many of her existing clients frequently asked for quick online consultation via video call. |
| Search Interest Analyses | Google Trends showed steady search rise for "personal stylist" and "fashion stylist" while low interest for "virtual personal stylist" or "online fashion stylist" which indicated that the demand could still be absent or latent. |
| Competition analysis | Emma used search engines and social media analysis to identify competitors. She discovered that there are dozens of existing personal stylist/influencers with varying numbers of followers but also noticed a possible niche for "style coach" that has similarities but also some differences with a personal stylist. |

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|---|---|
| Refine ideas | Insights from the competition analysis helped Emma refine her idea towards a "virtual style coach" and, alongside personalized video consultations, to include AI-powered personalized style recommendations. |
| **II. Concept Development & Testing** | |
| Concept development | Having mixed signals from the idea validation stage, Emma knew that she needed stronger evidence to support her business idea but she first decided to fully develop her business concept and put it to the test. She developed a Business Canvas Model for a Virtual Style Coach enhanced with comprehensive AI features. |
| Customer survey | Emma created a survey using Google Forms. She employed snowball sampling by initially sharing the survey with her existing styling clients and asking them to pass it on to friends interested in styling. This method helped her validate her business concept and gather insights on pain points in style coaching and interest in virtual services with AI features. |
| Presales | Encouraged by the positive feedback from the Customer survey, Emma created a simple website on Shopify and set up a presale campaign describing her virtual styling service, including the AI-powered features. The presale campaign was highly successful, with a considerable number of packages sold, filling around 80% of her schedule. |
| **III. Product Development & Testing** | |
| Service Development | Based on the presale success, Emma skipped product testing methods and by using the presales funds, fully developed her service structure, to include:<br>- Creation of style assessment questionnaires<br>- Video consultation software setup<br>- AI-powered style recommendation system<br>- 3D personalized style modeling<br>- 24 hours AI client support<br>- Mobile app<br>-Development of a client management system |
| ***Launch*** | When the service was sufficiently developed, Emma began by servicing her presale clients, gathering initial feedback. Simultaneously, she opened bookings to the general public with higher rates. She also offered an AI-only package excluding the personal coaching. She leveraged testimonials from satisfied presale clients for marketing and partnered with micro-influencers for promoted posts. |

**Table 4. Illustrated Scenario #3: Tom's Eco-Friendly Water Bottle**

| **Scenario #3:** Tom's Eco-Friendly Water Bottle | |
|---|---|
| **Phase & Sub-Activity** | **Techniques and Tools used** |
| **I. Idea Generation & Validation** | |
| Ideation | Tom, an avid outdoor enthusiast, became increasingly frustrated with the prevalence of single-use plastics and the lack of stylish, eco-friendly alternatives. |
| Search Interest Analyses | Google Trends revealed increasing interest in both eco-friendly and lightweight bottles. |
| Competition analysis | Using the Competitive Grid, Tom analyzed the competition, their strengths, features, prices, and weaknesses to discover a market gap for silicone bottles. |
| Refine ideas | Insights from Google Trends and competition analysis helped Tom refine and expand his initial idea |
| Preselect ideas | Idea Scorecard comparison of bottles made of different eco-friendly materials led Tom to choose stylish, lightweight silicone water bottles. |
| **II. Concept Development & Testing** | |

| | |
|---|---|
| Concept development | Tom used insights from the Competitive Grid and the Idea Scorecard, along utilizing Microsoft Copilot (LLM), to develop a Value Proposition Canvas focusing on customer needs and product features. |
| *Prototype* | Tom created ultra-realistic 3D mockups of silicone water bottles using the free Leonardo.ai app. |
| Mock Sales | Tom set up a single product page on Shopify using the 3D mockups and product descriptions from the business concept. He used Instagram ads to target environmentally conscious outdoor enthusiasts, "selling" 30 items to prove the concept. |
| **III. Product Development & Testing** | |
| Test Marketing (for physical products) | Tom partnered with a Chinese manufacturer for an initial order of 100 bottles, selling them on eBay and Amazon. After adjusting pricing and A/B testing product features, all 100 bottles were sold. |
| ***Launch*** | Based on the insights from the test sales and the user feedback, Tom refined the design of the bottles, optimized order quantity for better cost structure, and fully launched the product in several color variants. |
| Post-Launch Evaluation | Tom continuously monitors sales, competition, and user feedback, working closely with the manufacturer to address customer needs. |

## 7. Discussion

The Business Concept Proofing 3.0. model offers a novel approach to New Product Development (NPD), tailored specifically for online entrepreneurs operating in the dynamic and resource-constrained environment of the digital marketplace. This discussion will explore the practical and theoretical implications of the model, address its potential challenges and limitations, and suggest areas for future research.

The **practical benefits** of the Model are valuable, particularly for solo entrepreneurs and small online businesses. By integrating known concepts and digital tools, the model allows entrepreneurs to validate and test their ideas with minimal initial investment. This focus on resource efficiency is critical for entrepreneurs who often lack the financial and human resources of larger organizations (Ries, 2011). The model's emphasis on continuous validation and iterative development ensures that entrepreneurs can adapt their strategies quickly in response to market feedback, reducing the risk of product-market misfit—a common pitfall for new ventures (Blank, 2013). Moreover, the model's structured approach provides clear guidance at each step of the NPD process, which can be particularly beneficial for first-time entrepreneurs who might otherwise struggle with the ambiguity and uncertainty of launching a new product. The illustrated scenarios underscore the model's versatility and adaptability. Whether the entrepreneur is developing a digital product, such as **Sarah's SaaS tool, or a physical product like Tom's eco-friendly water bottle**, the model provides a practical roadmap that can be customized to suit different business types and market conditions. This adaptability is a crucial strength of the model, as it ensures that entrepreneurs can apply it across a wide range of industries and product categories.

From a **theoretical perspective**, the Model contributes to the ongoing discourse on NPD by bridging traditional frameworks with modern, digitally-driven methodologies. By synthesizing elements from the Stage-Gate process, Lean Startup methodology, and Design Thinking, the model offers a comprehensive yet flexible framework that aligns with the needs of contemporary online entrepreneurs. The model's emphasis on digital tools and data-driven decision-making is particularly relevant in the context of digital entrepreneurship, where the ability to leverage technology for market analysis, customer engagement, and product development is increasingly recognized as a critical success factor (Choi & Varian, 2012; Nambisan, 2003).

The model also addresses several gaps in the existing literature on NPD. Traditional models, while valuable, often assume access to resources and structures that may not be available to solo entrepreneurs or small online businesses (Cooper, 1990). The Model, by contrast, is specifically designed to accommodate these constraints, offering low-resource methods that are both practical and effective. Additionally, while Agile and Lean methodologies provide flexibility and speed, they may lack the comprehensive structure needed by entrepreneurs who are new to the product development process (Conforto & Amaral, 2016). The Streamlined Model strikes a balance between these approaches, providing a clear, stage-based framework that still allows for the iterative cycles of validation and feedback that are essential in today's fast-paced markets.

Despite its strengths, our Model is not without its challenges and limitations. One potential challenge is its heavy reliance on digital tools and platforms, which may not be suitable for all types of businesses, particularly those with significant offline components or those operating in markets with limited digital penetration. Moreover, the model assumes a certain level of digital literacy and marketing skills, which not all entrepreneurs may possess. This could limit the model's accessibility for individuals who are less familiar with digital tools or who lack the resources to invest in digital marketing strategies.

The model's reliance on digital data sources, such as Google Trends, also assumes the reliability and representativeness of this data. However, there may be instances where these data sources do not fully capture the nuances of a particular market or where the data is skewed by external factors, leading to inaccurate conclusions. Entrepreneurs using the model should complement digital data with qualitative insights, such as direct customer feedback, to ensure a more holistic understanding of market dynamics.

Given the model's innovative approach and its potential impact on the field of NPD, several areas for future research emerge. Empirical studies could be conducted to validate the model's effectiveness compared to traditional NPD approaches. Such studies could focus on key metrics like time to market, product success rates providing quantitative evidence of the model's benefits.

Additionally, research could explore how the model might be adapted for specific industries or types of online businesses. This research could identify any necessary modifications or additional components needed to tailor the model to different contexts.

Another promising avenue for research is the integration of emerging technologies, such as artificial intelligence (AI) into the model. AI, could enhance the model's validation processes by providing more sophisticated market analysis tools or by automating customer feedback collection. These technologies could further strengthen the model's capabilities, making it even more relevant for the next generation of online entrepreneurs. Finally, longitudinal studies that track the long-term success rates of businesses using the Business Concept Proofing 3.0. model could provide valuable insights into its effectiveness over time. Such studies could help identify any factors that contribute to sustained success or failure, offering a more comprehensive understanding of the model's impact.

In conclusion, the Business Concept Proofing 3.0. model represents a noteworthy advancement in the field of NPD, particularly for online entrepreneurs operating in the digital age. Its practical and theoretical contributions are considerable, offering a structured yet flexible framework that addresses the unique challenges of online product development. While the model is not without its limitations, its potential to guide entrepreneurs through the complexities of launching successful products is clear. Future research will be crucial in further refining and validating the model, ensuring that it continues to meet the evolving needs of entrepreneurs in an increasingly digital world.

## 8. Conclusions

The New Model for Validating and Testing Product Ideas named as "Business Concept Proofing 3.0" offers a comprehensive yet flexible framework tailored to the unique challenges of online entrepreneurship. By integrating elements from established New Product Development frameworks with modern, digitally-driven methodologies, the model provides a structured approach that guides entrepreneurs from the initial idea generation to the final product launch. Each stage of the model – (1) Idea Generation and Validation, (2) Concept Development and Testing and (3) Product Development and Testing - builds upon the previous one, ensuring a cohesive and iterative process that minimizes risk and maximizes the likelihood of success.

The **Business Concept Proofing 3.0** model offers a structured yet flexible framework tailored for online entrepreneurs and small businesses. Its emphasis on continuous validation and the strategic use of digital tools enables entrepreneurs to make informed decisions at every stage of the New Product Development (NPD) process, significantly reducing the time and resources needed to bring a product to market.

The model's three levels of proofing—**Idea Validation**, **Concept Testing**, and **Product Testing** — provide a clear pathway for entrepreneurs to assess the viability of their business concepts. In the first level, **Idea Validation**, entrepreneurs can efficiently validate their ideas using no/low-cost resources, ensuring that only promising concepts proceed. The second level, **Concept Testing**, enables stronger proofing by focusing on reaching target users without committing to full product development. Finally, the third level involves minimal investment in product development, allowing entrepreneurs to generate robust evidence for further development while managing risk effectively.

The adaptability of **Business Concept Proofing 3.0** across various industries and market conditions makes it a highly valuable tool for solo entrepreneurs and small online businesses navigating the complexities of the digital marketplace. By providing a clear, iterative process that minimizes risk and maximizes feedback, the model empowers entrepreneurs to launch well-validated, market-aligned products with confidence.

In conclusion, the as "Business Concept Proofing 3.0" Model not only fills a critical gap in the existing literature on New Product Development but also provides practical, actionable guidance for entrepreneurs seeking to launch successful products in the competitive online environment. By fostering agility, resource efficiency, and customer-centricity, the model empowers entrepreneurs to innovate with confidence, ensuring their products are well-aligned with market demands and poised for long-term success.

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