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Pilot, Pivot, and Pitch: Applying a Rapid Value Realization Approach to Designing Digital Solutions at Johnson & Johnson

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Applying a Rapid Value Realization Approach to Designing Digital Solutions at Johnson & Johnson

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Salvatore Parise

September, 2017



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I. Introduction

Digital technologies, such as data analytics, mobile apps, and social media platforms, are transforming many industries. The healthcare space is one such area that is being dramatically disrupted. Roughly 70 percent of U.S. consumers use an online network to manage their health and wellness (Fox et al., 2016). The number of health-related apps has more than doubled in 2.5 years to over 100,000 (Taylor, 2015). The pace of digital growth is also impressive with digital health investments of over \$6.5 billion in 2014, more than double a year earlier (Champagne et al., 2015).

This digital transformation has major implications for healthcare companies, including pharmaceuticals, medical devices and diagnostics, and health-based consumer product companies. Champagne et al. (2015) outlined several of these themes. Individuals have more control of their health data and treatment programs online, so healthcare companies will have to think of digital strategies to engage with patients and providers. The clinical environment will have to manage a massive increase in structured and unstructured data, much of which is coming from wearables and “quantified self” technologies. This means healthcare companies may choose to partner with technology and consumer electronics companies if they cannot deliver the digital solutions themselves. Finally, pharmaceuticals, medical devices and diagnostics, and health-based consumer product companies need to shift their business models from being product-based to being solutions-based, extending their value to what is typically referred to as “beyond the pill.” For example, digital can help drug companies build trusting relationships with the consumer directly through virtual health coaches and educators. According to Johnson & Johnson CIO Stuart McGuigan, “We’re using our clinical knowledge – about things like orthopedic procedures, bariatrics, and mental health – along with our consumer-marketing expertise to create digital tools that help people on their healthcare journeys, and not just as patients but as people.” (Chilukuri & Van Kuiken, 2017).

Digital disruption can be an opportunity for those healthcare companies who lead in this transformation. Unfortunately, the track record for healthcare companies is not good. The pharmaceutical sector is behind many other industries with regards to digital presence, including highly regulated industries such as banking and insurance (Fox et al., 2016). In fact, it is the technology startup, in areas such as

telemedicine, wearables, and augmented reality (AR)/virtual reality (VR) in healthcare settings, which have the potential to seriously disrupt large, established incumbents in the healthcare industry.

The business world is full of examples of the technology startup negatively impacting the incumbent. Initially, Amazon, with its e-commerce platform and e-books products, was a main factor in putting Borders bookstore out of business. Now the U.S. supermarket sector is getting concerned. With Amazon's recent announcement to purchase Whole Foods for \$13.7B in cash, grocery retailers are very concerned about the likely disruption. The online shoe store Zappos with its excellent online customer service helped force discount shoe store chain Payless ShoeSource to recently declare bankruptcy and close 400 of its stores. Finally, the mobile platform and app Uber has dramatically altered how consumers can order, estimate, track, review, and pay for their transportation needs. Uber and their technology peers have negatively affected the values of traditional taxi "medallions", the right to operate a yellow cab, in many urban areas (Sidel, 2015). In fact, in New York City, the value of a medallion has dropped by more than 80%, from \$1.3 million in 2014 to \$250,000 in 2016 (Holodny, 2016).

What the Uber example shows is that disruption does not necessarily come from a company's "traditional" competitors, but from digitally-based startups. Fast, radical, technology-based disruption has been used to describe this relatively recent business phenomenon (Downes & Nunes, 2013). A new digitally-based business model gets adopted quickly by customers; so quickly, in fact, that the industry leader has little time to react and is often too late to respond. In the past, leaders could "see it coming" and would wait for an innovation to take hold with early adopters, and often from low-end products first, before deciding to commit resources to the innovation. Market leaders are not incentivized to take large risks with transformational innovations, but rather to show steady cash flows from existing products (i.e., "protect the core") (Bradley & O'Toole, 2016). Often termed "innovators dilemma", large companies shy away from disruptive technologies that may harm their existing product lines or do not show a significant ROI because the technology is too new to understand its impact (Christensen, 2007). Now, market leaders do not have a choice. They must be much more proactive in terms of scouting and introducing digital-based services.

So, how can large, established companies in healthcare and other sectors not only survive but thrive in this age of digital disruption? There is much to be learned from how the technology startup operates. Out of necessity, these small companies often must bootstrap and use their resources as efficiently as possible. Bootstrapping is the process of starting a new venture without the aid of significant venture capital funding or other significant investments. This is possible because of the startup's use of low-cost prototypes and experiments. Today's startups can leverage ubiquitous and low-cost technologies such as the cloud, social platforms, and digital product design tools to create prototypes, ranging from simple storyboards to click-through mockups. Startups can rapidly and continuously demonstrate these prototypes

with customers to engage with them and constantly learn in terms of what works or does not work. This is in contrast with large companies who often request large investments to build nearly fully-functional prototypes and pilot them with real customers.

Another practice effective startups do is pivot as soon as they learn from their customers. The mindset of many digital startups is to constantly run “tests” of market and product hypotheses. If a hypothesis is proven incorrect, then the value proposition is revisited and a new hypothesis is developed and tested (Blank, 2013). An early pivot is exponentially less costly than a late pivot (O’Connor & Klebahn, 2011). For example, PayPal was initially envisioned as a cryptography company and soon after as a system to transmit funds through personal digital assistants (PDAs) (Chargify blog, 2010). After a few pivots to their business model and value proposition, the company eventually became a standard global online payment system platform. In contrast, it may be difficult for many market leaders to take on the mindset of continuous learning from experiments and “failures.” Large companies may also be guilty of “design grind” where engineers and product designers take their time to come up with the most elegant solution, focusing on product features more than customer acceptance. There may also be reluctance to show non-finished prototypes to customers for fear of receiving criticism (Biebrich, 2017).

However, it is becoming clear that large companies need to act like startups to address and embrace the digital disruption challenge. We are starting to see this shift. One approach being used is called the “lean startup”, which calls for companies to design early versions of product ideas, test them with customers in a rapid, iterative manner, and pivot on the value proposition and product features until they get it right (Ries, 2011). The result is often a faster, more cost-effective process to product development that meets customer needs in a dynamic business environment. For example, General Electric has created their program FastWorks, in part based on lean thinking, to act more like a startup. GE has trained 40,000 employees and has backed over 300 projects on the FastWorks initiative, which gives employees the freedom to experiment and “fail fast, fast small” (Clough, 2014). One project includes a high-output gas turbine, that was delivered two years faster and 40% more cheaply when compared to traditional approaches (Clough, 2014).

Another approach for large companies to manage disruption is the *rapid Value Realization* approach employed by Johnson & Johnson (J&J) to “act like a startup” and develop technology solutions to drive innovation in healthcare. This approach incorporates many of the lean design principles with regards to *Pilot*, *Pivot*, and *Pitch*.

A. Pilot

The goal of the pilot phase is to quickly build early versions of the digital product solution, test key hypotheses and assumptions with target customers, and learn. Low fidelity prototypes, such as storyboards and wireframes, are used first to test key value propositions with customers before a more sophisticated MVP is developed. A minimum viable product (MVP) is defined as “the minimum amount of functionality that your target customer considers viable, that is providing enough value.” (Olsen, 2015). According to Ries (2011), “The lesson of the MVP is that any additional work beyond what was required to start learning is waste, no matter how important it might have seemed at the time.” A main thesis behind the J&J approach is that MVPs should be low-cost experiments to test key value propositions, in addition to product features, to ensure the product satisfies a market and customer need.

B. Pivot

As experiments are conducted, the findings are collected and analyzed with respect to accepting or rejecting hypotheses around product and market value propositions. A decision is then made to revisit and revise the hypotheses (or even “scrap” the product idea altogether) or to continue with further prototypes/experiments and eventually move the prototype to the development and commercialization stage. The pivot is critical as it involves improving and testing the product concept in a fast, iterative manner. The result is a low-cost approach to digital product development, as resources are used not wasted on ideas that will not succeed. It is also a way for large companies to manage the risk associated with digital disruption as it is a means to have continuous engagement and learning from existing and potentially new customer segments.

C. Pitch

As evidence is gained in a rapid manner through experiments, participants may decide to pitch to a business “investor”, either inside or outside the company, for funding the project to the next step, often another prototype or experiment, and eventually to large scale production. J&J views this process as the “unconventional approach to the pitch.” As opposed to more formal presentations for funding the entire project at the onset, where the “ask” is often a very high number in the hundreds of thousands or even millions of dollars. This unconventional approach is often met with positive surprise from the business funders. They receive early metrics and evidence of product success from the prototypes that have been tested. In addition, the request for funding is often a much smaller number, as it is used only to get to the next stage of product validation, not as support for the entire project.

II. About the Research

This research is based on attending and observing four rapid Value Realization workshops in 2016 and interviewing over 60 participants who were part of several other workshops. At each workshop, interviews were conducted with participants both before the workshop started and after the workshop ended. Pre-workshop questions centered on the participant's current role and project responsibilities, previously used methods of developing technology products, expectations going into the workshop, and their current perception of J&J's culture with respect to innovation. Post-workshop interview questions focused on value obtained from the workshop, most valuable activities, challenges with the workshop and areas for improvement, and differences between the rapid Value Realization approach to technology development versus other processes and methodologies used by the participant.

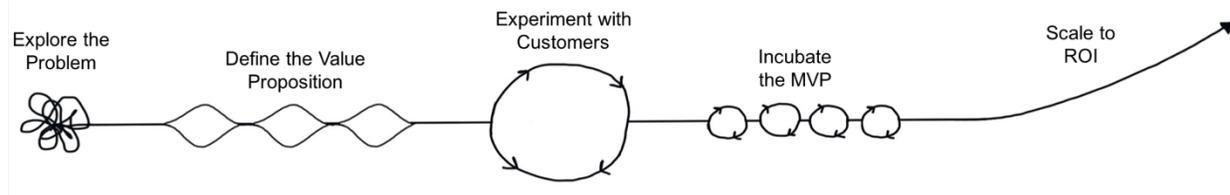
We conducted phone interviews with participants who had recently attended past rapid Value Realization workshops. Interview questions focused on the project description, the project activities after the workshop, any project pivots, and benefits and lessons learned from using the rapid Value Realization approach. These interviews were conducted with participants who had attended the workshops. These interviews spanned several projects: Nurse Athlete, Knees, Hips, Weight Loss Surgery, Audit in a Box, Diabetes Insulin Pump, Diabetes OneTouch, Neutrogena Sunblock, Biosurgical Immersive Experience, Content Management Systems, and Baby Bath Time.

Finally, we had continuous conversations with the rapid Value Realization team, Bob Maguire, Neal Bicker, and Tom Smith within J&J IT. They provided us with updates to the rapid Value Realization approach, including workshop activities, as well as access to certain project materials that used this approach.

III. Rapid Value Realization Approach

Many organizations are attempting to change their design and development processes to reduce time to market, reduce overall costs, and increase customer satisfaction and engagement. While the goals are not new, the methods and strategies are a radical departure from the waterfall model – a sequential, non-iterative approach to development typically followed by many IT departments.

Exhibit 1: Rapid Value Realization Approach



The *rapid Value Realization approach* (See Exhibit 1), is being used to drive projects and is made up of five stages: Explore the Problem, Define the Value Proposition, Experiment with Customers, Incubate the MVP, and Scale to Return on Investment.

A. *Explore the Problem and Define the Value Proposition stages:*

The Workshop is at the heart of the first two stages. These workshops are two, three, and sometimes four-day collaborative, cross-disciplinary events which promote open communication and visioning opportunities for new areas as well as uncover shared pain points for building better customer experiences. They are usually attended by the Program Manager (Sponsor), Product Owner/Manager, Interface Designers, Producers, Behavioral Scientists, CrUX (designs the creative and user experience), Technical Architects, and the Workshop Facilitator(s).

The first step is to define and explore what the problem (or opportunity) is related to the digital space. Different stakeholders may have different opinions of what the problem is, so it is critical to have the *right* stakeholders as part of this process. During the workshop, discussion is centered on defining the value proposition(s) for this problem space. This includes activities related to framing the problem, how to meet the unmet need, who should be the target customer, as well as initial ideas for the solution space.

The workshop activities often involve both divergent and convergent thinking. Divergent thinking is a thought process used to generate multiple, innovative, creative ideas by pursuing any number of plausible solutions. The method is often used in conjunction with convergent thinking methods/processes which promotes following specific steps to arrive at a single, well-researched solution. Used together, for example, these methods enable a team of people, who are charged with creating change and promoting

innovation to move in a spontaneous way from expansive thinking (divergent thinking) to deductive thinking (convergent thinking) once many solutions have been generated.

A key principle during these initial stages is the use of an Agile digital product strategy. The Agile methodology in software development involves reducing uncertainty through incremental, iterative work processes to learn and adjust. Often, Agile is associated with the delivery and commercialization of the final product. However, *the Rapid Value Realization approach moves Agile processes upstream in the digital product development life cycle to apply to business strategies and product design.* This approach creates strategies for identifying and defining business strategies that address unmet needs. By moving this up, this ensures the product and solution design are on target, before even getting the development efficiencies Agile development traditionally offers. Ultimately, a successful workshop ends with the creation and vetting of the value proposition(s), or requires the business owners to adjust their strategy according to the research findings. This saves time, money, and resources, to improve the likelihood of a successful product/solution strategy prior to investing in development and other activities.

Table 1 summarizes sample activities that are run during the workshop to validate the value proposition. While many activities are used in each workshop, many different but similar techniques are available and may be changed to customize the experience for each design team.

Table 1: Activities to Validate the Value Proposition

<p>Customer Ecosystem:</p> <ul style="list-style-type: none"> • Description – A map of the interaction of the users, payers, and influencers who are the target customer of the solution. • Goal – Identify the target customer that will be used to validate the value proposition.
<p>Underserved Need Map:</p> <ul style="list-style-type: none"> • Description – Identify what needs the target customer has that your product could satisfy. • Goal – Build and validate knowledge of the problem space.
<p>Problem Statement:</p> <ul style="list-style-type: none"> • Description – Summarize the underserved needs of the target customer and create an initial target for where they need help. • Goal - Create a filter that helps to prioritize and limit the solutions in the value proposition.
<p>Value Proposition Definition (Kano Model):</p> <ul style="list-style-type: none"> • Description – Decide which needs the product will fulfill. Document how the needs will be met as must-haves, performance benefits, & delighters. Compare how your product will fulfill these needs against your competitors specifying how your product is differentiated. • Goal – Define a view of what the solution does and how it is differentiated from your competitor.
<p>Market Opportunity:</p> <ul style="list-style-type: none"> • Description – Document who will pay for the product, what are the possible business models, why is it valuable to the customer / payer, how much are they willing to pay, and how will the model be tested? • Goal – Get a clear understanding of how revenue will be generated, who it will come from and how much can be expected.
<p>Business Strategy Alignment:</p> <ul style="list-style-type: none"> • Description - Document a map of activities and value from digital solution to business strategy. • Goal – Get a clear alignment between digital solution value proposition and business strategy.

B. *Experiment with Customers and Incubate the MVP stages:*

The goal of the experimenting stage is to build low-cost prototypes and test these prototypes with customers to show proof of concept and validate the value propositions of the digital solution. Initial low-cost prototypes include talk-through scripts, storyboards, and low-fidelity clickable mockups, and can be thought of as “stimuli” for customers when testing hypotheses related to the value propositions.

Eventually, this process includes the building and validation of the minimum viable product (MVP), defined as “the minimum amount of functionality that your target customer considers viable that is providing enough value.” (Olsen, 2015). Previous approaches to design and development attempted to solve all the problems a user might have in a single application, with all the possible features required *now* and in the *future* for every type of customer. This type of approach proved so daunting for most development projects that they often became too complex and too expensive to support. The push for an MVP is a viable example of investing in smaller solutions that meet minimum requirements. A main benefit with this approach is that the user can experiment with and see the proposed solution before extensive time and money has been spent on what is often the wrong solution to the customer’s problem. The principles of Lean Thinking break the product-market fit into five distinct components: the target customer, the customer’s underserved needs, the value proposition, the future set, and finally the user experience. The power of the components is that each is a testable hypothesis which brings us closer to a working MVP.

Building an MVP to constrain the scope forces the design team to articulate the most critical user needs by describing a product’s attributes based on: function, reliability, usability, and emotional design. By taking the entire product need vs. solution set into account when participating in the workshop, users are not limited by focusing on just one product attribute, but rather are encouraged to think about all four of the design goals of the MVP.

Experiments are then conducted on the MVP to produce the evidence to ensure that the value proposition meets user needs and desires in a unique and meaningful way. The best experiments test specific hypotheses which are ultimately confirmed or proven null. MVPs can be broken down into several different experiments that are then tested for validity. Once the experiments have been conducted, the results are shared and the insights are captured. The participants then have the option to pitch a business case for funding the project to the next step, typically a pilot, go back to focus on a new value proposition which may have surfaced due to the results of the experiments, or decide not to pursue the project further. The

decision not to proceed can also be considered a “win” as the projects that do not go forward are stopped for legitimate reasons as opposed to funding all projects due to sponsor preferences, regardless of impact.

In the prototype and MVP stages of the rapid Value Realization approach, the Agile framework is extended to include additional user experience (UX) activities (See Table 2). The digital prototype or MVP goes through testing, learning takes place, and the prototype/MVP goes through rapid iteration until the cost/benefit efficacy of the health outcome is achieved.

Funding may be needed to build low fidelity prototypes and the MVP and to continue running experiments. However, these “pitches” to the business stakeholders funding the digital product are intended to be for low-cost investments. Further, results from previous experiments are used to show early “proof of concept”, as opposed to building an upfront business case using a detailed ROI for the entire digital product, therefore making investment decisions more appealing to sponsors and increasing their comfort level with the solutions.

Table 2: Activities to Verify the Minimum Viable Product

<p>User Flow:</p> <ul style="list-style-type: none"> • Description – Map the steps the primary users follow to use the system. • Goal – Define the “happy path” for the primary users to interact with the product.
<p>Prototype Definition:</p> <ul style="list-style-type: none"> • Description – Define the screens and what they do for the prototype/MVP. • Goal – Provide a high-level map for the development of the prototype/MVP.
<p>Testing Approach:</p> <ul style="list-style-type: none"> • Description – Define how the prototype/MVP will be tested to ensure it solves the users’ problem & delivers on the value proposition. • Goal – Ensure that the prototype delivers on the value proposition and that it is useful, usable and pleasing.

C. *Scale to Return on Investment (ROI):*

The goal of the final stage is to scale, commercialize, and deliver the final digital product. The emphasis at this point in the approach is an iterative development and customer testing cycle of strategies, products, and technology solutions. There is also an emphasis to “fail-fast, learn-fast”, to understand what product and market hypotheses, assumptions, and value propositions have passed or failed.

In the incubate the MVP phase, the team has built a solution that delivers on the customers and stakeholders value proposition. The challenge at this point is to understand what further features are necessary to support the business model that delivers the desired ROI. Traditional approaches focus on

product roadmaps that are based on features. Rapid Value Realization changes that approach to focus on what outcomes are needed to achieve ROI, and how will these outcomes be measured. Constant interaction and feedback from customers using the solution ensures that the value proposition is still being delivered.

Funding is expected at this stage as well. However, since the proposed digital product has now gone through extensive experimentation and testing, the likelihood of success is high, thus reducing the risk of investment to commercialize the product.

IV. Benefits of the Rapid Realization Approach

We next describe the benefits, challenges, and recommendations for improvement in regards to the new approach that J&J is taking by adopting the rapid Value Realization workshop. After a review of the interviews, the transcripts were analyzed for the most significant themes, which we have labeled:

- a). Concept Research Critical to Determine Strategic Positioning**
- b). The Digital Prototype and MVP as a way to Test Key Hypotheses and Assumptions**
- c). Importance of Fail-Fast, Learn-Fast**
- d). The Pitch is Critical to Gaining Stakeholder Acceptance and Resource Commitment**
- e). Determine the Right Metrics**

* All data is confidential and no names are used when presenting the results, just team content areas whenever available. The quotes are taken verbatim from the interviews.

A. Concept Research Critical to Determine Strategic Positioning

1. Framing the Opportunity

One of the most difficult and important aspects of the workshop is the ability of the team to accurately frame the opportunity space. This sounds simple, but is often the most difficult aspect for teams to agree upon. In general, different stakeholders have different goals, biases, and assumptions that drive stakeholder desires for a given product or process. Repeatedly, teams said that the single most important benefit of the workshop overall was the ability to “understand the needs of different stakeholders, customers, users and just listen for needs, wants, desires as opposed to jumping to solutions.” While not surprising, most design workshops assume that the opportunity space is a given and move on. In this workshop, it is just the opposite. The facilitators assume that the problem/challenge/value proposition needs to be more accurately defined, or may even change completely. The divergent and convergent thinking

techniques force participants to refine the opportunity space based on things such as new data, customer value-mapping, experiments, and/or prototypes.

As one team leader shared from the diabetes team, “The approach forced us to take a step much further back in the process, to really understand the customer need and where value is applied and ultimately prioritize what we are going to do based on data and new capabilities.” Another project, which focused on content management, reported that “defining the opportunity for us was to discover our strategy to move forward by listening to all of the stakeholders in the room. We don’t always do this objectively. Because it is a highly collaborative process, the loudest voice in the room doesn’t always win. In the past, it was much more political. Because of the group aspect, we can get around this and be more inclusive.” Another participant in the content workshop, but from a different line of business, found that “For us, it was a huge opportunity to have different ways to look at the same problems. We don’t have a lot of outside thinking and because we are so self-contained (a small development group not adjacent to J&J development centers), we don’t always come up with new ideas and approaches.”

Another team leader from the consumer product area shared his experience with defining the opportunity space as enabling conversations around “a product orientation versus a process approach. We often take the product into account with a specific target customer segment in mind. But in our workshop, we focused on what capabilities we can deliver against product expectations. The solution is technology based, but considers both the product and the process or experience we are providing to the customer. We weren’t examining the process piece before the workshop. The types of questions we were asked in the very beginning (contextual inquiry- see appendix A) forced us to reexamine the biases and assumptions we had.”

And finally, a sponsor who was on more than one design team said that the opportunity definition process “forced our team to build for the future. We know there’s a problem to solve now, but there are also unmet needs that we hadn’t thought about. We often build the wrong solution, or we build something that is not scalable, or fix problems without enough information. By limiting our mindsets, we define the problem space incorrectly from the start and then it’s too late to make corrections. Too much time has passed, too much money spent. The facilitated process [in the workshop] didn’t let us get caught up in our old way of thinking about the problem.”

2. How Might We’s

Because framing the opportunity is such a critical foundation for the entire workshop, several activities and approaches are used to get the team to think strategically about the problem space and subsequent value to the customer from a process point of view. All types of cognitive biases prevent an intact design team from listening to their customers and innovating their business model often because of a

general unwillingness to change processes and products which, often, disrupt the current status quo. Activities used in the initial part of the workshop such as “How might we’s”, value-mapping, and the development of a customer eco-system, are designed to encourage divergent thinking.

Divergent thinking, to re-cap, is a thought process used to generate multiple, innovative, creative ideas by encouraging the team to pursue any number of plausible solutions. Divergent thinking is non-linear and promotes spontaneous connections as opposed to convergent thinking, which is typically linear, comprised of standard procedures which should lead to the single best solution. Used together in the workshop, these processes are the backbone of the workshop.

The workshop facilitators used several different techniques to encourage divergence and then convergence, as was explained in the previous section of the paper. One team member working on a consumer product solution commented that the process of “taking the team broad and then bringing us back to execution was critical. The nicest part of the process is the way in which the facilitators gently steered us towards progress, but let our natural *process* happen by promoting big ideas as well as tactical solutions.” Another team lead from a group working on a global packing solution commented, “At the end of the day, we had a very concrete idea where we were ready to pitch some ideas for a final solution, but in the beginning, we were given the freedom to think.” In the past, people have commented that workshops like these were great for ideating but did not enable possible solutions from MVP to pilot.

One of the biggest strengths of *this* workshop, was the facilitator’s ability to break down barriers to get people talking honestly about the current value proposition and possible issues with any proposed solutions through an open, transparent process. One benefit of the “How might we” exercise for a consumer product resulted in getting the team un-stuck. Instead of focusing on the limitations of the consumer data they collected and brought with them as the foundation for the work they were doing in the workshop, they switched gears and discussed the biggest challenges from the consumer point of view. In this instance, the team generated unique set “How might we?” questions such as:

- How might children be incentivized to re-apply sun-screen?
- How might we make the process easier for parents?
- How might an app help with this, make it fun?

. . . which then encouraged a very active and detailed brainstorm session.

One team member commented that the “How might we” exercise moved us from confusion to clarity in a short period of time: “At first it felt as if we were spinning our wheels, then we managed to agree on a few ideas, the hottest points, which got us moving.” And from another member of the same team,

the “How might we” exercise enabled us to “break down the problem into smaller pieces which we then aggregated into a major area of focus for the MVP.”

Another benefit of the “How might we” statements enable teams to break down these barriers, forcing them to look beyond the typical constraints and focus on the possibilities. For example, when a team of subject matter experts from four different departments got together to brainstorm the next iteration of their content management system, “How might we” options opened the group to new possibilities which were more innovative and less threatening to any one stakeholder.

- How might we . . . get the most out of the current systems while not re-inventing the wheel?
- How might we . . . create a new decision-rites process that reflects everyone’s needs as we move forward?
- How might we . . . use this process (the workshop) as a model/prototype for other large team implementations that are stuck in their old ways?
- How might we . . . brand content as re-use and re-value to focus on multiple point solutions?

In the case of the Virtual Audit” workshop, team members reported that the “How might we” exercise was important because “people were encouraged and then able to let go of how things are normally done in physical audits.” Specifically, audits are performed in every line of business: manufacturing, labs, and clinical sites. And as such, they need to be performed uniformly, with the goal of quality and meeting compliance standards. A very diverse design team used the “How might we” session to build and then ideate around the possibilities for remote training. One of the starting ideas was to train new auditees via immersive technology. The auditor/coach connects with the auditee using something like Google Glass, reducing the cost and impact of the audit via the wearable device. The team knew that Google Glass had been tested for other applications to utilize the camera/computer capabilities. The “How might we’s” for the audit team moved their goal forward:

- How might the technical feasibility of the proposed solution (Google) versus other solutions impact the audit experience in positive way? In what negative ways?
- How might we send smart glasses with instructions to the auditee group suggesting what numbers should be focused on and why?
- How might we promote the financial gains of a “wearables type solution” that could dramatically impact the financial need to fly many experts to different locations for every audit?
- How might we use this approach with other operations that are struggling to be more innovative and cost effective?

Finally, the hemostasis team commented that the “How might we’s” were a turning point for them because they “were able to unpack material around the technologies [they were considering] to create a more immersive experience for our customers. Further, after we generated the list we prioritized our focus. Everyone was asked to vote on their top three choices; the result was very different from our original ideas:

- We want to get customers to understand that given the different bleeding situations, they can apply the hemostasis optimization program methodology to multiple products.
- We want our field sales to make it easy to articulate the technology we choose.
- We want to make our solution applicable for both clinical and non-clinical applications.
- We want our solution to be scalable to more than one product area.”

The facilitators encouraged the team to start broad, but after a few hours the results above were much more targeted and ready for testable hypotheses/ experiments.

3. Value-mapping

Value-mapping was another activity that benefited many teams. As a sponsor from the hemostasis team stated, “We had an initial goal for the problem space but we eventually saw that it wasn’t exactly right. We had a starting point that we then adapted and refined. The important piece was to put it down on paper. We then did the value mapping which was mapped to our stakeholders. We then added functions and features to our product concept that better suited the customer need. The visual map was the best way to communicate needs to reach other.”

The hemostasis design team was invested in creating an immersive experience for their program. The group has several products and one of the goals of the workshop was to create experiments and eventually a prototype/MVP for the field sales to enable them to articulate the value of the technology solution. The solutions also needed to be scalable and usable to more than one product area. The team used stakeholder analysis and value-mapping to articulate pains versus gains: “We were trying to overcome our current pains by articulating the values we bring. The issue is, we’ve got so many different stakeholders, starting with the patient and the family. Even if we meet these needs, we have to satisfy the hospital, the nonclinical as well as the clinical group, the chief of surgery, and of course the surgeon. We then mapped the value to the payors, and by the time we did the exercise we realized that any solution [we came up with] couldn’t necessarily meet the needs of all of these players. It finally hit us: We had to prioritize what was best for the patient and what made the surgeon’s job easier to help the patients.” Although no exercise is perfect, for this team, value mapping provided an invaluable insight that team members remembered and reported on.

4. Benefits, Challenges, & Recommendations

The benefits of the “How might we” exercise, value mapping, and stakeholder analysis are clear. People are encouraged to be unconstrained by previous solutions and, therefore, think more broadly and innovatively. If the right mix of people are in the room, the result might be an entirely different way to approach an opportunity with buy-in at the start. The challenge rests with getting those “right people” into the room for a pre-determined amount of time, as we heard from many teams.

Specifically, after the “How might we” phase, value mapping and stakeholder analysis, team members often ideate, to generate unique ideas in meaningful ways through some type of brainstorming activity. The customer/market fit is at the heart of this process and getting the right people at the beginning of the process is not always easy to do and a critical piece of any ideation process.

Not surprisingly, any ideation process works best when the group is comprised of diverse, heterogeneous team members who represent complementary and often conflicting points of view. Homogeneity, or group think, is *anti*-innovative thinking. In the workshops, we participated in and in the interviews we conducted after a session, team members reported that every effort was made to include the right number and type of stakeholder, but this was a major area of concern brought up by all of the teams. In one instance, a team mentioned that too many people were part of the workshop, slowing down the process and presenting too many options for a feasible resolution. For two other teams, the teams were considered not to be diverse enough. Because a team was not balanced enough in the challenges they faced, they felt that the “How might we’s” and subsequent ideation process ended with proposed solutions for hypothesis testing and MVP that weren’t robust.

Another issue at hand was the involvement of SME’s. Even though SME’s were invited to participate at different times throughout the day, the SME’s could not always stay as long as required, and as such they were not invested enough in the process. Other times, due to timing, the right stakeholders simply weren’t available, but the team felt the need to go ahead with the workshop due to the urgency of the challenge.

SME’s are often invited into the workshop at different times to present their points of view. Given the distributed nature of the work going on, it is not surprising that many SME’s are called into meetings. Although virtual meetings are an option, some team members felt that “it didn’t work for us when people called in. It was very difficult to bring them up to speed and to use their expertise appropriately.” Collaboration tools such as virtual meetings are an important piece of these workshops, but we saw very few examples where virtual tools were used successfully.

Another team sponsor who worked on many of the projects suggested a different approach to enhancing the diversity of thought on their team. The leader decided that the next time they did a workshop like this one, they would ask different personalities to join at specific times via technology or in person. For example, the sponsor felt that she has some very creative people on her team who often think and dream big, but fall short at implementation. These people would have been very helpful during ideation, but do not necessarily need to be included in the entire session.

A larger issue, which goes to the culture of many large organizations with different lines of business, is the amount of *trust* required to do this type of workshop. Because it is suggested that a limited number of team members participate in the workshop (5 to 8), members of the function who are not included must trust their colleagues to represent them in the best way possible. For example, for one team who had too many of its members attending the workshop, it was later determined that so many people were included due to a basic lack of trust: The worry was that the ultimate solution wouldn't take their concerns into account. Instead of representing new ideas, they clung to their original visions, defeating the purpose of the workshop.

A recommendation for these types of challenges is to require the right mix of people to attend face to face over a shorter period of time than ideal for the first workshop. Once trust has been established between the team, it is much easier to collaborate virtually. Virtual communication and project management tools include WebEx, Slack, Trello, Skype, Jive, and Workplace by Facebook. The best practice in this area suggests incentives for attending, some type of visibility for active participation, and selecting projects which have a clear line of sight to the strategy of the organization. Not surprisingly, senior level support is vital to encourage people to be completely engaged, be all in at the workshop, and avoiding multi-tasking as much as possible at least during the working day.

B. The Digital Prototype and MVP as a Way to Test Key Hypotheses and Assumptions

1. Ideation Techniques

Ideation techniques such as prototyping and the Crazy Eight exercise (see appendix) are an exceptional way to use visualization to receive buy-in from the team and customers before developing a full-fledged product or service to create the MVP. For the global packing team, pictures played a critical role. In the Crazy Eight exercise, team members are asked to draw 8 pictures of their ideas individually. Only after they have done this, can they share their representations to the team so as not to bias each other

in any way. As one team member stated, “The elements of visualizing possible solutions or pieces of our solution pulled out ideas from me that I didn’t think I had and led us to our MVP.”

2. Value Hypotheses & Experimentation

The Virtual Audit team found the creation of hypotheses, experiments, and what eventually led to a MVP the most significant concepts for their project. As the sponsor of the Virtual Audit team explained, “we were not going to treat this project like we have treated others in the past, where we put the weight of a pilot on our shoulders... We were executing to prove that we can take our concept further into a wide scale production use, but we needed the room to iterate. When the facilitator mentioned creating a few experiments . . . that was a huge turning point for us. It softened some of the expectations that other people had about what we were going to deliver. By taking this approach, it made us more nimble and agile. We were able to move more quickly.”

The Virtual Audit team designed an experiment to test the hypothesis: “Technology can be used to train auditors and conduct audits with less cost while maintain the quality of the audit.” The experiments were conducted over a three-day period. The experiments were conducted just 2 months after the workshop.

To test the hypothesis, the design team compared two different scenarios. Two different glasses were tested: Vuzix and Google, with different connective types, cellular and wi-fi. The experiment tested the auditor and user’s ability to wear the glasses and interface real time video and audio as well as audio capabilities with SME’s in a given function. The experiments took place in multiple areas of the manufacturing facility including laboratories, warehouses, the production floor, and in critical storage areas. As a team member explained, “We experimented in different areas to see if the auditor could integrate with external people with just one auditor on site. We also experimented with an auditee who hosted a virtual audit. Another time we used the different glasses in a documentation type audit.” The design team also integrated teleconferencing when appropriate into the experiment.

The results were promising, but a new vendor was located to improve the connectivity. Dropped connections occurred more in the US facility than in Europe. Coming out of the experiment, the new vendor is working on the connectivity issues and has provided a work-around that the team is testing. The experiments were also conducted as a way to determine the business value of the proposed solution. As the sponsor said, “When we ran the experiments in Belgium we thought through every piece of value for using the glasses – both hard and soft benefits. We will use this data in the formal business case and pitch.”

The biosurgery design team created and conducted a number of experiments with their end users. The experiments revolved around the willingness of a surgeon (target market 55-60 years of age) to use a headset and engage in a virtual reality experience about J&J surgical products. The sales reps are always

interested in new ways to engage with the doctors, and augmented or virtual reality applications is one way to change the conversation and provide additional content in a different and, hopefully, more meaningful way. The team's initial hypotheses was disproved. The older generation doctor wasn't ready for their proposed solution, but other doctors in the 30-40 year old age range were very interested in some type of virtual/ augmented reality to review different surgical tools. If the team hadn't performed the experiments, but instead went to a full-fledged pilot, resources might have been spent inappropriately. The experiments were not costly and gave the team the feedback necessary to pivot to different solutions, which will be discussed in detail in the next section of the paper.

3. Benefits, Challenges and Recommendations

The benefits of visualization techniques and conducting experiments for the MVP were mentioned by all of the teams. In fact, a few teams wanted to spend additional time on conducting experiments before asking for additional funding again as proof of concept. The approach is clearly less risky for J&J and more in line with the modern way that technical solutions are currently developed and implemented; Scrum/Agile techniques reiterate the importance of prototyping and experimentation.

Specifically, many design team members noted that they weren't typically part of any experiments. Often their experiences were used to create new ideas, but they never knew the next steps. After being part of the hypotheses generation and experiment piece of the workshop, team members are better able to articulate the value of their ideas, the product/market fit is no longer conceptual, and data from the experiments either support or disprove their points of view.

One team was challenged in their ability to create meaningful experiments because the people on their team didn't have enough depth in their field. Another team said they had over relied on J&J experts to conduct experiments for them in the past and would like to have at least some of this knowledge (such as A/B testing) in their team.

Recommendations for these challenges are straight forward. Design teams can be taught the basic methods for conducting experiments. J&J has a number of experts that would most likely enjoy the chance to work more closely on these efforts. The cross-functional nature of this type of work makes it difficult to draw the lines between what one group in marketing is doing versus another group, but from this workshop it is clear that people enjoyed learning new things, like how to create and test valid experiments as a way to keep their skills current. Best practice suggests that experiments should be done with as little financial risk to the company as possible. The most successful experiments are well contained, the results can be clearly explained to stakeholders, and cost significantly less than any type of formal pilot. If at all possible, teams should re-use resources and build on what they have learned from previous experiments conducted

with-in their own groups or anywhere with-in J&J to demonstrate the robust nature of experimentation in general.

C. Importance of Fail-Fast, Learn Fast

1. The Pivot Approach

The notion of “failing fast to succeed sooner” is regarded as a critical ingredient to successful innovation. Researchers and practitioners alike call changes in a course of action in one way or another such as experimentation, making mistakes and learning from these, or the now popular phrase “the pivot” a necessary part of experiencing both the pain of defeat and the rush of success when innovating both products and processes.

The point is clear, when opportunities are unknown, for markedly new business model creation, and to truly uncover new consumer needs, we need to expect several iterations of mistakes, trials and pilots. They may not yield expected results, but will, instead, suggest pivots, changes in direction which incorporate feedback from the initial experience to inform future products, processes and/or services.

In the digital space, the workshop promoted the notion that a series of trial and error iterations frequently becomes the foundation for innovation. The key is to learn from the experience and apply these learnings quickly to the next opportunity. How people learn from experience/experimentation/failure is still a bit of a black box. It is difficult to see all of the connections and the learning is not automatic. Most research suggests that people do learn from their experiences/experimentations/failures, but how they learn and what organizational characteristics can enable faster, more successful iterations in the future, is not clear.

In the case of the workshops, every team came in with the expectation that that their efforts would be successful. Each design team did their best to use the workshop as effectively as possible to build their business case for their ideas. In some cases, however, the projects were not supported past the MVP. There are two ways to look at these occurrences. One is to say these projects failed. The other is that these projects, because they are more innovatively focused, have laid the foundation for successful mistakes, as long as specific learning occurred and is applied to the next venture.

In our interviews, we came across several projects that pivoted from their original direction. The results suggest ways to see inside the black box of “failing fast.” The process provided insights into how these teams learned from previous mistakes. Many are in the process of and have already “pivoted” to alternative solutions. To J&J’s credit, teams were willing to share their “pivot” experiences with us. Team

members mentioned that what they learned in the workshop helped them accept their mistakes and change tracks. They thanked the senior leaders who continued to support their new efforts regardless of their initial attempts.

A solutions owner working on a digital solution for diabetes care assembled a cross-functional team of employees from IT, global services and operations. The group was part of a sprint zero workshop. The original goal of the project was focused on creating a definition of what the diabetes patient is currently doing (a source for underserved needs), versus the desired state in regards to living a much healthier life style. One of the deliverables was a high-level research plan as well as a high-level design for diabetes patients in underserved markets.

The project was not funded beyond the MVP, but the team lead believed that there were significant lessons learned that he is now applying to subsequent projects. The sponsor broke the lessons learned into distinct areas. First, for the best success, he felt that the team needs 100% dedication to the project and be co-located as much as possible. The diabetes team multi-tasked between several projects and was heavily distributed.

Unfortunately, the team was not able to bridge the gap via virtual communication technologies. One of the major issues was with the time differences of the various locations, and, despite the best intentions, these organizational challenges negatively impacted team productivity. “The work arounds to mitigate co-location challenges didn’t work.” Second, the team wasn’t well versed in Agile. Instead of driving for the MVP, they spent too much time in designing the “best” solution. In retrospect, they reported that their initial solution was over-designed. Third, and most significantly, the team found that the core business needed to take a different strategic direction: “We are now leveraging what we learned about using the lifestyle of the patient in our solution. We now know that we must drive behavior change instead of assuming that the patient will simply come to us. Consumers are not going to just use the application because we have supplied it. The ‘build it and they will come’ approach isn’t working. There are too many apps out there and not enough incentives and behavioral approaches to get people to use them. This was a big awakening for us that would not have happened if we hadn’t gone through the workshop. The insight had a profound impact on the team.” This team is now focused on behavior change and specific sensor technologies that incorporate the user/ life style experience into further applications.

A final statement made by a diabetes team member after the experience stated that he was happy and surprised to see that pivoting and changing direction is not only allowed in the J&J culture but encouraged, at least in his area. This is, perhaps, the most significant learning of all: “We have to learn to pivot and be flexible. The value workshop offers us a new way to think about innovation, but we need

examples of clear successes, wins, or examples of pivots which are marketed throughout J&J to popularize the methodology. We need everyone to understand that it's ok to fail. We also need everyone to understand the power of being holistic when we think about solutions. The approach gave us the opportunity to think broadly and holistically about diabetes.”

The sponsor of the diabetes team is currently using the workshop facilitators again on another project incorporating the lessons learned from his first experience. In regards to fail fast, experimentation, and finally being able to pivot, the bottom-line for the group was summed up as “Diabetes came into the workshop with one set of ideas that were very well researched but in a conventional ‘market research’ way, but came out with several other ideas about patient care and opportunities for health management. The facilitators pushed us, forced us to think about alternative explanations and opportunities which we can apply to all of our projects, painful as it was at the time.”

A second project team to experience a pivot originally created the “Nurse Athlete” e-course and digital coaching for nurses. The project received a great deal of attention from J&J because it was the winning team from the health and wellness innovation challenge (four teams competed) sponsored by the company. The team was, like the others, made up of a diverse group of people from sales, product, marketing, and support and had the ability to pull in SME’s as needed. Once the project won at the president’s level, the rapid Value Realization team worked with them to construct what they called a pre-MVP. From a financial perspective, the team leveraged existing assets from the Human Performance Institute with the intention of giving 20-40 nurses the initial prototype (pre-MVP) that might then change after receiving the feedback from the nurses. This information would fuel a more robust prototype, the real MVP in the next sprint.

The opportunity focused on creating an offering around tools and services for a number of different pain points experienced by nurses. The data for the solution was compelling; with approximately 2 million nurses in the U.S., hospitals have 14% attrition annually. This translates into \$17 billion annually that is wasted due to nurse turnover which can be tracked back to inadequate recruiting strategies, improper training, and a general lack of coaching and mentoring. For example, nurses experience severe burnout, which result in medical errors due to fatigue. Another pain point from new hires suggested that this segment suffered from bullying; senior nurses have been known to “eat their young.”

Despite the compelling data, the team met a significant challenge because there was no accepted business model for the price point: To improve the job satisfaction for nurses either through in-person training or through e-courses. Health care budgets are so tight in general that relatively little is spent on improving the quality of the nurse’s career.

The workshop activities aided the team on their way to creating a viable pre-MVP. The team specified two sessions that were specifically helpful. First, during the “setting the goal” portion of the workshop, a team member reported that “We were in contact with the right people from two legacy acquisitions. We were not re-inventing the wheel and increasing the cost of the MVP. We quickly realized that we could re-use assets. This unlocked our ability to be innovative in our first session because we were able to take an SME from our corporate athlete course as well as an SME from our digital coaching solutions and leverage their expertise to fast-forward our process. The courses were based on changing human behavior, and that is at the heart of all of the J&J solutions for health and wellness.”

The second activity that built the team’s confidence was when the facilitators took the team through the divergent thinking processes such as “How might we’s” and the Crazy Eight exercise. These exercises do not predefine the output or deliverables; they get people to think differently. As one team member stated, “This was a non-traditional process. We weren’t jumping into product features but focused on transforming the nurse’s experiences on the job. We designed a straw-man pre-MVP together in just three days. Normally, this type of work took months, if you were ever able to get the right people into the room.”

Despite the team’s enthusiasm and the viability of the pre-MVP, the project had no financial sponsor. The team then had to decide to give up the project or pivot. They made the decision to pivot from their original pitch. As the sponsor reported, “We got a price of \$3.5 million to build a pilot MVP but no one was willing to pay these costs, and I couldn’t blame them.” The sponsor went on to say that “even if you handed me that money right now, I wouldn’t take it because I am not convinced that our solution will work in the marketplace. We needed to get there incrementally. This type of funding is a big part of the sprint and fail/fast process. The goal is to use as little money as possible to get to those pivot points.”

The team then moved to a completely different approach. They decided to sell the product as is to any/all interested consumers and, in the process, learn from these trials. The approach was called “earn and learn.” Any interested hospital could pay for seats to learn along with J&J from the pilot. The team is now in pilot phase.

The trial experience is kicked off by a live session for participants that is recorded and made available for all nurses to see any time. They then send out communications inviting the nurses to take the course for a set price. Once the e-course is completed, participants are invited to take part in the virtual digital coaching sessions. Because of this experience and change in direction, the team is now experimenting with different commercial models – the ultimate goal for e-commerce solutions, and one of the toughest hurdles for health and wellness applications. The team is currently experimenting with the business model: If the product or service is truly valuable, who will pay for it, and how much and how long

can J&J sustain any type of competitive advantage? Only through failing fast and trying a new approach will J&J learn how to innovate and change the culture to one that encourages experimentation. The diabetes and nurse athlete are two exceptional examples learning from mistakes and ultimately pivoting to a successful business model/pitch.

Finally, a particularly compelling example of a pivot came from the biosurgery team. The team realized that their target market (55-year-old surgeons) were not comfortable with the virtual reality solution presented to them (a headset, such as an oculus, glasses and the ability to view content when you look up, down left and right, and the doctor creates his/her own adventure in a different reality). They moved to an augmented reality solution. This solution would be an iPad or other tablet that, with a swipe of a finger, the doctor can manipulate the image of an object or anatomy from one view point to another. The doctor can customize the experience by adding different data, “augmenting the experience” based on a series of different lenses that can be built into the app. A team member reflected that, on reflection, “We found that we should have focused on an augmented reality application first, do that well, receive feedback, and then perhaps go to the next level of virtual reality. That’s where we are looking to go now. We learned the most important lesson of all. We don’t have to do this perfectly within J&J right now. We have to learn to move forward. It is just a matter of how quickly we learn through our mistakes to get on board with these types of solutions.”

As in most large organizations, rewarding the pivot does not come naturally. Employees are rewarded for hitting their goals and objectives, and to celebrate making mistakes is not a part of the larger business culture. Given the current need for technical solutions of all types, employees have the opportunity to innovate and make iterations to keep abreast of the radically changing business environment. Workshops like rapid Value Realization, provide some structure and air cover for everyone in the organization to flex, develop and demonstrate their innovation tendencies.

When asked what it means to fail-fast and learn in a culture like J&J’s, many interviewees shared their opinions. First, from a corporate perspective, individuals felt that the culture is starting to grow more innovative in an organic fashion. Many people spoke about investments being made and outputs achieved that many believe will benefit their patients directly. Conversely, many people still discussed the immediate needs for the ROI on most projects, but that a portfolio approach where innovation projects are a part of the governance structure is the best way forward.

As one team leader stated, “Culturally, if we start small and scale up with projects that have unknown outcomes, then leadership is more open to making mistakes. The basic ingredient for success is open communication with the senior leadership team. We clearly stated, ‘we tried this three times, it didn’t

work the first two, and now we know what we've learned and what to do. Here are the pivots and here is what we morphed into.' If we minimize the risk, it's much easier for senior management to support innovation. So, we start small, but we don't stop."

On the other hand, one of the participants who was on several design teams, felt that projects were cut too quickly. He was included in a number of the workshops and very few got to the pilot stage. Although he believed that his team learned from these instances, he still felt that J&J in general is too risk averse. In his words, "We need to do more proof of concepts, widen our deliverables to see more projects through to commercialization. We are now all about the MVP, but some of these ideas should be put forward by sponsors to test the market fit. As a regulated company, we have many controls in place. Sometimes we just need to launch and see the result. We have new competitors every day who also have to meet the regulatory standards and they are launching new technology driven products."

The benefits of failing fast to succeed sooner cannot be over stated. Particularly in a large, diverse, healthcare culture that is, not surprisingly, risk averse due to compliance issues. Nothing is more impressive than when a large, compliance based organization takes reasonable chances, and promotes mitigation strategies for risk in an effort to be innovative with patient care. These examples are just a sample of the projects we spoke with. Their champions were not dismayed by the results, but instead excited by what they had learned and what new opportunities lay ahead.

Specific recommendations to encourage management to applaud pivots lie in management's ability to see the strategic value of technology-induced solutions. One approach many companies have adopted includes innovation hubs and centers of excellence where employees are encouraged to take risks and learn from each other. The Horizon approach is another viable way to manage the risk of innovative projects. The original McKinsey model points out that Horizon 1 extends the core, Horizon 2 develops new opportunities, and Horizon 3 is the visionary piece which requires broad thinking and promotes new products and processes and services. If an organization applies a portfolio approach, innovation is much more likely to become part of the culture.

D. Making the Pitch

1. The Pitch Approach

A successful pitch is critical to gaining stakeholder buy-in and a commitment of resources. Most design workshops do not focus on this aspect of the process, even though without it there is no closure, no commitment from management to either move forward or to stop the project. There are different approaches

to coaching the “how’s” and “what’s” of pitching. The rapid Value Realization team takes a very bottom-up approach to coaching for the pitch which emerges out of the workshop deliverables. In this way, the design teams own their “pitch” documents.

Because these workshops are typically anywhere from two to four days in length, a number of deliverables are created with the intention of iterating on any or all as the team seems fit. For example, resources may be required to test a number of the hypotheses within specific experiments. A more refined MVP may be required to demonstrate the value of the solution to real customers. A full-fledged pilot may need to be resourced if the MVP successfully demonstrates enough value. In these cases, the pitch is a critical piece of the workshop, and teams are given the opportunity to pick and choose the approach and artifacts for presentation as well as the opportunity to “present” a rough draft pitch in front of their colleagues and the facilitators. This session is clearly just a warm up activity for most teams, but doing a pitch at the end of the workshop, even briefly to get unbiased feedback, was perceived as critical to their ability to move the project forward.

As was mentioned previously, the Virtual Audit project was made up of diverse team members from across the globe. The sponsor of the project was New Jersey based, but the other critical players were based in Germany and in Belgium. Regarding their pitch, the sponsor identified resources and people based on an initial workshop. They conducted two workshops, one in Europe and one in US. The sponsor decided to keep the pitch piece small. As he explained, “I had informal conversations with stakeholders, my boss, the VP of compliance, and the strategy lead. I set the stage for them to understand the concept. By keeping it informal, it got people excited... it felt exploratory and future thinking, and they were getting in on the ground floor of that thinking.” The sponsor admitted that it was relatively easier to get the funding with a “soft, word of mouth pitch” because one of the new strategies for the group included innovation and technology. The pitch approach revolved around the resources needed for the experiments that the workshop first introduced the team to, which were targeted events. As the sponsor explained, “I’ve also kept our stakeholders involved for months now. They know all about our experiments and what comes next if we are successful. Once we debrief the experiments, then I will pitch a more formal pilot plan.”

The sponsor from the biosurgery design team explained another way that J&J is experimenting with pitches. Specifically, they had the opportunity to participate in an internal Shark Tank. Their proposed solution, a virtual reality app for the surgeon *and* the sales rep, was pitched to senior leaders in marketing. The team received a few rounds of funding for the project for approximately six months. One round of funding was for the rapid Value Realization workshop and another for the experiments they conducted. Their project was not selected for the grand prize (\$40,000 for MVP). The team used many of the deliverables created during the 2-day workshop as the basis for their pitch. Specifically, the results of the

experiments were the foundation for what they called an “informal pitch.” The team plans to move forward by partnering with other J&J initiatives that are already working on augmented reality type applications, to share costs and knowledge.

2. Benefits, Challenges and Recommendations

The benefits of creating a pitch based on the workshop deliverables, grounds the “ask” in the work produced as opposed to simply conceptual ideas. Because technologists are often not given the opportunity to pitch, it’s also a great way to get more members of the design team in the practice of turning their value propositions into actionable statements that require costs and benefits. From the design team perspective, most teams enjoyed learning how to give a pitch and took the feedback well.

Challenges were encountered when teams moved from experiments or MVP’s to more formal “pitch” presentations. Sometimes funding was suspended and other times, teams managed to find their own resources.

Recommendations for the future include giving design team members the opportunity to pitch less formally to management as well as in the more formal pilot presentations. With practice comes comfort and, in the case of the Virtual Audit, the team felt that the pitch document got considerably better with the data provided by the experiments.

E. Determining the Right Metrics

1. Project Metrics

One of the best examples of hard metrics occurred on a project called “OneTouch.” Onetouch.com is an e-commerce website which offers a choice of diabetes meters to help in the management of the disease. The team determined that they needed to improve the patient experience on the website. The facilitators were asked to consult with and work with the team. Diabetes is a life-long disease requiring *significant* patient intervention for health success. The medical devices available for support are not always clearly understood by the patients. The goal of the ecommerce re-design was to create a superior customer experience which guides the patient’s decision-making, enabling them to feel more confident about the meter they choose.

The team consisted of cross-functional employees from marketing, R&D, and IT. They used the Scrum/Agile method, and co-located project members and spent 3-4 days scoping and working on the initial prototypes with the facilitators. Instead of using classic market research, the team used empathy research which focused on the self-efficacy required to manage a disease state like diabetes. The target market was

for patients diagnosed with diabetes Type 2. The rapid Value Realization techniques were used throughout the session. The team conducted four days of facilitated research around the prototype that was eventually created. A designer from an agency was there as well, to aid in the development of three different experiments, or paths, which were then tested with actual consumers. The goal was to focus on the path which created the best patient experience. The team could compare the online experience with a face to face experience, provided by a diabetes educator who helped with the project, as well. Not surprisingly, an in-person dialogue was the preferred experience, but the online path was not far behind. Consumers reported that the online experience felt personalized and comforting.

The final metrics suggests that consumers were two times more likely to visit the offers page and three times more likely to complete the offers form when they participated in the guided experience. Patients who completed the offer form were then two and a half times more likely to visit the commerce page and buy the product. Additional content on the site was personalized in regards to video as well as pictures of the product in real life settings. FAQ's and a customer care number was moved to be in one place and easy to access.

The overall results of the OneTouch team's approach suggested that the research, based on behavior science principles (self-efficacy of engaging in the management of the disease to develop the content), was a critical differentiator. The rationale is that the more engaged the patient, the more business for J&J and most importantly, a healthier and more satisfied consumer.

2. Benefits, Challenges and Recommendations

The most substantial challenges to the Rapid Value Approach lies in the ability to create both soft and hard metrics. This is due in no small part because these projects are only now going into the pilot phase of production. For example, the Virtual Audit team believes that in six months the data will verify the hard benefits of having colleagues limit their travel by using Google Glass. The content team believes that "the process allowed us to target important goals, define an MVP and then take action. What could have been a 6 month or even 12 month process we did in 3 days." But many teams didn't have any hard metrics and, for an organization like J&J, it's important to get these where we can to build the momentum for these types of initiatives.

Digital product teams need to also think about different types of metrics. While ultimately business metrics is what is most important, product adoption and product development metrics are often easier to collect early in the process. For example, metrics associated with number of app downloads (a measure of early adoption) or number of product iterations in a given time period (a measure of effective and continuous experimentation and feedback) can help validate the rapid Value Realization process. Also, by continuous collection of these types of metrics, J&J now has a baseline to compare future projects outcomes.

Finally, metrics should be communicated among multiple stakeholders, product designers as well as business owners, to build acceptance of this methodology.

V. Conclusion

Digitization is impacting business models, product development, operations, and customer engagement in many industries, including consumer-based healthcare companies. Many organizations are attempting to change their digital design and development processes to reduce time to market, reduce overall costs, and increase customer satisfaction and engagement. However, large healthcare companies are currently struggling with this shift as much of the disruption is coming from technology startups, who are well-equipped to lead this effort.

J&J's rapid Value Realization program to "pilot, pivot and pitch" provides the capability for healthcare companies to transform themselves and be a leader in digital healthcare solutions. Their approach takes much of the startup's mindset to digital innovation, emphasizing the basic elements of the Agile/Lean approach to product design: low-cost experimentation, rapid iterations, and learning from mistakes. All are foundational concepts required to create a culture of innovation. Corporations are struggling to implement this startup mindset within an existing structure that emphasizes stability and predictability. Embracing ambiguity and supporting a culture of learning that gives teams the space to experiment until they find the solution that best supports the customer's needs is an entirely different way of approaching projects. The traditional approach rewards teams for being on-time and on-budget. To compete with startups in the digital world, teams need to be rewarded for delivering solutions that achieve customer outcomes. This has implications on hiring decisions, incentive and reward structures, onboarding and training, and performance management and measurement. Hierarchy and rigid control will need to give way to flatter organizations where management defines the outcome and leaves the team to define how they will get there.

In progressive companies, the IT function has gone from order taker to business partner to innovative advisor in just a few years. In J&J, IT has taken a similar path, but the road to advisor is not an easy one, particularly for an organization that is over 130 years old. While the rapid Value Realization approach shows great promise, the goal going forward is to scale the approach across J&J's product lines, geographies, and business units so that digital innovation is part of their "DNA", like it is in highly successful startups today. The changing business landscape has created opportunity while posing significant challenges to large corporations. The challenge facing corporations is how to transform their organizations to exploit the changing business landscape in face of their existing structures which are resisting change.

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Appendix

Agile Scrum Delivery – The principles behind Agile/Scrum include: satisfying the customer through early and continuous delivery, welcoming and adapting to changing customer requirements, business people and developers work closely together, process is simple and repeatable, regular reflection and lessons learned for future design and development. Agile/scrum includes implementation processes as well as release planning.

Backlog Prioritization – The most important work is at the top of the list, available for the team to start as soon as they are ready. Less important work is ranked lower, and is elaborated on only when it moves near the top of the list. As new work comes in that needs to be done, the product owner adds it to the backlog in the appropriate position so that the team always knows what work to start next.

Concept Gallery – content that you must know before completing the various projects and assignments.

Contextual Inquiry – is a technique for gathering field data from users/customers. The goal is to observe users in the context of the work they are doing, with little interference from the interviewer so as not to bias results and to produce as much raw data as possible for future analysis.

The process involves watching the users do their tasks and interacting with colleagues when appropriate to ask questions for clarity. Ideally, the user/customer performs their tasks and talks about what they are doing while they are doing it. The interviewer may choose to discretely interrupt with questions about what is happening, how what they are doing impacts the customer relationship, or perhaps the current value-proposition of a task. The focus of the interviews is determined *a priori* but the results are context driven. The interview sessions flow naturally in whatever direction the participants take the conversation. The final results/data are then shared with the users and they build a story about the implications and where to follow-up and apply the learnings.

Crazy 8's – a method to generate unique ideas in a short period of time using visualization techniques. A sheet of paper approximately 11 by 17 inches in size is folded in half four times. The result is eight panels. The participants are then asked to sketch 8 pictures of ideas they have regarding possible solutions. The sketches are done in about 40 seconds each so no time is spent making them visually appealing. The Crazy 8 sketches are then used when participants are story-boarding prototypes and creating aspects of their MVP.

Customer Goals & Desires Drive Design – any solution, service or product, must meet the requirements of the customers. Done through a clearly articulated clear Value Proposition based on specific pain points. Clear evidence that the customer wants the proposed solution sets the stage for Product-market fit and a

business model that drives satisfaction, time to market, and profitability of some type for the organization. Goals, gain and pains drive the design of the next two phases, prototyping and experimentation.

Customer Journeys – a framework that enables you to improve your customer experience. It documents the customer experience through their perspective, helping you best understand how customers are interacting with you now and helps you identify areas for improvement moving forward.

Design Sprint – the five-day process that Google Ventures partners (Knapp, Konitz and Zeratsky, 2016) created/adapted for solving complicated, high-urgency, ill-defined and unstructured problems. The workshop emphasizes several of the unique attributes of the formal “Sprint” methodology which includes time to develop ideas independently but is still a set amount/short in duration of time, co-design and co-location of all pertinent stakeholders built in time for a prototype, and hard deadlines. The five-day sprint is defined as: Day 1 - make a map of the challenge, Day 2 - sketch competing solutions, Day 3 - decide on the best solution, Day 4 - build a realistic prototype, Day 5 - test with target customers, learn from mistakes, pivot, iterate, do it again.

Sprint teams consist of deciders (people who aren’t afraid to offer a difficult opinion, contrarians- people who have strong different opinions about solutions, experts who may join at different points during the week to share their opinions, and a facilitator who remains unbiased but informed about the company. Product, and processes of design.

Sprints can also be used for business strategy, prioritization, and process reviews of all types in any function or cross-functional activity. Criteria for experimenting with the method are projects with high stakes, not enough time, just plain stuck (Knapp, 2016 p. 26) which refer to most projects worth doing in organizations.

Elicitation – the broad term used to identify data collection approaches. Elicitation is different from gathering information from written sources because the knowledge is gained from human communication. Examples include, interviews, focus groups, use cases, role-playing, observations, facilitated workshops, and in context data collection as well as eliciting information in laboratory settings.

Emotion – peaks and valleys of the customer experience is explored.

Epics and User stories – A user story is simply something a user wants, and a Scrum Epic story is a large user story.

Ethnography – research that reveals how the user/customer works with systems and processes in context. The goal is to provide unique use cases and anomalies that wouldn’t be uncovered with more typical research approaches (such as structured interviews or market research surveys). The research is conducted in the field, where user interactions, expectations and experiences with products and services take place.

The ethnographer is immersed in the user/customer's world and, as such, can draw more valuable insights for future recommendations.

The ethnographic approach may include user diaries (in the forms of videos, photos or text messages) as well as use case scenarios. The diaries provide extensive information about habits and opinions which can be leveraged for stronger takeaways at the end of a given research period. The use-case scenarios, are re-created examples of user experiences (such as a smartphone glitch experience or a laptop computer wow occurrence) that are then shown to the customer population to stimulate their ability to be both introspective and more innovative in their thinking.

Experience Mapping – a visual story of a customer's perspective of their relationship with a particular product/service or brand over a period of time and across channels. The emphasis is placed on the customer's perspective to enhance the organization's ability to understand user interactions requirements and expectations for current and future products/services.

Experimentation – the action or process of trying out new ideas, methods, or activities, including suggesting parameters, costs, hypotheses, and approaches to collecting the data.

Experimentation to Test the Solution – experiments validate the original research conducted prior to the workshop. The best experiments test specific hypotheses which are ultimately confirmed or proven null. Prototypes can be broken down into different experiments that are then tested for validity. rapid Value Realization stresses the importance of designing experiments that must be true for the team's value proposition to be meaningful and/or the business model viable. Once the experiments have been conducted, the results are shared and the insights are captured. The participants then have the option to pitch a business case for funding the project to the next step, typically a pilot, go back to focus on a new value proposition which may have surfaced due to the results of the experiments, or decide not to pursue the project further.

Ideate –to introduce a suite of techniques to reduce the cognitive barriers which typically result in group think or limited solutions due to the team member's experiences with the organization.

How Might We – an elicitation technique designed to generate a large number of ideas quickly without biasing or constraining the design team.

Market Fit to Deliver Value – the fit between the proposed product and the market.

MVPs to Constrain the Scope – comes from the body of work referred to as Lean Thinking, Lean Startup movement, or Lean Product Development. In these instances, the principles of "Lean" break the product market fit into five distinct components: target customer, customer's underserved needs, value proposition, future set, and user experience. The power of the components is that each is a testable hypothesis which

brings us closer to a working Minimum Viable Product. Building an MVP to constrain the scope forces the design team to articulate the most critical user needs (distinct aspects of a proposed product) by describing a product's attributes based on function, reliability, usability, and emotional design.

MVP– minimum viable product (MVP). A development technique in which a new product or website is developed with sufficient features to satisfy early adopters. The final, complete set of features is only designed and developed after considering feedback from the product's initial users.

Paper Mockup – or story-board is a visual picture of the “scenes” the team feels significant to the design of the product/service. Well done story-boards are not about the quality of the art (paper mock-up is considered low fidelity with quick iterations), but about the quality of ideas strung together to “tell a differentiated and meaningful story” based on the insights made throughout the workshop. The paper mock-up is often no longer than fifteen frames (MVP/surface) and include headlines and important language to get the customer involved in your point of view/story of the opportunity and the possible solution.

Pivot – a point on which something turns. Because facilitators use both convergent and divergent thinking, pivots are often a natural occurrence and an important part of the workshop experience. Pivots mean that people are learning, taking risks, and creating new approaches to solving and innovating in their given problem space.

Point of View – an attitude or way of considering a matter.

Present the Pitch – is one of the main deliverables for the rapid Value Realization workshop. The pitch gives participants the opportunity to choose any/all aspects of the workshop exercises and put these into a “Pitch deck” for a presentation to management/relevant stakeholders. The definition of a pitch comes from the entrepreneurship discipline. Participants create a brief but compelling storyline, demonstrating their take-away, goals, desires, plans for next steps, and the “ask.” Developing and making a pitch, typically given to get financial backing from possible investors, has become a cornerstone of skill sets for most employees in business today, whether they are in start-up organizations or in more established companies. Employees at all levels ask for resources of time, money, and people and have learned very quickly that to be successful, the pitch deck must be tight, compelling, evidence-based and focused on action and execution. For example, the first slide is a brief description (primary target demographics, special features) of your unique value proposition, the elements of your idea that grabs audience attention. Whenever possible, show a picture, provide a demo, and tell a story of how you came up with the novel idea and how you are moving forward. Clearly explain how you are going to acquire customers/users whether it be for an initial pilot or for a more developed prototype for users to provide feedback. Explain your revenue model or the other business-driven benefits of your product/service (reduce costs, satisfy new customers, build

brand). Anticipate and practice questions and provide ample time to describe the “ask” in terms that will resonate with your target audience. Time is allotted at the end of each workshop (one hour or so) to create a mock pitch deck and participants are asked to give a brief read-out and to receive feedback from the class.

Prototypes to Test the User Interaction – Prototypes, quick, inexpensive, and, frequently, smaller versions/models of a complete solution, are the best way to test and validate user satisfaction, interactions, and ultimate desire to adopt a specific new product or process. Prototypes are often generated to inform new ideas, create new insights and improve current value propositions. By clearly researching previously unsatisfied pain points and unrealized gains, the prototype is a visual representation of a possible solution that can be rigorously tested by internal stakeholders as well as potential target customers before committing additional funding to more formal solutions. These models are used to determine desirability, feasibility as well as the viability of alternate solutions. Because they are inexpensive, designers are encouraged to change these artifacts before settling on a specific product/process. The iterative nature of prototyping encourages communication as well as increased rapport building between the designers/developers and the customer. Prototypes minimize the risk of not meeting customer needs and accelerate the development process – all with the intention of helping the customer to understand the potential value propositions by creating a vision/model of the solution without building out a full solution. These initial prototypes often become the basis for what is commonly referred to as a Minimum Viable Product (the minimum feature set that allows testing with customers). Prototypes are designed to answer questions, represent reality for the consumer, and guide the way for future iterations.

rapid Value Realization Plan – The full set of documents from the workshop with a timeline for future deliverables.

Readout – often accompanies the pitch deck. It is a written explanation of the experience with the specific ask for future execution.

Research Review – participants come with specific research that they bring with them to the workshop. Different but related themes typically include: current competitive knowledge about other similar products/services, current pains with the value proposition, desires for gains from a particular target segment or identification of an underserved target market, stakeholder needs and capabilities to support in regard to time and resources or reject new products/services. The research is the “evidence” brought to bear on a problem space and is often the starting point for a discussion on pains, gains and future opportunities. The research is just the beginning. A common level set for participants’ conversations and teams will continue to collect and do additional research as needed, informed by the exercises conducted in the workshop.

Stakeholder Interviews – these interviews are done to elicit the best information from unique stakeholders to gain their perspective for design criteria and/or user requirements to increase the likelihood of adoption and implementation. The significance of the interviews is to capture the most relevant data from what is typically a very diverse group and then synthesize the results for the larger target market. These interviews are transcribed and the content is carefully analyzed to determine patterns of responses which can then be used for design and requirement verification.

Time-line – the exercise is time-boxed where a specific amount of time is allotted for the activity or project.

Touch points – refers to a clear understanding of current customer interactions. The process includes goal setting, relevant research, brainstorming activities and affinity diagrams, and sketching the experience for use in future refinements.

Usability Testing – is the broad term used to describe testing activities with real users or customers of a given product to discover problems and areas for improvement in current or future products or services. Activities often include evaluating/observing naturally occurring user behavior, competitor evaluations (how users respond to your application versus a competitor's), content and functionality testing. The results are then used to improve and create new products, indicate gaps in current services/products, or establish a base-line for user experience “delight.”

Value Mapping – is the process of creating a formal map of the specific attributes a specific product or service brings to the customer. The Value Map explicitly describes the ways in which the value proposition currently provides value by way of: target/segment specificity, relief of pain points, elimination of obstacles and risks, creation of a positive customer experience, opening the door to new and improved products/services. Once an initial map has been created, the next step requires the determination of fit between what the company offers and what the customer/user wants, also referred to as problem-solution and fit and product-market fit when creating new products and services.

Visual Design – refers to design elements/principles used to convey the look and feel of a website or app. These elements, drawing, painting, dimensions, pictures, perspectives, are the materials and foundation for the software product/process. Based on the premise that design is a significant reason why users choose to adopt or not adopt a specific technology, greater emphasis is being placed on these principles in an increasingly digital age.

Wireframes – is a visual map of your proposed solution. The wireframe illustrates the page layout, initial design of a website or app including as much detail as possible about interactions with the user/customer such as navigation and interface components. Wireframes can be low or high fidelity, referring to the level

of detail and sample content. Low fidelity wireframes are often rough sketches which can be hand drawn or in simple power point. High fidelity wireframes often include using some type of software tool to demonstrate interactivity that can be shown to the user community to receive feedback.

“Wizard of Oz” – is an example of a usability method implemented to gather information about the nature of the interaction between the user and any piece or pieces of a technology solution. The “wizard” observes user/customer interactions and simulates possible system responses in real-time. The “wizard” can review videos or observe while the user is on the job. The “wizard” discerns the user’s pain points, peaks and valleys of interactions, goals for other related applications; all of which can be used for future designs.