

The LDP in Digital Business Startups: The Case of raiserve

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Abstract

Uncertainty in the early development of digital business startups can benefit from data-driven testing of hypotheses. Examining literature in lean startups, lean user experience and lean software development, we highlight underlying assumptions of existing lean models. We conceptualize the Lean Discovery Process that recognizes that uncertainty arises in the business model, product and customer/market. The Lean Discovery Process focuses on testing from the early business idea through to fully realized product stages of an innovation development. We conceptualize the minimum viable customer and support early testing with concepts from market research and collective intelligence. Using the case of raiserve, a social entrepreneurship venture, we demonstrate early opportunities to apply lean principles and rigorous hypothesis testing in a Lean Discovery Process that results in significant reductions in time and expense of product development.

1. Introduction

Uncertainty and risk are part of the game with every new startup, small business or innovation within a large company. Almost ninety percent of ideas for groundbreaking new products or services are marketplace flops, or simply never see the light of day [1]. These misfires are usually very costly. In the past, innovations would take months, if not years, to perfect. Once a company believed that the product was completed, the product was then unveiled to the target consumer in hopes of fulfilling a currently unmet need. Since the company usually had limited interactions with the target consumers during the creation process, it often resulted in these product offerings being flawed or missing their mark. The outcome would then be subpar results in terms of customer acquisition and adoption and many times would lead to the failures of the product.

These factors have led many in the innovation space to adopt the “lean startup” methodology [2]. This methodology suggests experimentation over detailed plans created internally. The goal is to create

a “minimum viable product”, or MVP, in an effort to get the innovation into the consumer’s hands faster. The hope is that by creating an MVP you save on many of the costs typically associated with an innovation. Once in the consumer’s hands, the company can get feedback quickly in an effort to iterate or “pivot” the direction or features of the offering sooner. This cycle is repeated until the product does finally fulfill a currently unmet need. If done correctly, this methodology helps reduce the time, money, and opportunity costs associated with a new innovation.

While this lean approach has been effective at reducing time and costs, we argue that there is still significant scope to expand this method for additional efficiencies. We move the lean model further back in the continuum from fully realized product to business idea. In our model, which we label the “Lean Discovery Process” (LDP), the business model, the product, or the customer might be uncertain and rather than just focusing the lean methods on a Minimum Viable Product, we expand this to conceptualize the idea of a LDP. With the LDP, development begins with hypotheses about the business idea and progresses from there towards defining the product, the target market or the business model. As a result of the inherent uncertainty and ambiguity in these early development stages, we highlight the need for data-driven testing earlier in the process that is currently suggested. We focus the testing model around an aim to move as quickly and inexpensively as possible to a successful match between a product and the market for that product. In essence, we suggest a model that minimizes waste earlier in the product/model/customer process.

The Lean Discovery Process (LDP) capitalizes on a typical assumption in prior models that the process of product development is malleable and changing in an effort to match a relatively stable customer demand. We see both the supply of an innovative product and the nature of market demand for a product innovation as uncertain, yet seek a rigorous methodology to test business model hypotheses as an understanding of both the product and the customer evolve.

In this paper, we show how an extrapolation of different methodologies across the business, computer science and design disciplines leads to the creation of the LDP. Our review of this literature is broken down

into four areas: product development, customer development, business model development and data-driven testing. Following this literature review, we summarize the LDP method and then apply the method to the case of raiserve, a social entrepreneurship startup that focuses on the management of cause-based voluntary service. This case has a particular focus on the effective design and management of the data-driven testing in order to produce rigorous and reliable results around the business model, and product development. The case is an effective demonstration of the speed and resource minimization that is possible while still moving effectively from business model hypothesis to commercial product. The last section of the paper summarizes both the practical and theoretical implications of our findings and explores additional research that might further refine the approach.

2. Literature Review

In LDP, we outline a rigorous data-driven methodology that moves an innovator from the ambiguity of an idea or hypothesis about a potential business model towards a commercial product with minimum total resources. The focus of this methodology is in four parts:

- Minimum viable product focusing on speed of development and minimizing product development costs
- Minimum viable customer focusing on reducing customer acquisition and customer commitment costs and optimizing bringing the product to market
- Verifying and communicating the hypothesized business model with minimum viable interaction
- Rigorous data-driven testing

This approach reflects a realization that there is both a supply and demand for new products and a necessity to match these life cycles in order to realize a commercial success [3].

Prior research in this area spans a range of disciplines, from business, computer science and design. Methodologies have been developed in a range of application areas to create value with minimum waste including work such as: lean startup [2], lean software development [4], lean user experience [5, 6], and value proposition design [7]. In the following subsections, we review the product, customer and data testing concepts underlying some of the key methodologies discussed above.

2.1 Product Development

The development of new products in digitally oriented industries has become increasingly dependent on fast time to market. Organizations, and particularly startups, are focused on how best to manage this development to optimize investment while at the same time deliver a successful outcome.

Methodologies are continuously revised, combining concepts from different fields and evolving to improve the approach to delivering effective results in a fast and inexpensive way. This ranges across such diverse approaches as lean production, the lean startup, the agile movement, extreme programming and lean user experience (Lean UX).

The concept of lean, which originated in production and manufacturing, links a variety of management practices to create a synergistic method of meeting customer demand with limited waste [8]. The initial concept was to eliminate any non-value adding processes while at the same time improving quality. Lean thinking can be considered to have five key principles: value is defined by customer, the value of each step in the process must be understood and mapped, the production process flows continuously, customer orders pull the production process, and continuous elimination of waste [9].

Applied in an entrepreneurial context, the Lean startup model seeks to eliminate uncertainty in the development of the business model through early and frequent customer feedback and striving to test the minimum viable product. The reapplication of lean to the context of entrepreneurial startups focused the method on evaluating hypotheses about a viable business model with potential customers [2,10]. Lean entrepreneurship focuses on experimentation, customer feedback and iterative design [10], reducing planning and involving the customer in product and business development[11]. The entrepreneur tests hypotheses about the business model through a process that Blank [10, 12] describes as customer discovery, customer validation, customer creation and company building. However, the base assumption of the lean startup model is that the customer is definable and stable – there is a target market that you iterate towards, pivoting when necessary.

Applied to software development, lean is focused on responding to meet changing customer requirements through greater collaboration and less reliance on a detailed requirements specification . Lean and agile methods are often interrelated in practice [4,12] and in both cases focused on increasing efficiency in software development.

Applied to a digital user experience, Lean UX encompasses user experience design, design thinking, agile software development and the lean startup [6].

Lean UX attempts to design great user experiences in response to the rapid iterative cycles of agile development by obtaining early feedback to make quick decisions [13]. One of the key tenets of design is a focus on the customer and the co-creation of solutions using quickly developed prototypes. The Lean UX process uses the least required design artifact to move learning forward and create value [5] which may include low fidelity mockups [14] or paper prototypes [15]. Clarification of the product with the customer is oriented to what has been termed a minimally viable interaction [6] or a minimally viable user experience (MVUX) [15].

2.2 Customer / Market Development

One of the key principles behind the lean startup is the recognition that entrepreneurs operate in situations of extreme uncertainty. Part of this uncertainty relates to the product but it often also relates to a lack of assuredness about the target market. This process of determining the right market and customer has been labeled “customer discovery” [16]. In their discussion, Batova, Card & Clark [16] note that customer discovery furthers the lean startup methodology by attempting to eliminate unnecessary research and development; that is, the development that doesn’t have associated customers.

Cooper and Vlaskovits [18] define customer development as “...a four-step framework to discover and validate that you have identified the market for your product, built the right product features that solve customers’ needs, tested the correct methods for acquiring and converting customers, and deployed the right resources to scale the business.” (page 7). This is based on a model for customer development by Steve Blank [12] which begins with the customer discovery phase in which the business model hypotheses about the problem you are solving, the product you are developing and the customer you are targeting are validated. While Blank envisions customer development and product development as parallel processes he is quick to point out that: “Startups...begin with a known product spec and tailor their Product Development to unknown customers”[12, page 23].

In discussing the lean startup method of testing ideas with real customers, Hokkanen [15] acknowledges that newer lean and agile software development and UX design methods don’t necessarily work in startups because of the “...extreme uncertainty of product requirements and target user groups” (page 21). Nevertheless, there is a need to move beyond founder, friends and family feedback to involving real users and incorporating lightweight user research methods. For example, "Short interviews or

user tests with paper prototypes provide fast feedback to startup teams while not requiring a major investment of time or other resources." [15, pg. 34]. Arteaga and Hyland [19] propose a validated knowledge loop to reduce the extreme uncertainty that startups face by examining assumptions and testing the market -- where the product or business model doesn’t fit, entrepreneurs will pivot to adjust to a new market position.

The Lean UX methodology places the importance of creating a minimum viable product that is the least required to learn the next most important thing [8]. In describing this approach, they reference the concept of the “truth curve” [20] where investment in the product moves in step with market-based evidence of your idea. They also draw on the concept of “GOOB” or “Get Out Of the Building” [10] to indicate a need to interact with customers early.

Sanders and Flapper [21] discuss the early involvement of users in the front-end of the design process, noting that the trend is towards co-creation or co-design where the collective creativity of users and designers is combined in early pre-product phases such as design criteria, ideas, product concept or prototype. These participatory or generative design approaches focus on the user as a partner in the entire design process.

Each approach to customer and market development treats the process of hypothesis testing differently. One of the key roles of a hypothesis testing approach is to utilize substantive techniques to ensure the validity of the tests. The use of interviews to elicit customer pain points is designed to reduce confirmation bias [16] or eliminate the collection of bad data [17]. Reis [2] advocates testing that is based on metrics that are actionable, accessible and auditable and focuses on split testing or A/B testing. Batova, Card & Clark [16] critique the lean startup methodology for lacking more detailed explanation of the testing methodologies and suggest the use of qualitative research methodologies and user experience design such as: “five second test, shadowing, ethnography, observation with a controlled environment, indirect observation, artifact analysis, and think-aloud protocols.”

2.3 Business Model Development and Communication

The importance of the business model to digital startups is tantamount. Not only does its creation often precede product or customer development it also typically represents the core aspects of value creation in the business. The necessity of approaching business model development with a lean philosophy is critical to business success. "Since new business models tend

to be highly experimental at the outset, a planning approach that recognizes their fundamental uncertainty - and that keeps costs contained - makes sense." [22, p 258]. Rather than a traditional planning approach, business models take a discovery-driven approach [22].

In digital startups, communication plays a critical role in the resolution of uncertainty. Not only must a business model effectively create customer value, but that value must be understood by the customer. If a message is delivered in a digital product, it doesn't mean that it is received, a reality that is constantly tested in user interface design. Baden-Fuller and Mangematin [24] note that a business model must link the interior workings of a business with the outside, and identify three components of value creation (value chain and internal operations), value proposition (how customer value is created) and value capture (monetization of value). The business model is effectively a cognitive categorization of a business [24] with multiple dimensions [25] so it by definition represents the uncertainty of a startup business.

Business models can be seen as a bridge between a product innovation and a customer market [26, 27]. While many have viewed business model development as a sequential process, others recognize its inherent cyclical nature [26, 28]. Business model innovation can be developed through experimentation and discovery, where assumptions are tested and built [22, 28].

The method that startups use to innovate a successful business model has also been proposed to be an evolutionary one. In a study of software startups, Duc et al. [29] suggest three dimensions of the business model -- product, customer and resource -- across four stages of the startup: idea phase; pre-startup phase; startup and scaling. Their study found an interplay between the different dimensions and the use of rapid prototyping, but the evolutionary processes were not delineated. Ojala [30] notes that information technology entrepreneurs often develop business models for markets that don't yet exist and in which technologies are constantly changing. He suggests that initial business models evolve through reassessment and development phases. Osterwald [23] notes that the epicenter of business model innovation can differ between resource-driven, offer-driven, customer-driven, or finance-driven, with many models having multiple simultaneous impacts. Schneckenberg et al. [31] focus on the interdependencies and complexities within a business model that prompt companies to use coping strategies to deal with the uncertainties, including customer centricity, value co-creation, capability evolution, ecosystem growth and adaptive pricing.

While there is an acknowledgment of the complexity and uncertainty of business model innovation, there seems to be limited discussion of specific approaches to apply lean practices to business model development. Hypothesis testing, a build-measure-learn approach and evolution through successive business models describe the generic approaches, but to what extent does a business model need to be developed to make the link between a potential product and a potential customer or market? What are the trade-offs between uncertainty and the ability to ascertain that the approach to the opportunity has value and this value is understood by potential customers? Is there a minimum viable business model or a minimum viable interaction?

2.4 Data-driven Testing

As the experimentation mentality has taken hold in the innovation space the use of online services to evaluate ideas quickly using what is commonly called A/B testing (or controlled experiments, split tests, randomized experiments, control/treatment tests, and online field experiments) has become commonplace. A/B testing utilizes the Scientific Method to form a hypothesis to evaluate if a specific change is introduced, will result in improvement in specific key metrics? By evaluating these specific changes with real users, it helps establish a causal relationship with high reliability. Many top companies such as Facebook, Google and Amazon run tens of thousands of A/B tests each year testing user interface (UI) changes, enhancements to algorithms (search, ads, personalization, recommendation, etc.), changes to apps or changes to content management systems [32].

These tests are now considered an indispensable tool for startups and smaller websites [32]. The basic set-up of A/B testing is this: an organization creates two variants of consumer-facing application (e.g., the two different website layouts). The organization publishes both variants. Users then come across one of two variants; the users are randomly split between the variants (e.g., two different website layouts). The users then naturally interact with the variants and their interactions are measured on predetermined key metrics (e.g., click through rate). Based on results of statistical testing, one of the two variants is found to be more optimal for the desired metrics and is then implemented.

The benefits of using A/B testing are substantial. Through A/B testing the organization can make data-driven decisions. Depending on the size of the company and the impact of the metric the information gained from A/B testing could be worth thousands or even in some cases millions of dollars. Rather than relying on past precedents or opinions of senior staff,

the use of A/B testing to gain real and current data is a much more optimal approach to decision making. Lastly, most people are really bad at understanding the value of an idea [32]. Having a way to independently evaluate our own opinions or biases and assess an idea in a reliable way is invaluable.

3. The LDP

From the review of the existing literature, we make a number of key observations. First, much of the focus of the application of lean is targeted towards uncertainty in product development and recommends direct interaction with customers. Second, the use of independent data-driven testing is key to gaining the proper understanding of the market for the innovation and readiness of the marketplace. Gaining unbiased data can help clarify and resolve uncertainty in a neutral manner. Lastly, flexibility in the creation process of product development is paramount. Once you interact and gain customer feedback the ability to adapt and pivot your offering is often the key to the success.

With the LDP we see opportunities for more clearly specifying an approach to hypothesis testing when uncertainty exists in product development, customer development, or business model development. As such, the methodology focuses on moving further back in the business model development, to as far back as the Venture Idea and Venture Concept stages [33]. At the Venture Idea stage the venture is in “a preliminary and mostly incomplete mental representation of the concept for a potential future venture”; whereas the Venture Concept stage is the “the simplified nascent-stage representation of a business model”. [33] By using a lean approach and the key tenets discussed earlier coupled with established approaches in market research and collective intelligence we developed the LDP.

In LDP testing, unlike traditional A/B testing, the organization does not actually create the two variants of the website. Instead, prior to all development work, mockups or what are called wireframes are created of the two variants. In LDP testing instead of taking the next step of actually developing the two variants of the website, which is both timely and costly, the mock-ups are put into survey software. Using the advances of online survey software these mockups can be randomly assigned to any respondent. This randomization is identical to the one used in A/B testing but require much less time and effort to ensure it is properly executed since the software already has these capabilities. By not having to create and code two or

more websites the organization can save tremendous time and money on the web development side while also having the ability to test various aspects of the venture.

This can be tremendously beneficial in digital entrepreneurship, startups can move forward with different combinations of understanding (or levels of uncertainty) about the product development, customer development, or business model development. The locus of the venture idea can focus on one of these dimensions or each may be partially developed and evolve simultaneously. It may focus more on a known product or service concept that is in need of a targeted customer; it may focus on a known group of customers and their pain point, but an uncertain product or service concept; or it may be a situation where customer and product are relatively established, but an effective business model to monetize the idea is lacking.

Recognizing these different paths or contexts for different venture ideas, leads to an understanding that that there may be significant opportunities for a “lean” approach depending on the context. Where product uncertainty is high, a “lean” approach may best be accomplished with a minimum viable product and some form of co-creation with the customer. Where customer uncertainty is high startups can engage in customer discovery and a “lean” approach may best be accomplished with the minimum viable customer using a minimum viable interaction. When multiple aspects of the business model are uncertain, the opportunities for applying a LDP may be extensive. Using the LDP one has the ability to test particular aspects of the business model in isolation or in parallel without waiting for other aspects to be vetted. This is a result of not having to create complete websites for the A/B testing- but instead using wire frames or mock-ups of the particular aspect of the business you are trying to measure

As with any product, there is a cost to customer acquisition and to interactions with the customer. When a company is just starting out, getting a significant number of unique potential customers can be a very timely and costly endeavor. For A/B testing to be effective you need a multitude of respondents to make statistical inferences. This is an easy task for a major company that has thousands or even millions of users on a daily or weekly basis. However, how can an early stage startup get even hundreds of users to its site for A/B testing? The fact is that some startups never even reach the point of traction that A/B testing is even possible. And even if they do get enough users to the site to run a statistically significant A/B test they are jeopardizing the fact that half of the users might have a bad experience as a result of an incomplete

or underdeveloped product or business model. Losing half of your potential user base early on can be the death of most startup companies. That is why the use of an online panel service, in the LDP, to conduct initial hypothesis testing can be a fast and inexpensive way to resolve uncertainty is so useful. Even if these respondents are your final target segment- many of them will not remember or associate their experience with the LDP with the end product or site since they are only seeing parts of the site and where not driven to the site for an actual trial use experience. These panels can provide statistical assurance while also giving access to significant amount of respondents that can range from general population to very specific target segments with access to hundreds or even thousands of people in minutes or hours instead of weeks or even months. Additionally, ventures can scale up or scale down the respondents quite easily- whereas with A/B testing you are limited to those coming to the website at a particular time frame.

There is substantial theoretical backing in the management and consumer research literature that collective intelligence or crowdsourcing can provide excellent insight to a problem [34, 35]. Goodman and Paolacci [36] determined that 43% of a recent year of behavioral studies in the prestigious Journal of Consumer Research were conducted with the crowdsourcing website Mechanical Turks. Bonabeau [37] identifies a number of considerations to take into account when using collective intelligence to make decisions, most notably potential issues with engagement and the level of expertise required. However, Martinez and Walton [38] note that specialized crowdsourcing platforms such as Kaggle can access some very specific types of expertise.

One key aspect that LDP can be helpful in is the development of a coherent and persuasive communication of the innovation's value proposition. The value proposition can be defined as achieving a market advantage through price value, performance value or relational value [39]. More traditional value proposition models rely on a preliminary definition of what the innovation and product form will be in, then specify a group of customers or a market segment to whom the proposition will be appealing [40]. However, more recent literature [41] shows how a new innovation might develop a provisional view of what might be of value to the customer but having an interactive mindset is most suited to crafting and implementing innovative value propositions. With this in mind, the LDP is well suited to facilitate this interactive mindset and can help ensure that the innovation is being communicated effectively with its target consumers.

A/B testing begins with key tenets, or assumptions, an organization needs to adopt [42]. As a result, there are a few key differences with A/B testing and LDP testing.

One key difference in LDP testing is the additional information that can be accessed. In a similar fashion to traditional A/B testing you can observe the respondents and assess which variant the users respond to most favorably. However, LDP testing also allows for respondents to be questioned or asked about a behavior they would execute based on the variant they are shown. This is different from A/B testing since in most A/B testing respondents aren't typically asked to give feedback, but instead it is typically purely observational research based on an experimental design. There are cases where feedback is solicited, however we argue that this tends to be less effective. Feedback response rates tend to be low since these are potential or existing consumers, users are asked for open ended feedback that do not address specific questions.

Running online A/B tests or using the LDP is not applicable to every organization. Additionally LDP and A/B testing are not mutually exclusive. One can use LDP in early stages of the venture and then use A/B testing later on, as the venture takes shape. Or LDP can be employed by large companies that see the time and cost saving of the LDP. LDP may be a step in the process a company goes through when analyzing changes where LDP is used to support the desire to do A/B testing on existing customers. A/B testing begins with key tenets, or assumptions, an organization needs to adopt [41]. As a result, there are some key differences between A/B testing and LDP testing. We summarize these differences in Table 1.

4. The Case of raiserve

For this research, we examine a pro-social digital startup called raiserve using the empirical setting of the online panel Amazon Mechanical Turk (www.mturk.com). Mechanical Turks operates as a platform between companies aiming to outsource basic work and a network of over 500,000 workers that select from thousands of tasks presented daily. As the research object of LDP testing is new, this paper follows the example of other studies in the innovation literature [e.g. 38, 43, 44] by adopting an exploratory case study design to provide a rich illustration of the phenomenon under analysis [45]. The study focuses on the efforts by raiserve (www.raiserve.org), the pro-social start-up that is innovating the way not-for-profits fundraise. Between 2015 and the start of 2016, raiserve ran multiple A/B tests utilizing MTurks "requester" platform, to gauge potential consumer's

comprehension and behavior (www.requester.mturk.com). Over 5,300 workers participated in 10 A/B tests ranging from business model feedback, interface and messaging comprehension and appeal.

4.1 raiserve Background

raiserve is a unique fundraising platform that allows nonprofits, schools and universities and their volunteers to raise money by getting sponsored for each hour of volunteer work they complete. Since donations go directly to the nonprofit, the volunteers and their sponsors are now making an even bigger impact than if they either simply volunteered or simply donated money. Sponsoring hours of service is a unique way to raise money.

4.2 Studies

An initial study was designed to test the business model and main differentiating factor, sponsored volunteer service hours, on a donor's willingness to donate to a charitable cause. If this differentiating feature did not have an impact on a donor's willingness to donate to a charitable cause – there was no business.

Data were collected from (N=405) subjects who accessed the LDP test through the online crowdsourcing platform MTurks in exchange for a cash payment. To ensure the independence of the observations the survey was designed to allow for one response per Internet protocol (IP) address. Fifteen (3.7%) respondents were removed from the study for failing to properly answer a quality check question resulting in a total usable sample of 390 responses. The LDP employed a single factor between-subjects design in which volunteer service hours were manipulated to be part of the donation solicitation or not. Participants were randomly assigned to one of the two conditions and asked to evaluate a charitable gift solicitation from a friend on social media. This solicitation included the experimental treatments, where the solicitor offered details on the impact of a charitable gift. After reading the solicitation, participants were asked if they would donate money, share their friend's request on social media, both donate and share socially or do nothing. Measurement items for each construct were randomized for each respondent to help eliminate order effects. Finally, subjects were asked a quality check question. The quality check question asked subjects to identify the reason their Facebook friend was asking for their financial support.

4.2.1 Stimuli. Since the goal of the LDP was to test the impact of this main differentiating feature, two very realistic looking mockups of the website were created, with the only difference being the websites main differentiating factor, sponsored volunteer service hours. In the LDP, participants were randomized between the two conditions and were asked to imagine they were on Facebook and received a message from a friend. The mock-ups used in the study were simply a screenshot of a fictitious individual's fundraising page; these screenshots were taken from the world's largest peer-to-peer fundraising site, and then edited in Photoshop. By using a screen shot we were able to reduce the monetary costs of the stimuli while simultaneously creating realistic looking website mockups with almost zero costs. Lastly, using this screenshot allowed us to have an external benchmark. By using the world's largest peer-to-peer fundraising site we knew the basic design was successful and allowed for more validity in our findings.

4.2.2 Results. To test the main effect of sponsored service on donation, an independent samples t-test was conducted comparing responses in the benchmark vs. sponsored service conditions. As hypothesized, a greater percentage of participants were willing to give money in the sponsored service condition (35%) vs. the benchmark condition (26%; $t(388) = -1.89$, $p = .05$). Additionally, there was a significant difference in the percentage willing to share on social media in the sponsored service (48%) vs. benchmark (37%) conditions ($t(388) = -2.24$, $p = .025$), and a significant difference in the percentage not willing to do anything in the benchmark (48%) vs. sponsored service (36%) conditions ($t(388) = 2.27$, $p = .024$). The results of this LDP offered preliminary evidence that the main differentiating factor of the business – in the form of sponsored service hours – leads to more favorable responses.

4.2.3 Other Studies. Over the next year and a half time period, multiple LDP tests were run in an effort to answer various questions in the development process. By utilizing a crowdsourcing platform such as MTurks, raiserve was able to understand a number of factors, such as business model feedback, interface and messaging comprehension and appeal. All prior to the development of a viable product and in a fast, timely and highly inexpensive manner. Examples of 4 of the 10 studies performed are summarized in Table 2 in the appendix.

5. Discussion & Conclusion

This paper aims to contribute to the emerging innovation literature by examining how a more “lean” approach than the current practice might be developed. Specifically, the paper considers the potential of online survey software and online panels to facilitate a drastic cost reduction to the current A/B testing format. By utilizing the advances in online survey software, companies can run realistic and reliable advanced experiments in a short time period. By using the services of online panels companies can gain valuable insight from people around the world, who have a variety of skill sets and capabilities. Lastly, these panels can allow companies the ability to scale up and down in minutes.

As one can see from the studies presented in the raiserve case study a wide range of information can be gained in a fast, timely and highly inexpensive manner for a new product innovation using the LDP. This information can be a significant factor in the success of a company and minimize the risk and uncertainty associated with a new endeavor.

With the use of mockups, LDP testing can eliminate a lot of time and money that can be associated with A/B testing and the lean process. Additionally, LDP testing allows for more than simple observation research, but instead give the flexibility to uncover more data from potential users. LDP also eliminates the major obstacle many new endeavors have, of not having enough users or not wanting to show potential users an underdeveloped product or business model, with the use an online panel. With the use of an online panel, comes the ability to scale up and down in minutes.

While the LDP focuses on moving lean further back in the Digital startup process, it is acknowledged that this may not be suitable for all contexts. Since startups face uncertainty in many different forms and across issues related to the business model, product or customer/market, the need for earlier “lean” differs. For example, when a digital startup’s product or technology has a requirement for more technical insight, the use of collective intelligence may not be appropriate. Similarly, feedback for some products may require physical touch or a business model may rely on user-generated content that necessitates greater customer involvement. It is also possible that product functionality might require complex coding that can’t be replicated with a mock-up or that a startup wants to limit public awareness of a new business concept. Further research in this area might examine the types of contexts where the LDP is more effective. A broader empirical study looking at the types of tests and the types of uncertainty faced by digital startups very early in their origins would also lead to further

insight into the LDP, particularly if this study tested differences between LDP and existing lean approaches. This paper has taken a cross-disciplinary view of digital business startups, drawing on literature in lean startups, lean user experience and lean software development. By clarifying that uncertainty arises in business models, customers and products depending on the context of the startup, the LDP process has attempted to clarify assumptions in previous approaches to Lean and help to move lean further back in the startup process. In particular, noting that customer co-creation and feedback may be expensive and time consuming and that rigorous testing using collective intelligence and the ‘minimum viable customer’ can help make the process even leaner and eliminate the need for some testing later in the process. Similarly, incorporating testing and market research approaches such as the use of panel surveys that help test the communication of value propositions in a rigorous way very early in the process can be a quick, and inexpensive way to eliminate uncertainties.

The use of the LDP also has a number of practical implications. This type of rigorous hypothesis testing early in a digital startups life cycle allows for additional experiments within a small window of time in a very inexpensive manner. This may lead to more ideas being pursued, greater insight sooner in the process and a greater reduction in overall uncertainty in both early ventures and more established organizations. While it is likely that many startups pursue some similar forms of uncertainty reduction, LDP outlines a rigorous approach that eliminates bias and may lead to quicker pivots in the business model, product or customer.

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Appendix: Table 1 – Comparison of Features in the Lean Discovery Process and A/B Testing

Feature	LDP	A/B Testing
Ability to test between subjects	Yes	Yes
Ability to quantify results statistically	Yes	Yes
Useful for testing new features and website flows and design	Yes	Yes
Ability to test on large scale participants	Yes	Only if you already have large number of people coming to site
Ability to scale up and down number of responses in short period of time	Yes	Only if you already have large number of people coming to site on daily basis
Ability to test business model idea at the Venture Idea stage	Yes	No
Ability to perform test without coding time or cost	Yes	No
Ability to perform test without traction to website	Yes	No
Ability to perform test without risk of losing current or potential customers by testing on general population	Yes	No
Ability to probe beyond observational research to find out motivation and experience	Yes	Limited (can ask questions but rate of completion can be limited)
Ability to test with outside current user base target or segments or with experts in area	Yes	No
Ability to test particular aspects of the business model in isolation	Yes	No
Ability to test particular aspects of the business model in parallel without waiting for other aspects to be vetted	Yes	No

APPENDIX: Table 2 – Select Hypothesis Testing Examples

Test	Research Question	Stimuli	Conditions	Results
#1	Testing basic business model. Would people sponsor service hours at a higher rate than simply asking for a donation (traditional peer-to-peer online fundraising). Would location of service hours (if different than where donation goes) impact likelihood to sponsor the service.	Text: "Imagine if a Facebook friend sent you the following message:....."	Just Asking for Donation vs. Asking for Hourly Sponsorship For same charity vs. Asking for Hourly Sponsorship Another International Charity	650 respondents in 24 hours - \$143. Location of the service hours to the charitable donation did not impact likelihood to donate. Both service sponsorship conditions were significantly higher than simply asking.
#2	Testing basic business model. Would people sponsor service hours at a higher rate than simply asking for a donation (traditional peer-to-peer online fundraising). Would timing of service hours (past hours completed vs. future hours to be completed) impact likelihood to sponsor the service.	Text only scenarios: "Imagine if a Facebook friend sent you the following message:....."	Just Asking for Donation vs. Asking for Hourly Sponsorship for past service hours vs. Asking for Hourly Sponsorship for future service hours	600 respondents in 24 hours - \$99. Timing of the service hours did not impact likelihood to donate. Both sponsorship conditions were significantly higher than simply asking.
#6	Testing website design for comprehension. Did people understand the unique business model of the website- based on the layout, images and text of the top panel of the website.	Image of the top panel of the website- with diagram and text explaining model- with new text.	Unlimited view vs. 30 second view vs. 15 second view	60 respondents in 3 hours - \$13. All three conditions had over 90% comprehension website business model
#7	Testing business model with images of real sites. Would people sponsor service hours at a higher rate than simply asking for a donation (traditional peer-to-peer online fundraising)	Images of actual fundraising pages of leading competition controlling for visuals and text descriptions.	Just asking vs Sponsored Service	178 respondents in 4 hours - \$29. Sponsorship condition was significantly higher than simply asking.