Gaining organizational adoption:
Discovering new uses for existing innovations

ABSTRACT

Much research considers how entrepreneurs gain organizational adoption for their innovations with a first set of customers. Yet, little research addresses how innovations transition from adoption by the few to the many. This transition becomes acutely important as entrepreneurs balance a desire to build scale and product differentiation with an opposing need to maintain flexibility and legitimacy. *How do entrepreneurial firms gain organizational adoption of their innovations as they grow?* I explored how 54 entrepreneurial firms in two cohorts of a digital health accelerator varied in how they repurposed their innovations to gain adoption. I show that when entrepreneurs pursued a customer centric process*,* they developed disruptive ways to repurpose their innovations, but strategically paced the introduction of these extensions to seed adoption. Firms that leveraged a market centric process, also developed novel ways to repurpose their innovations, but immediately deployed all aspects of their innovations in attempt to beat the competition. Only a customer centric process aided entrepreneurs in gaining organizational adoption for their innovations. By unpacking the recombinant process by which entrepreneurial firms create new uses for existing innovations, I contribute a critical mechanism that helps explain how entrepreneurial firms gain adoption for their innovations as they grow.

Word Count = 200

INTRODUCTION

Reified as harbingers of change, entrepreneurs are often lauded for launching novel innovations with the potential to disrupt markets, challenge established competitors or improve societal causes. Yet, it is often when entrepreneurs convince organizations to adopt and use their novel innovations that such potential is realized (Markman & Waldron, 2014; Rogers, 1983). As such, much research examines the factors contributing to whether an innovation gains organizational adoption (Kimberly & Evanisko, 1981; Dewer & Dutton, 1986; Attewell, 1992; Greve, 2011; Bingham & Kahl, 2013; Kahl & Grodal, 2016). Organizational adoption occurs

when customer organizations, opposed to individuals, commit to purchase and deploy an innovation within their own work environments (Rogers, 1983). To convince the first few organizations to adopt, entrepreneurs often invest heavily in calibrating their innovations to the unique needs of an initial set of prospects (von Hippel, 1986; 2005; Norman, 2013), give away products to high status partners (Tidhar & Eisenhardt, 2020), continuously revise innovations to improve integration with customers' operating environments (Carlile & Rebentisch, 2003) and frame innovations as comparable with market referents to build legitimacy (Gurses & Ozcan; 2015; Navis & Glynn, 2010; Fisher, Kotha & Lahiri, 2016). Such actions spur adoption because they improve customers' experiences and reduce the risks of implementing a new innovation with an uncertain performance track record.

However, these actions are costly to sustain and difficult to scale. Entrepreneurial firms will quickly deplete resources if they customize their innovations for every customer and give products away without garnering revenue in exchange (Tidhar & Eisenhardt, 2020). Further, customer preferences can differ dramatically as early adopters often have a stronger proclivity towards novelty or specialized features compared with late adopters (Rogers, 1983; Moore, 1995; Staler & Narvar, 1998; Eggers, Grajek & Kretschmer, 2020). Thus, designing an innovation to fit the precise needs of initial customer organizations may foster early adoption, but limit an innovation's appeal in the broader market. Lastly, framing an innovation as similar to market alternatives may help customers recognize and make sense of a novel offering (Douglas and Hargadon, 2001; Kahl & Grodal, 2016), but to compete over time, entrepreneurial firms must differentiate their innovations from those of competitors (Porter, 1991; Santos & Eisenhardt, 2008; Navis & Glynn, 2010). This suggests that to grow in a scalable way, entrepreneurial firms shift the ways in which they influence organizations to adopt their

innovations over time. Scholars and practitioners alike recognize that transitioning from adoption by the few to the many is a critical juncture in an entrepreneurial firm's lifecycle that few firms move beyond (Moore, 1995; Huang & Knight 2017). Yet, little research examines how firms make this transition.

This study explores: *how entrepreneurial firms gain organizational adoption for their innovations as they grow.* In doing so, I address recent and enduring calls for in-depth analysis of how entrepreneurial firms make lifecycle transitions, particularly as they mature from launching novel innovations to broadly commercializing them (Fisher et al, 2016; Kazanjian, 1988; Van de ven & Polley, 1992; Garud, Tuertscher & Van de Ven, 2013; McDonald & Gao, 2019). To examine this question, I draw upon two years of field data collected while embedded in a digital health venture accelerator tracking the interactions of 54 entrepreneurial firms with prospective customer organizations. The firms participating in this accelerator program were particularly well suited for study as all firms had launched innovations in the market, garnered interest with at least one customer organization, and were focused on growing their customer base. Surprisingly, rather than pursue efforts to scale their existing innovations which were gaining traction in the market, all 54 entrepreneurial firms invested resources to develop new use cases, which expanded their market scope. When developing new use cases, entrepreneurs did not pivot away from initial innovations but rather, built upon their innovations to attract new customer segments or broaden the way existing customers could use and interact with an innovation.

While all entrepreneurial firms identified and developed new use cases, firms varied remarkably in how they attempted to gain adoption of their new use cases, using either a customer centric or market centric process. This difference not only had implications for whether firms garnered customer commitments for new use cases but also highlighted the critical role

strategic pacing played in the organizational adoption process. Strategic pacing involved temporarily holding back aspects of a new use case, that might displace work or organizational role relations, to convince varied members of customer organizations to adoption an innovation.

The core contribution of this research is a process model explaining how entrepreneurial firms gain organizational adoption for new use cases and in route generated scalable growth. In identifying this model, I illuminate the benefits of using a customer centric process for influencing use case adoption and the underappreciated limitations of a market centric process. This analysis also shows the powerful role of professionals and diverse occupational groups in influencing the process of organizational adoption. Firms leveraging a customer centric process took into account inherent concerns of professionals, middle-managers and others regarding disruption of their work environments, and strategically paced the introduction of new use cases in response.

Recent literature defines pacing as a reflective action, where entrepreneurs pause to unpack prior decisions, or wait for competitors to make moves in the market (Mcdonald & Eisenhardt, 2020; Wood et al, 2021). I build on this research by showing how entrepreneurs attenuate their actions to achieve growth. In a departure, the entrepreneurs in this study leveraged pacing strategically, to slow the introduction of disruptive elements of their innovations. The use of strategic pacing might shed light on why it has been so challenging to innovate, improve quality and reduce redundant cost structures in the field of health as gaining organizational adoption might involve withholding aspects of an innovation which disrupt the system.

GAINING ADOPTION WHILE PURSUING SCALABLE GROWTH

Research proposes two perspectives relevant to how entrepreneurial firms might foster organizational adoption of their innovations as they grow. One approach suggests that as

entrepreneurs gain traction with customers, they progressively focus on building scale (Desantola & Gulati, 2017). Scaling involves putting processes, organizational structures, and human resources in place to generate replicable outputs; reduce production costs, and increase sales without incurring significant additional costs (Chandler, 1990). The implication for the adoption process is as entrepreneurial firms grow, they transition away from techniques such as giving products away for free, customizing offerings based on customer requests, or selling products at a loss. For example, as Eisenmann and Wagonfeld (2012) explain, in the early stages of Responsys, a cloud computing company, the firm always agreed to make adhoc customizations, even if costly to accommodate. But as the firm grew, these decisions were made through formalized channels, where managers vetted costs and benefits before committing to a change. Thus, to generate scalable growth, firms increasingly focus on fostering adoption for a standardized set of offerings leading to revenue generation. Without some semblance of standardized offerings and reoccurring streams of revenue, it is difficult for firms to develop the routinized internal processes, activity systems and structures that are often affiliated with scaling (Chandler, 1990; Wheelwright and Hayes, 1985).

Another stream of literature suggests that in infancy, entrepreneurial firms face a liability of newness as their prospective track record is highly uncertain (Stinchcombe, 1965). To mitigate this uncertainty and attract resources, firms engage in symbolic actions such as zealous responsiveness to customers, commitments to adapt innovations based on investor feedback, and portray narratives which allay fears regarding founders' experience (Zott & Huy, 2007; Lounsbury & Glynn, 2001). Entrepreneurial firms developing novel innovations, face a double liability as they not only must legitimize their firms, but also their innovations. Building legitimacy for an innovation involves positioning it as comparable to competitors' offerings

(Navis & Glynn, 2010), familiar to customers (Douglas & Hargadon, 2001; Kahl & Grodal, 2016) and compatible with systems or processes adopting organizations have in place, as "most innovations that are higher in perceived compatibility have a more rapid rate of adoption" (Rogers, 1983, pg. 227). The inference for the adoption process is as entrepreneurial firms progress, they cease to engage in symbolic actions, that built legitimacy in infancy (e.g., Fisher et al, 2016) and increasingly differentiate their innovation from competitors and familiar referents (Navis & Glynn, 2010). For example, Santos & Eisenhardt (2009) showed that to gain dominance in the internet commerce market, entrepreneurial firms needed to demonstrate how their products were fundamentally different from that of competitors.

Taken together, these streams of literature are extremely useful in illuminating the components and benefits of scale and differentiation. However, research neglects to explain how firms transition towards scale and differentiation given their original opposite course of direction focused on customer accommodation and building legitimacy. In other words, which activities should firms employ to seed adoption, in leu of prior actions? For example, if not responding to all customers, how did Responsys know which customers to accommodate and under what circumstances? In many industries, such as healthcare (Dougherty & Dunne, 2011; Mintzberg, 2018; Edomondson, Bohmer & Pisano, 2001) and clean tech (Kirtley & O'Mahony, 2019) customer work environments are not standardized. Thus, to gain adoption, entrepreneurs must adapt their innovations to integrate with the reality of their customers' work environments or forgo making a sale. Integration often works against efforts to scale as it requires flexibility to revise innovations for the situated context in which they are deployed (Suchman, 1987, Burt, 2004). Yet, little research examines how entrepreneurs balance their divergent needs for flexibility and scale as they attempt to seed adoption for their innovations.

Further, while research explains the importance of progressively framing an innovation as distinct from competitors, it is difficult to pinpoint how entrepreneurial firm make this transition. As noted by recent literature, "all new ventures that seek to grow into substantive enterprises will need to appeal to different audiences—with different legitimacy criteria—as they develop and evolve" (Fisher et al, 2016:385). For example, early customer audiences are often the most likely to appreciate innovations which are novel and differentiated from prior products compared with late adopters (Rogers, 1983; Moore, 1995). With this in mind, striving for progressive differentiation might actually hamper organizational adoption as entrepreneurs attempt to reach broader audiences with different, less adventurous tastes (Norman, 2013). Further, within customer organizations, the adoption decision may be dispersed among multiple parties with varying preferences and familiarity with an innovation (e.g., Fiol, 1994; Zhao et al, 2017), complicating the degree to which entrepreneurs position innovations as familiar or distinct. While scholars recognize the importance of increasing the relevancy of an innovation over time, little research examines how firms progressively gain adoption for their innovations. Thus, what is needed is research examining the process by which entrepreneurial firms adjudicate desires for scale and differentiation with a need to foster continued organization adoption.

METHODS

This paper leverages a field research design to understand how entrepreneurial firms foster organizational adoption of their innovations as they grow. I used this approach because theory regarding how entrepreneurs grow the relevancy of their innovations was underdeveloped (Edmondson & McManus, 2007) and theory development benefits when researchers enroll themselves within their context of study (Garud & Rappa,1994; Langley, 1999; Langley et al, 2013). I drew upon data collected while I was embedded in the digital health accelerator, Cure

(pseudonym) from 2016-2018. Over those years, two cohorts of entrepreneurial firms matriculated through the program. The data captured draws from all 54 firms.

Research Setting

All of the entrepreneurial firms matriculating through Cure were innovating in a common field-- digital health. Digital health is defined as the convergence of healthcare and digitally-enabled technologies which may support medical administration, care management, diagnostics, digital medicine, patient education, prevention and wellness (Mintzberg, 2018). The field of digital health is a critical area for study as scholars and policy makers alike posit that adoption of digital innovations can significantly improve healthcare outcomes or reduce spending which is predicted to represent 19.4 percent of the United States GDP by 2027[1] (Cutler, 2011; Mintzberg, 2018). Innovating in digital health often requires managing institutional complexity brought about by regulators; sales pathways mediated by insurers; insufficient technical standards and performance metrics; and long, unpredictable sales cycles (Culter, 2011). As such, digital health firms share many of the same value systems, practices and challenges associated with growing their ventures (Zietsma et al 2017). These common values and challenges helped control for variance which might otherwise motivate how entrepreneurial firms attempted to gain organizational adoption for their innovations.

Unlike most accelerator programs that source early-stage entrepreneurs looking to develop their ideas into viable products (Cohen, 2013), Cure's acceptance criteria required applicants to have a viable innovation and some business traction defined as reoccurring revenue or funding. Since this study focused on how entrepreneurial firms expanded relevancy, rather than how they launched their innovations, the firms matriculating through Cure were at an ideal

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[1] https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/ForecastSummary.pdf

point in their maturity for study. Further, following Cohen (2013), Cure is an unstructured accelerator as it offered participants classes, physical space, and access to mentors. However, entrepreneurs were not required to, and often did not, use these resources. This is an important feature as otherwise the accelerator's programming or influence might explain why entrepreneurial firms pursued organizational adoption through a particular pathway.

Sample Selection

This research draws from all 54 entrepreneurial firms that matriculated through Cure as part of the 2017 or 2018 cohorts. Following Dougherty & Hardy (1996), developing a sample of this size enabled me to investigate both commonalities and variance in the ways entrepreneurial firms fostered organizational adoption. None of the entrepreneurial firms selected to join the Cure program in either cohort declined. All of the entrepreneurial firms that applied to the 2017 and 2018 cohort were first evaluated by a group of randomly assigned judges with expertise in healthcare. In both years, 60 firms were selected to live pitch to a set of randomly assigned judges for final admittance into the program. In total, 28 entrepreneurial firms in year one and 26 entrepreneurial firms in year two progressed through the Cure program. The two cohorts were selected into Cure based on a set of common criteria such as team strength, existing traction in the market, the importance of the market problem their innovation attempted to solve, strength of their technological solution and plans for market expansion. Cure's acceptance criteria from cohort one to cohort two did not change despite growth in applications: 230 entrepreneurial firms applied for admission to cohort one and 434 entrepreneurial firms applied for cohort two. At program entry, the selected cohorts, on average, were fairly similar based on revenue generated, founder demographics, funds raised, firm age, and markets addressed. However, at program entry, entrepreneurial firms in cohort two had been in existence slightly longer (three years)

compared with entrepreneurial firms in cohort one (2.8 years) and had on average raised slightly

more funding ($1.4 million vs. $1.3 million).

Since cohorts started at different points in time, I tracked firms for the two-month vetting

period prior to entry into the Cure program; during the six months they participated in the

program and for four months after the program completed, for a total of 12 months per cohort

(two years in the field). Entrepreneurial firms shared that it generally took no longer than ten

months to close a deal for a new innovation and thus, I used this as a rough guideline (six months

in the program and four beyond) to evaluate how entrepreneurial firms gained adoption. Table 1

provides descriptive data on each cohort, including sector alignment, founder gender, firm age

and initial revenue and funding acquired at program entry.

Insert Table 1

Data Collection

I collected three types of field data: ethnographic observations, interviews and

entrepreneurial firm level data consisting of strategic planning documents, evaluations for

acceptance to Cure, applications to Cure, blog posts, product requirements and product design

documentation. Leveraging a wide variety of data sources was critical to tracing how firms

adapted their innovations over time as: "uncovering the different facets of technology requires a

comprehensive data collection effort using multiple sources" (Garud & Rappa, 1994:348).

Of particular importance to my analysis was the data I captured on each entrepreneurial

firm's evolving understanding of the "use-cases" relevant for their innovation. Originally

conceived by object-oriented software developers, use-cases bind the interactions between a

technological object and a set of specific users. As expressed by Jacobson, (1993) use-cases

"look at the system from the user's perspective. Each way a user will use the system is a view,

which is often identified as a 'use-case'. A use-case is a simple way to use a system (p.27)." In my setting, each use-case conveyed a plausible way a customer might use an entrepreneurial firm's digital innovation. For example, SCREENS original innovation digitized intake of patient medical histories for health systems. When SCREENS identified that they could create a new application in addition to their existing offering which could diagnose patients with depression, I consider this application a new use-case.

Ethnographic Observation. I observed entrepreneurs' interactions with customers, subject matter experts and users as they identified, tested and attempted to sell new use-cases over a two-year period. This data revealed that entrepreneurs believed that their new use-cases could help them grow and prompted me to more deeply explore the relationship between growth and organizational adoption. During these observations, customers, influencers and decision makers expressed their hesitations, enthusiasm and, at times, outrage for an entrepreneurial firms' new use-case.

Interviews. I conducted interviews with the CEO or founders of all 54 firms for a total of 150 entrepreneurial firm interviews. I also conducted 15 interviews with decision makers or influencers at potential customer organizations. The interviews ranged from 30 minutes to two hours. In most cases, I interviewed multiple members of each firm and conducted multiple interviews per firm. The majority of my interviews occurred immediately after members of the cohort gained admittance to the program and again, right before they completed the program. However, I also conducted interviews throughout the course of study.

Entrepreneurial Firm Data. The entrepreneurial firm data I collected comprised of three critical elements: firm applications at program entry and exit; monthly firm updates which detailed product requirements and how entrepreneurial firms were adapting their technologies

and product strategies; and periodic alumni surveys which queried whether firms gained revenue, signed new contracts, acquired funding and hired new employees post completion of the program. Entrepreneurial firms did not just fill out applications at program entry, but also refreshed these applications at program exit to reflect how they had progressed during their time at Cure. I also collected strategic planning documents, blog posts, and press releases that entrepreneurial firms published detailing how patients, doctors, administrators, etc. used their innovations. From these data, I construct an understanding of how entrepreneurial firms attempted to identify and develop use-cases over time.

Data Analysis

I started analysis by open coding my field notes and interviews. It quickly became clear that the adoption process did not always begin after an innovation was developed, but in some cases started as entrepreneurs engaged with customers to understand their unmet needs. I noticed that entrepreneurs were modified their innovations to address unmet customer needs, and gaps in the market by developing new use cases. This prompted me to better understand the relationship between the development of new use cases and adoption. Thus, I temporally ordered and then coded all of my field data (Van de Ven & Poole, 1995) paying special attention to if and how entrepreneurs identified and developed new use cases. Entrepreneurial firms in my sample often had ideas for new use cases. To rule out less plausible opportunities which might never be adopted, I only traced use-cases at "risk for adoption." A use-case was "at risk for adoption" when entrepreneurial firms actually committed resources in the form of capital or labor to development. For example, when BREATH, a software and hardware company that helps patients manage asthma, dedicated two developers to create a new use-case for patients with chronic obstructive pulmonary disease (COPD), I considered this use-case at risk for adoption.

Overall, I identified 58 new use cases. Most firms pursued adoption for a single use case, whereas four firms attempted to gain adoption for two use cases.

Analyzing adoption activities. Next, I coded my field data to identify activities entrepreneurial firms deployed to gain adoption for new use cases. Activities depict the work practices an organization enacts to accomplish a set of tasks or routines (Perlow, 1999) and were critical to analyze as activities are the building blocks of strategic processes (Pentland, 2003; Porter, 1991). Through cross comparison between extant theory and emergent codes (Glaser and Strauss 1967), I identified four key activities germane to gaining organizational adoption: (1) discovery, (2) decomposing solutions, (3) allocating resources and (4) introducing new use cases. When firms engaged in discovery, they identified new opportunities to expand the relevancy of their innovations. For example, when DOSING was prompted by insurance executives to expand their scope of offerings and pursue a new use-case, I coded this as discovery. Decomposing solutions involved assessing how to repurpose aspects of an existing innovation to develop a new use case. I coded BREATH as decomposing solutions when they evaluated how to repurpose their user interface aimed at helping children manage asthma for a new use case regarding COPD. When entrepreneurial firms allocated resources, they determined how to reconfigure their internal teams to pursue a new use case. For instance, when the CEO of DOSING dedicated Henry, a team member, to develop a new use case, I code this activity as allocating resources. Lastly, introducing a new use case involved explaining how a use-case differed from competitive alternatives and describing how an adopting organization might use a new use-case. I coded BREATH as introducing a new use case when they met with a customer and pitched their innovation as a substitute for the COPD educational program Large hospital had in place.

Exploring variance in the adoption process. My data revealed that how entrepreneurs engaged in adoption activities varied, but in limited ways. For example, when firms discovered new use cases, they either did so while engaging with customers or while conducting internal performance reviews. Two unique patterns emerged from the data: a customer centric process which focused on designing use cases to fulfill unmet customer needs; and a market centric process which focused on generating use cases to satisfy gaps in the market. While I did not expect to observe such patterns at the onset of my study, they were familiar to those offered by extant literature. The customer centric process fit with theories advocating that firms engage deeply with customers to design novel innovations (von Hippel, 1986; Norman, 2013). In contrast, the market centric pattern closely aligned with theories of disruptive innovation. Following Christensen, 1997, these entrepreneurs avoided engaging with customers to discover new use cases. Instead, they identified new use cases by examining ways to compete and dominate the broader market. Observing similar patterns to those found in prior research focused my subsequent efforts on understanding the relationship between these two divergent processes and adoption of a firm's use case.

Analyzing Use Case Adoption. I analyzed use case adoption in two ways. I first measured if entrepreneurs gained adoption for their new use case and their underlying innovation over the course of my study. To determine if an entrepreneurial firm gained organizational adoption of a new use-case, I assessed whether they were able to contract for a paid live pilot during their time at Cure and for four months after the program concluded. In general pilots are understood as tests, to determine if a new innovation can be deployed and more fully adopted by a customer organization. However, according to my informants, in healthcare, when a customer agreed to a paid pilot, there was a high likelihood of ultimately deploying that innovation into an

adopting organization's operating environment. Both customers and entrepreneurs shared that

pilots resulted in full deployment of an innovation in almost 80 percent of cases, to their

knowledge (contingent on an innovation meeting other regulatory obligations if required). As

such, paid pilots provided a valid proxy for adoption. Firms that gained adoption of a new use-

case were able to expand their market scope as the new use-case either served a new function or

customer need that widened the breadth and thus the market relevance of their innovation.

Second, because the processes I observed were similar to those described in the literature,

either customer-centric or market centric (Christensen, 1997), I also assessed whether firms were

able to design use cases that could satisfy unmet customer needs. I did this by validating with

both customers and other experts, such as investors and mentors at the accelerator program that

entrepreneurs' use cases were novel and could solve real problems facing customers. I consulted

with other experts as following Christensen & Bower, (1996), I was concerned that customers

would fail to appreciate use cases that promised to fulfill latent needs.

I then compared all of the process differences identified through coding and built a

theoretical model of how these process differences influenced organizational adoption. The

model that emerged elucidated both the importance of use cases as a mechanism for

entrepreneurial growth and how a customer centric process fosters organizational adoption.

EXPANDING SCOPE TO ACHIEVE ADOPTION

Before explaining how entrepreneurial firms gained adoption for new use cases, it is

helpful to understand why they endeavored to create new use cases to begin with, especially after

developing innovations that were gaining traction with customers and investors. Extant research

suggests that upon gaining market traction, entrepreneurs should scale their ventures by

improving replicability and growing revenue without increasing costs (Desantola & Gulati, 2017;

Tidar & Eisenhardt, 2020). However, my data revealed that all 54 entrepreneurial firms at Cure expended resources in the form of capital and time to develop new extensions for their innovations. Firms at Cure titled such extensions, new use-cases. When queried as to why entrepreneurial firms pursued new use cases, my informants relayed that new use cases provided a way, even if unconventional, to address long customer sales cycles.

According to my informants, the average duration of a customer sales cycle was seven months and could last as long as ten. "A long time for us as we have only been in existence for three years," shared Fred, the founder of NOSHOW, an appointment scheduling application. Fred relayed:

> Getting a customer to adopt takes so long. You have to talk to so many people, the business heads, IT, doctors, nurses. It's just so tedious to deal with each group as your job really becomes about building communal interest in your product where it doesn't always exist. You really need more than one way to make money with these people, in case the first way is a flop.

As Fred detailed, the sales cycle was not just lengthy but resource intense, as entrepreneurs engaged with multiple people within customer organizations to gain adoption. As such, entrepreneurial firms at Cure only entertained three to five new customers at a time: "We don't have resources to do more," shared Fred. Thus, it behooved entrepreneurs to have more than one way to gain revenue from any one given customer. Fred expressed, "You want to either bring as much to the table as possible or be willing to adapt on the fly. You want a portfolio."

At the same time, entrepreneurial firms did not want to expend precious resources on entirely new innovations. According to Kate, the CEO of NUTRITION, a digital wellness application, pursuing a new use case entailed "developing something new by using existing pieces of your innovation. So that means reusing all the fundamental pieces of your innovation such as your data model and tech stack for something new." Rather than start from scratch, when

entrepreneurs developed new use-cases, they minimally alter their underlying innovations to make that innovation relevant for a new audience or purpose. By reusing fundamental aspects of their old innovation, entrepreneurs tried to grow the scope of their venture without incurring substantial costs. As expressed by Jamie, the CIO of NOSHOW, the development of new use cases "minimized the investment required to fund new sources of revenue. They enable balancing goals for scale with a need to make our innovations more tractable."

GAINING ADOPTION FOR NEW USES CASES

I traced the activities firms deployed to gain adoption for new use cases. I identified two ways that adoption materialized through a customer centric or market centric process. Curiously, while both processes enabled entrepreneurial firms to identify new use-cases which could meet the needs of adopting organizations, only one-third of firms gained adoption for those new use-cases over the course of my study. This suggests that developing an innovation that satisfied unmet customer needs was insufficient to foster organizational adoption. Only entrepreneurial firms that learned how to pace the introduction of new use cases gained adoption.

Customer-centric process

Of the 54 entrepreneurial firms I studied, 21 employed a customer centric process. By a customer centric process, I mean that firms directly collaborated with customers to develop new use cases. This collaboration helped entrepreneurial firms formulate use cases which satisfied unmet customer needs, and learn how to strategically pace the introduction of use cases to accommodate the unique work environments of adopting organizations. Table 2 provides definitions and representative data explaining the how firms deploying a customer centric process gained organizational adoption for new use cases. I relay the in-depth experiences of

three exemplar firms, POSTINCIDENT, RECOVERY and TELA, to explicate the customer centric process in more detail.

INSERT TABLE 2

Discovery. For entrepreneurial firms leveraging a customer centric process, use case discovery occurred while meeting with executives in customer organizations to pitch existing innovations. In these meetings, rather than offer an inelastic set of products or services, entrepreneurial firms remained flexible to augment an existing innovation if it helped open the door for a sale. For example, entrepreneurial firms purposefully avoided "pushing too hard on how their innovation could be used by a customer," as explained by Tim, the CEO of POSTINCIDENT, a digital platform that helped provide post-operative care for patients receiving stents. Since meetings with executives were hard to come by, "and a critical part of the sales process," as Tim explained, he did not, "want to lose the opportunity because a product wasn't an exact fit."

For example, POSTINCIDENT secured a meeting with a chief of medicine at Large hospital. The chief was interested in POSTINCIDENT's existing innovation but wondered if the hospital could focus on a different issue, general cardiological rehab. Tim relayed, "She [the chief] wanted to know if we could support other illnesses that benefit from rehab at home. Her team has a fairly advanced routine for providing post-operative support for patients receiving stents, but ongoing rehabilitation is a major pain-point." This insight triggered POSTINCIDENT to consider a new use-case which would expand their scope from post-operative support into a larger space, cardiological rehabilitation.

While executives often shared interesting ideas, entrepreneurs were skeptical as to whether these ideas would translate into sound extensions of their innovations. Entrepreneurs'

skepticism was driven first by an acknowledgement that they did not always know much about the areas their customers pushed them towards. As Tim shared, "We didn't know much about the broader topic of cardio rehab. We were dependent on what the chief was saying." Second, entrepreneurs were concerned that executives did not understand how an innovation would be received by members of their organizations. As Tim noted, "People don't always tell their boss that a pet project sucks." POSTINCIDENT was intrigued by the issue raised by the chief but recognized the criticality of robustly understanding the problem before pursuing the idea any further. Tim expressed, "The idea was intriguing, expanding into rehab. We needed to do our due diligence. We couldn't waste time building something custom for some chief of medicine that wouldn't actually be used or more importantly, wouldn't lead to a sale." As such, firms pursuing a customer centric process took note of executives' ideas but vetted them.

Decomposing solutions. Before committing to build a new use case, entrepreneurial firms convened internally and decomposed solutions by assessing what of their existing innovation could be repurposed for a new use case. Lynn explained that first, "We all sit down and evaluate what needs to be reused. The idea is to quickly cheaply tweak, not build something crazy." Lynn described a process of analyzing a check list detailing both the fundamental and fungible aspects of their underlying innovation. Firms assessed the reusability of fundamental aspects of the innovation such as the technology stack, data model and scientific research underpinning an innovation, if relevant. Reuse of fundamental aspects was viewed as a mandate to both reduce time to produce a new use case and improve scalability. As Lynn relayed, "If the new use case requires chopping things that are fundamental, we nix it. It will just take too long. Plus, this is what gets us to a more scalable innovation as we are getting new use out of [fundamental aspects] without changing them".

Next, entrepreneurs projected a working set of requirements for their new use cases and assessed which fungible aspects of their existing innovation, such as the user interface or site content, required adaptation. Even though entrepreneurial firms had yet to fully vet executives' visions for new use cases, they formulated working requirements based on their ideas. Executives often shared the "most technologically aggressive and robust view of organizational unmet needs," as shared by Tim. Thus, decomposing solutions with executives' articulations in mind ensured entrepreneurial firms developed a new use-case that could meet the maximum requirements of the organization, even if ultimately, they build a less robust solution. Formulating requirements to the needs set forth by executives also triggered entrepreneurial firms to assume that a use case would require a notable number of resources, resources to adapt their underlying innovation and conduct the due diligence necessary to vet executives' views.

Allocating resources. When entrepreneurial firms allocated resources, they determined how to reconfigure their internal team to free capacity for the development of a new use case. Despite having on average five employees, firms employing a customer centric approach dedicated team members to engage in this work, rather than allocate team members to multiple contemporaneous projects. Dedicating a team member provided uninterrupted time to vet executives' ideas and build the relationships necessary to unlock often well-guarded information about customer work environments.

For example, Myra the head of HR at Generic insurance company, was interested in using RECOVERY's at-home drug testing capability developed for people in addiction recovery. During my interview with Myra, she expressed two issues with which she hoped RECOVERY could help: (1) cost reduction in recruiting prospective employees: drug testing through outside laboratories was expensive; and (2) more efficiently analyzing failed candidate searches, which

due to drug testing, were burdensome as drug usage policies within her organization frequently updated. Myra relayed, "We can't just ding people who have a positive drug test. These days all the intangibles come into play." The changed policy introduced a new work burden on the HR team, but from Myra's perspective, "This analysis could be handled by an algorithm. It would make for less work and it would be easier for us to justify our analysis."

Matt, the founder of RECOVERY, understood Myra's issues but was dubious about whether other members of the HR department would appreciate a use case that could eliminate their need to conduct analysis on failed candidate searches. Matt explained that giving Jane, a member of his team, uninterrupted time to explore the new use case "enabled her to spend time just scoping [the use case] out with people within [Generic]." Jane regularly met with 10 people with diversified roles and responsibilities within and outside the HR department. She observed them at work and joined their meetings. Jane explained that if she wanted to see the way HR conducted analysis, to determine if and how to automate the failed search process, she would need to integrate herself within HR. Jane shared, "I needed time to iterate and be available whenever a member of Generic was free to talk. I couldn't answer the call of other customer obligations or tasks that could interfere." Thus, dedicating resources gave firms uninterrupted time to validate executive's ideas of unmet needs and determine how to solve for those needs.

Second, dedicating resources enabled firms to build deep relationships within adopting organizations. From these relationships, entrepreneurial firms developed an understanding of the work environments of adopting organizations and the obstacles members of an organization could erect when that environment was challenged by the introduction new innovations. Matt relayed how Jane gained such insight, "Because the HR folks and other business people got to know Jane, they just spilled their guts to her. We thought dedicating someone would help us

focus, but it also had a surprising effect. We gained all this info about people's concerns."

Further, because Jane's interactions spanned levels and occupational groups, she gained a system view of the working environment at Generic, and how an innovation might disrupt that environment by shifting work roles and jurisdictional tasks.

In fact, Jane shared with me that one customer member explained how a different firm at Cure, that did not dedicate resources, had tried to:

> Just ram the thing in. They had all these features that appealed to top executives, as it could automate aspects of the claims process and make the whole thing more efficient. But when the middle managers and underwriters and other groups got it, they were really concerned. They thought it might threaten their job. My contact at Generic was like – oh yeah, this is another way management is trying to make our jobs better and reduce workload, but really fire people. So, my contact totally pooh, poohed the thing, and said it wouldn't work. They didn't adopt it.

My field notes confirmed that the firm in question, did indeed develop a new use case that executives at Generic found appealing and did solve for a clear issue in the organization. But middle managers across roles and occupational groups found the use case threatening, as it could automate some of their collective work. They rallied together and advocated successfully for Generic to forgo adopting the firm's use case. The entrepreneurial firm had failed to build deep relationships with members of Generic and thus did not gain information about how to introduce their use case in a way that appealed to the broader organization.

Introducing use cases. When entrepreneurial firms introduced new use cases, they determined how to position a use case in comparison to market and organizational substitutes and established the speed at which to deploy a new use case. Firms employing a customer centric process leveraged the information they gained about the work environments of adopting organizations to strategically pace the introduction of new use cases. Strategic pacing unfolded in two ways. First, in the short-run, firms introduced only a subset of the features embedded within

their new use case. Second, entrepreneurial firms downplayed how their use cases might automate work in adopting organizations by introducing their use cases as tools rather than substitutes for labor or competitive products. In both cases, they kept open the possibility of later deploying their use cases as a substitute to market and organizational alternatives and introducing additional features that supported such positioning. For example, RECOVERY developed the search analysis tool as part of their use case for drug testing of prospective employees. However, based on the information they gained collaborating with Generic, they did not immediately introduce the function. As Jane explained, "I figured out we could eventually launch [the analysis feature], because Myra really wanted it. But not in the beginning, because the team would fight it and we would not get anything adopted. We first had to introduce the drug testing-at-home capability, and then later we could roll out the other piece."

Second, drawing from another example, TELA introduced their new use cases as a tool rather than a substitute for labor to gain organizational adoption with Local hospital. TELA, a telehealth platform, developed a new use case which could diagnose smart phone images of skin lesions as cancerous or benign. Kim, the CEO of TELA, relayed that in the short-run she would "position this new use-case as a tool for nurses" to support work nurses undertook to triage patients' symptoms and prioritize their visits with dermatologists. Later on, once the use case was deployed at Local, TELA would demonstrate how the tool could substitute for the work nurses conducted triaging patients. Kim explained, "We probably will try to get the administrators to use [the diagnostic tool]" to automate the full triage to scheduling process." This would enable TELA to gain organization adoption for the use case in the short-run and still offer a disruptive capability over time. As such, a customer centric process enabled

entrepreneurial firms to build use cases that appeased diverse members within adopting organizations and offered future wherewithal.

Market-centered process

Approximately two-thirds of the firms I studied utilized a market centric process to gain organizational adoption for new use cases. A market centric process entailed formulating disruptive new use cases that fulfilled market gaps and differed from competitive alternatives. Firms leveraging a market centric process developed use cases that satisfied the unmet needs of adopting organizations but struggled to gain organizational adoption for new use cases. Table 3 details how firms pursuing a market centric process discovered new use cases, decomposed their existing solutions, allocated resources and introduced their innovations to adopting organizations. I explain how three firms, NUTRITION, CARE AND ERULES, pursued a market centric process in detail.

INSERT TABLE 3

Discovery. In contrast to discovering new use cases collaboratively with customers, entrepreneurial firms employing a market centric process discovered new use cases when conducting internal reviews aimed at digging into the latest actions of competitors. For example, NUTRITION, a wellness application, implemented internal reviews to analyze how their innovation fared in the market compared with key competitors. During one such review session, Cathy, the head of product, raised that the market for wellness applications was saturated, but few competitors were addressing pregnancy wellness as a niche. This triggered NUTRITION to consider a new use-case that would broaden their scope from providing general diet and nutritional coaching to also offering more specialized coaching.

Over the course of my study, all 54 entrepreneurial firms had the opportunity to work collaboratively with customers to discover new use cases, yet firms pursuing a market centric process refrained from doing so. My data reveals two reasons why entrepreneurs avoided engaging with customers to discover new use cases. First, entrepreneurial firms employing a market centric process had previously invested time engaging with customers to unearth unmet needs and develop their underlying innovation. Entrepreneurs believed this upfront investment in understanding the customer was robust and transferable and thus, could inform development of a new use case. For example, Kate, the CEO of NUTRITION, shared how NUTRITION had made "a big investment in understanding what customers needed and valued." They would not need "to circle backwards and through the process again and again." Second, in line with research on impression management (Zott & Huy, 2007), entrepreneurs pursuing a market centric process endeavored to appear well prepared when meeting with customers. As Kate expressed, "One way to show you understand your customer, is to have options ready on the table, rather than fumble to adapt in the moment. If you don't know the issues when you are meeting with execs to sell your product, you look unprofessional." While firms leveraging a customer centric process discovered new use cases as part of an open collaboration with customers, firms pursuing a market centric process avoided such interactions, viewing them as inefficient and as Kate shared, "unprofessional." Instead, they anchored their new use cases to gaps they uncovered in the market when comparing their own innovations to that of competitors and substitutes.

Decomposing solutions. All of the firms I studied considered how to reuse their existing innovation before developing a new use case. However, since a market centric process involved deriving use cases by scanning competitors activities, entrepreneurial firms maintained that

preview while decomposing solutions. Thus, firms leveraging a market centric process analyzed competitors' products and services rather than customers' challenges and ideas when decomposing solutions. John, the CIO of NUTRITION, explained:

> We downloaded [competitor's] products to understand how they were addressing, pregnancy wellness. We saw that they were focused on it generally, but did not really have information for women with underlying health issues, like high blood pressure or diabetes. We really understand those issues from our general work in wellness and nutrition. Thus, we could offer health plans a more comprehensive offering, maybe even a cheaper option than having these women meet more frequently with doctors or nurse practitioners.

In contrast to firms pursuing a customer centric process that believed they knew little about the space their new use case could address, entrepreneurial firms deploying a market centric process leveraged their existing expertise to address gaps in the market. For example, NUTRITION believed their general expertise on diabetes would help them develop a new use case that could "surpass and disrupt what [competitors] are doing in pregnancy" as John shared.

According to a number of my informants, this approach to decomposition also provided "A bird's eye view of what many customers wanted at the market level, not just a single customer," as John explained This enabled firms to move away from myopically focusing on the unique circumstances of a single customer. John relayed, "If you do listen to customers, you have to vet what they say against other customers to ensure you don't develop anything too custom that no one else will buy. That all takes so much time." Decomposing with a customer's viewpoint in mind required either significant time to vet or could diminish scalability. Both limited the benefits of developing a new use case, which in the words of Kate from NUTRITION, "was a quick, cheap, scalable way to increase revenue." In this way, entrepreneurial firms pursuing a market centric process leveraged preexisting expertise and the

information gained from decomposition to formulate use cases that could fulfill gaps in the market, not just the needs of single customer.

Allocating resources. Extant research suggests that because entrepreneurs are unfettered by asset specific investments (Penrose, 1959) and are effective at bricolage (Baker & Nelson, 2005), they can engage in multiple tasks at once. Consistent with this suggestion, entrepreneurs employing a market centric process allocated team members to both develop new use cases and attend to existing business concerns at the same time. these firms assumed that new use case would take minimal resources to build as they planned to rely on their existing expertise.

For example, CARE, a company that coordinates patient care across different hospital departments, realized they could develop a new use-case to reduce test duplication in clinical settings. Although Jim was already supporting technical maintenance of CARE's existing innovation, the CTO believed he could split his time, as Jim had preexisting expertise regarding development of the new use case. The CTO of CARE shared, "Jim wrote our reconciliation scripts that compare across different clinical areas before. He can just apply those aspects of our existing innovation to this new use-case". The CTO explained that, "Jim can be like 70 on the new dev and like 30 on old. That way when things come up on our current application, he can support. That application should be pretty plug and play at this point." Jim's expertise along with the "plug and play" status of their initial innovation gave the CTO of CARE comfort and latitude to allocate Jim's time to both new and old parts of the business.

Despite assumptions that ongoing business concerns would not require much attention, troubleshooting issues on an initial innovation took time. For example, instead of being 70 percent on new development, Jim from CARE spent 70 percent of his time on troubleshooting

CARE's existing innovation. This detracted from Jim's focus as he shared, "I didn't have any time to do deep customer work and observe how doctors and nurses would use the new use case in practice." Jim was concerned that he made a lot of assumptions regarding doctors' trust in tests conducted in different clinical environments or departments. He shared, "I just assumed they would use previous tests if they had access to results. But what if the issue is, they don't trust the tests and think it is their job to order tests; not that they are unaware of prior tests. That is a different problem." Yet, Jim did not have the time to fact find and uncover the "real problems behind test duplication" as he shared.

Further, these firms did not have time to forge deep relationships with customers. Thus, they did not gain information about how a use case might be received by diverse members within an adopting organization. Jim explained how he had conducted some testing with users. These users expressed how the functionality embedded within CARE's new use case was appealing. However, the users did not explain how the use case would be received in their organization.

> We did do some testing, after we built the use case. I set up some testing interviews. I remember this one doc was like ya, [the use case] is brilliant. I realized later, she thought it was a good idea in principle, but would never use it. There is too much political and legal pressure to order your own tests. She didn't share how doctors would advocate against it, and that doctors had quite a bit of power in her organization.

As such, firms leveraging a market centric process developed use cases that satisfied market gaps, but did not gain an understanding of how the adoption decision might unfold within customer organizations. Unlike firms pursuing a customer centric process, they did not gain an appreciation for the context specific dynamics of customer work environments nor how to navigate those dynamics.

Introducing new use cases. Extant literature advocates that upon establishing market legitimacy, entrepreneurial firms should seek to differentiate themselves from competitors and

market alternatives (Navis and Glynn, 2010). Consistent with this suggestion and in contrast to firms pursuing a customer centric process, firms leveraging a market centric process presented themselves as alternatives to competitors and organizational substitutes. In efforts to differentiate from market alternatives, these firms also comprehensively rolled out all of the functionality embedded within their use cases rather than hold back disruptive elements.

For example, E-RULES, which coordinated care for patients with diabetes, designed a use case that could automatically modify care management plans for patients with depression. Ned, the CEO of E-RULES, explained how their prior knowledge and investigation of market alternatives motivated their approach: "We based our use case on what we knew from developing our diabetes offering and the new stuff we learned about competitors. This enabled us to create something that surpassed competitors, but also gave us the awareness that opportunity wasn't going to last forever. The market for mental health is moving fast." A market centric processes helped firms gain a sense of the speed at which competitors were moving and what might be required to respond. Another factor contributing to why firms introduced their use cases as distinct from substitutes was a view that customers were uninclined to adopt innovations too similar to processes or technology deployed within their organizations. Ned shared, "Why would [Big hospital] adopt it if it is basically the same thing as what they do. We were like, we have to show them how what we have really makes a difference. How it is better than what they are currently using."

Despite generating a use case that could surpass competitor offerings and differed from organizational substitutes, E-RULES received significant pushback on its new use-case when attempting to gain organizational adoption. E-RULES's use case automated aspects of care management which represented an immediate threat to nurses, critical influencers to a potential

purchasing decision. Heads of nursing when asked about adopting E-RULES's use case: "You can't just automate [updating and distributing care plans]. It's what we do. We are the layer between the patient and the doctor. It is a critical touchpoint." Ned shared his insight as to why E-RULE could not gain commitment:

> E-RULES can't work by itself. Well it can technically, but we won't get buy in. We missed this in our development process. The nurses want us to acknowledge that we're relying on them to take information, and then make the appropriate changes to the care plan. And so, I hear that and it's like, okay, there's some art here and it just needs to be acknowledged as much as we want to engineer it.

Firms utilizing a market centric process failed to understand how their use cases would be received by critical decision-makers and gatekeepers within adopting organizations. They never gained a contextual understanding of customers' work environments and thus did not know to strategically pace the introduction of new use cases.

VARIATION IN THE USE-CASE ADOPTION PROCESS

All 54 firms I studied identify ways to achieve scale while growing their market scope by reusing their existing innovation to develop new use cases. Further all firms developed use cases which could satisfied unmet customer needs, in a scalable way. Yet, firms leveraging a market centric process struggled to gain adoption for their use cases. Table 4 maps use case adoption rates by process. The table shows that generally, firms deploying a customer centric process gained organizational adoption for new use cases, whereas firms utilizing a market centric process, at least during the course of my study, did not.

INSERT TABLE 4

There are several factors I evaluated to determine why some entrepreneurial firms gained adoption for their new use-cases while others were not. Literature would suggest that firms which acquired greater levels of funding, and revenue at the beginning of my study may be of a

higher quality (e.g., Guzman and Stern, 2015; Kerr, Nanda & Rhodes-Kropf, 2014) and as a result would be more likely to gain adoption for new use cases. I did not find this to be the case, as some firms that had generated greater than average levels of revenue or funding leveraged a customer centric process, and some a market centric process. Founder gender, sub-sector alignment or founder experience also did not indicate whether an entrepreneurial firm was more or less likely to gain adoption for a new use-case. I also examined whether firms attempted to sell new use-cases to existing customers or new customer, and this too did not explain the results.

One factor that would seem critical to the adoption of new use cases is to what degree a new use case departed from an initial innovation. Use cases that greatly differed from an underlying innovation might have taken longer to build or required more market fact finding to develop than use cases that were more similar to an underlying innovation. This was more challenging to unpack, as it is difficult to know precisely how many changes firms made to their underlying innovation to deliver a new use case. However, very few firms developed use cases which expanded into new sub-sectors or new markets altogether. For instance, if a firm's original innovation improved care management, generally a new use case also addressed the care management sub-sector. Another potential concern was that to ensure adoption, firms employing a customer centric process developed use cases tightly fit to the purposes of a single customer. In doing so, they built a use case irrelevant for all other organizations. However, this was not the case. Firms pursuing a customer centric process often gained adoption for new use cases from organizations other than the one they collaborated with during discovery, at least over the course of my study.

If these factors did not explain how firms achieved organizational adoption, what might account for the variance I observed? The data revealed that developing a use case that satisfied unmet customer needs was insufficient to fostering adoption. Instead, a critical component to gaining organization adoption was learning how to strategically pace the introduction of a new use case – insight gained by using a customer centric process. Figure 1 depicts a model for influencing use case adoption. The model relays how firms using a customer centric process, uncovered the often obscure dynamics of customer work environments such as who had influence, and how influence was wielded, which informed the use of strategic pacing.

INSERT FIGURE 1

I derived this model by comparing the actions taken by firms pursuing a customer centric process with the actions both employed and avoided by firms utilizing a market centric process. This comparison helped elucidate the critical antecedents, components and outcomes of use case adoption.

As the right side of the model relays, use case adoption was predicated on two critical antecedents. First, entrepreneurial firms that ultimately gained adoption for their use cases, questioned the extensibility of their prior knowledge, and restrained the use of this knowledge when developing a new use case. Although these firms had conducted deep due diligence with customers originally, to launch their underlying innovations, they did not presume that the insights gained from such efforts extended to new development. This triggered entrepreneurs to decompose their solutions with executive's ideas in mind and assess how they could address those ideas using their existing innovation as a starting point. This stands in stark contrast to firms leveraging a market centric process, as these firms viewed their prior customer due

diligence as highly relevant for new development efforts. Indeed, prior knowledge and expertise helped firms identify unmet customer needs, but they did not gain adoption for these use cases.

A second antecedent was skepticism of executives' views on opportunities for new use cases, as executives did not always understand how a new innovation would be received within their own business units or departments. Skepticism led firms to understand that it would take time and effort to vet executives' ideas, prompting firms to dedicated team members, rather than splitting a team member's attention across multiple projects, to engage deeply within customer organizations. Deep customer engagement involved building relationships with diverse members of a customer organization -- beyond just executives -- spanning roles, levels and professions. Through such engagement, entrepreneurs learned that executives were critical sources of information regarding an innovation's future potential, but middle managers, line workers and professionals had stronger grasps on what an organization would currently adopt. Moreover, non-executives, middle managers and professionals often directly influenced adoption decisions (e.g., Dutton and Ashford, 1993) and their views on the usefulness of an innovation could vary greatly from that of executives. Interweaving the perspectives of various members within a customer organization enabled entrepreneurs to robustly design use cases (Hargadon & Douglas, 2001), that could evolve with customers' work environments and identify how to hold back, in the short-run, aspects of their use cases that were more controversial.

As the model relays, decomposing solutions based on executives' input and dedicating resources enabled firms to design robust use cases and gain a contextual understanding of customer's work environments. Combined these inputs informed how firms strategically paced the introduction of new use-cases. Strategic pacing comprised of holding back disruptive aspects of a use case that members of an adopting organization might find threatening. Disruptive

aspects of a use case entailed functionality that could displace work or role relations within an adopting organization. Holding back disruptive aspects of a use case did not mean firms neglected to develop such functionality. On the contrary, firms pursuing both customer and market centric processes, developed use cases with the potential to disrupt customer work environments, as such features were often what differentiated a use case from competitors' offerings. However, strategic pacing involved restraint; withholding disruptive elements of a use case to foster adoption but planning to release such elements in the future. In a similar vein, strategic pacing also involved positioning a use case in the near term as a complement to systems and processes customers had in place. When innovations complement systems in place, they are more easily integrated as adopting organizations need not adapt ancillary systems or processes to accommodate the new innovation (Rogers, 1983).

The left side of the model depicts outcomes. The entrepreneurial firms that leveraged a customer centric process gained adoption for their new use cases. But perhaps more critically, these firms grew the relevance of their innovations, in a scalable way. When firms realize their investment in new use cases, they built scale and grew market scope. Firms built scale because they reused much of their existing innovations as a foundation for new use cases. New use cases also extended the relevance of innovations with new and existing customer audiences.

Discussion

Heeding calls for in-depth field research on entrepreneurial firm lifecycle transitions (Aldrich & Reuf, 2006; Fisher et al, 2016), this study examines *how*, as opposed to *whether*, 54 entrepreneurial firms gained organizational adoption for their innovations as they grew. In doing so, I show one plausible way entrepreneurial firms can balance the need to scale and differentiate their innovations while maintaining flexibility and legitimacy over time.

Entrepreneurial transitions in growth and scale

The literature on entrepreneurship posits that as entrepreneurial firms advance from infancy to maturity, they increasingly focus on differentiation and scalable growth. To achieve these goals, research suggests firms cease engaging in actions that might have fostered early adoption, and instead focus on increasing market share for launched innovations, reducing costs associated with selling existing offerings and improving product and process replicability, (Chandler, 1990; Santos & Eisenhardt, 2008; Tidhar & Eisenhardt, 2020; Desantola & Gulati, 2017). Yet, in a departure from extant scholarship, none of the firms I studied pursued growth as outlined. Rather than promoting previously launched innovations to increase market share, or improving product and process consistency, firms invested resources in developing new use cases. New use cases held the potential to expand the relevancy of entrepreneurial firms' innovations with new and existing customers, thereby growing a firm's market scope. Market scope comprises the range of product categories, markets, customer segments or service areas in which organizations actively participate (Peng, Lee, & Wang, 2005). Thus, when firms at Cure expanded their market scope, they increased the product categories, service areas, or customer segments for which their innovation was relevant.

Yet the pursuit of scope expansion did not prevent firms from scaling. Scholars have long established the relationship between scope and scale and postulate that a focus on scale creates the efficiencies necessary to later expand market scope (Penrose, 1959; Gross, 2018). As Chandler (1990) illustrates, it was only after Pittsburgh Plate Glass Company found cheaper ways to produce glass, centralized their administration and concentrated production facilities, that they focused on expanding scope. In contrast to extant scholarship, I observed the inverse. By expanding their market scope through the development of new use cases, entrepreneurial

firms also achieved some measure of scale. Little went to waste when entrepreneurs generated new use cases as they reused costly technology investments and retooled more fungible aspects of their underlying innovation, such as user interfaces and site content. In this way, entrepreneurial firms scaled the use of their innovations by making them more relevant for new and existing audiences. One explanation for this reversal in the relationship between scope and scale may be attributed to the maturity of the firms I studied. Though growing, all firms were still at a nascent point of development, whereas prior research has focused on more mature entrepreneurial firms (Chandler, 1990) or incumbent organizations (Helfat & Eisenhardt, 2004; Penrose, 1959). This focal difference in firm maturity highlights an intriguing insight for future research. As entrepreneurial firms grow, the relationship between scope and scale may shift. In nascency, growth in market scope begets scale but as firms mature, investments in scale expand a firm's latitude for growth in market scope.

Organizational adoption and strategic pacing

A core contribution of this study is the examination of two divergent ways entrepreneurs pursue organizational adoption for their innovations. The processes that emerged from my analysis -- one customer centric, the other market centric -- were aligned with two contradictory ways extant literature suggests firms pursue the design of novel innovations (Slater & Narver, 1998). One stream heralds customers as a critical source of innovative inspiration (Wheelwright & Clark, 1992; von Hippel, 1988). The other steam, in stark contrast, argues that firms fail to design novel innovations with broad appeal when they "listen too carefully to their customers" (Christensen & Bower, 1996:198).

As these contradictions suggest, scholars have long debated to what degree firms should engage with customers as a source of innovative discovery. This study offers a step forward in

resolving this persistent debate. All of the firms I studied, regardless of the process they pursued, developed use cases with power to fulfill both recognized and latent customer needs. In contrast with literature taking a market centric perspective (Christensen & Bower, 1996; Christensen, 1997; Slater & Naver, 1998), I found that customer executives, were not myopic, but rather, rich fonts of information regarding the potential for digital health innovations, and how to deliver on that potential. Consider the views of Myra, the HR executive who advocated for RECOVERY to examine the role algorithms could play in expanding the relevance of their innovation. Analysts, middle managers and professionals were less progressive in their views, but not for the reason ascribed by the literature. Doctors and nurses for example understood the potential for novel innovations to reshape their work environments, in perhaps threatening ways, and advocated against adopting these types of innovations for those reasons.

A customer centric process helped firms develop use cases that were more readily adopted by users, whereas, a market centric process did not. Literature advocating for customer-led innovation, would attribute this to a failure in uncovering unmet customer needs stemming from an over-reliance on internal firm knowledge (von Hippel, 1988; Jeppesen & Fredriksen, 2006; Lifshitz-Assaf, 2018). Firms that used a market centric process tempered their engagement with customers and instead relied on existing firm knowledge to develop use cases. However, it did not prevent these firms from designing use cases meeting the needs of customer organizations. Lack of customer engagement did limit firms using a market centric process from uncovering how to strategically pace the introduction of their innovations. A customer centric process helped entrepreneurs build deep relationships with various influential members of customer organizations spanning levels, professions and roles, who shared their apprehensions regarding how an innovation might alter their work environments. From these insights,

entrepreneurial firms pursuing a customer centric process learned to design use cases for the future, and strategically pace the introduction of controversial features embedded within these use cases.

Recent work highlights the positive relationship between venture growth and entrepreneurial pacing, where entrepreneurs pause their activities to reflect on their prior actions and let market uncertainties shakeout (Mcdonald & Eisenhardt, 2019). I build on work addressing the role of pacing in entrepreneurial action (Eisenhardt & McDonald, 2019; Wood, Bakker & Fisher, 2021) by demonstrating how entrepreneurs actively use pacing to pursue growth. In a departure from the literature, I show how firms use pacing strategically, not only as an internal device for reflection and passive learning, or to calculate "waiting time" (Schoonhoven et al, 1990). Rather, entrepreneurs used pacing strategically as a way to influence the actions of external parties, such as customers. Strategic pacing was a powerful device that enabled entrepreneurs to deliver use cases that could evolve with customers' tastes and preferences.

Adopting organizations and organizational adoption

In contrast to the literature, which typically evaluates the relationship between how an innovation is framed and if it is adopted and diffused (Kahl & Grodal, 2016; Gurses & Ozcan, 2016), I examine the adoption process from discovery through acceptance. As a result, I shed light on the important role non-executives and professionals play in designing novel innovations and attenuating their disruptive qualities. Ferlie et al (2005) suggest that the boundaries between professional communities can slow the pace at which novel innovations diffuse. Building on this work, I found that professionals and other occupational groups influenced if and how an

innovation was adopted. In contrast, in this study professionals and other occupational groups often worked collectively to upend the adoption of a potentially threatening innovation. Anteby et al (2015) suggest, little research addresses the conditions under which occupational groups and others collaborate to collectively act. This study suggests that adoption decisions, which may threaten to introduce technology reshaping organizational work environments may create the occasions for disparate an often conflicting groups to rally together to advocate for their collective interests. For entrepreneurial actors, understanding how to craft products and services that accommodate the preferences of diverse decision makers and influencers becomes an important component to gaining adoption for novel innovations.

Limitations and Future research

I show how entrepreneurs influence the adoption process in the field of digital health. While other fields, such as financial services and clean tech (Mintzberg, 2018) operate under similar conditions, where it is challenging to penetrate and scale sales efforts, I did not investigate how my observations apply in other contexts. Moreover, this research does not address the long-term effects of leveraging a customer centric adoption process and strategic pacing in the field of health or other fields of interest. Future research would do well to understanding the degree to which a customer centric process and strategic pacing enable other types of entrepreneurial growth (i.e. funding) in the field of digital health and beyond. This study offers one way in which entrepreneurial firms transition from infancy by developing new use cases and expanding market scope. Yet, much remains to be uncovered regarding how entrepreneurs balancing often divergent needs for scale and flexibility, differentiation and legitimacy.

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Table 1: Entrepreneurial Firm Descriptives

Firm Pseudonym (N = 54)	Digital Health Sector	Cohort	CEO Gender	Firm Age (Years)	Initial Annual Revenue	Initial Funding	# of Founders	Previous Startup
COORD	Care Management	1	M	5	High	high	5	no
CARE	Care Management	1	M	4	High	mid	2	no
DRUGS	Care Management	1	M	1	Mid	high	2	yes
NOSHOW	Care Management	1	M	4	High	high	1	no
MANAGE	Care Management	1	M	3	Mid	high	4	no
CLAIMS	Care Management	1	M	3	High	low	3	yes
PHYSICAL	Care Management	1	M	1	Low	mid	2	no
CAREAIDS	Care Management	1	F	4	High	low	1	no
PRESS	Care Management	1	F	1	Low	low	4	no
TINY	Care Management	1	F	2	Mid	mid	2	no
DEVICES	Care Management	1	F	2	High	low	2	no
EMERGENCY	Care Management	1	F	2	Mid	high	3	no
ATTEND	Care Management	2	M	4	High	mid	3	Yes
DIRECTIONS	Care Management	2	M	5	High	low	3	Yes
SOUND	Care Management	2	M	3	High	high	4	Yes
ROBOT	Care Management	2	M	3	mid	high	3	Yes
SMARTH	Care Management	2	M	6	high	high	3	Yes
GIVERS	Care Management	2	M	4	mid	mid	2	Yes
E-RULES	Care Management	2	M	3	high	high	3	Yes
SCREENS	Care Management	2	M	7	high	high	1	Yes
ELDER	Care Management	2	F	2	low	low	2	Yes
MATERNITY	Care Management	2	F	2	low	mid	2	No
VITAL	Care Management	2	F	1	low	low	2	No
BREATH	Care Management	2	F	4	low	mid	3	No
NICU	Care Management	2	F	2	low	high	1	Yes
SENSE	Diagnostics	1	M	2	low	mid	5	no
BEEB	Diagnostics	1	M	2	low	low	2	no
VIRTUAL	Diagnostics	1	M	8	high	high	4	yes
TELA	Diagnostics	1	F	2	high	mid	4	no
CANCER	Diagnostics	1	F	2	low	mid	2	no
DOSING	Diagnostics	2	M	3	low	low	2	No
WHITE	Diagnostics	2	M	1	low	mid	4	No
RULES	Diagnostics	2	M	5	mid	high	3	Yes
BLOOD	Diagnostics	2	M	5	low	low	2	No
INJECT	Diagnostics	2	M	1	low	low	1	no
RARE	Diagnostics	2	M	2	high	mid	3	Yes
DIAB	Diagnostics	2	M	3	mid	mid	4	Yes
ANALYTICS	Diagnostics	2	M	1	low	mid	3	No
RECOVERY	Diagnostics	2	M	2	mid	mid	2	No
BACTERIA	Diagnostics	2	F	2	low	low	3	Yes
EMERGE	Patient Education	1	M	3	high	mid	4	yes
END	Patient Education	1	F	2	mid	low	1	yes
FRIENDS	Patient Education	1	F	1	mid	low	2	no
GAMES	Patient Education	1	F	3	low	mid	1	no
INTERVENE	Patient Education	2	M	1	low	low	1	No
AI	Patient Education	2	F	1	high	high	1	no
DIRECTORY	Patient Education	2	F	2	mid	mid	2	No
CHARGE	Treatment	1	F	4	low	high	2	yes
SLEEP	Treatment	2	F	4	high	high	3	No
NUTRITION	Wellness	1	M	3	mid	low	2	no
COACH	Wellness	1	M	3	mid	low	4	no
ECARE	Wellness	1	M	2	mid	low	3	no
WELL	Wellness	2	M	3	mid	high	2	No
PLATE	Wellness	2	M	7	mid	high	2	Yes

Table 2: Customer centric process activities and representative data

Activities	Application of activity	Representative data	Frequency
Discovery *Identifying new use cases*	Engage collaboratively with customers to uncover opportunities which expand the relevancy of an innovation	**EMERGENCY:** "A new use-case happens when customers key you into a way to use your product differently. Sometimes customers interact with our product and are like wow we have this other problem. Can you help us tackle it?" **DOSING:** "When the customer comes to us with an idea about how our tech can solve an issue for them, we get them involved in the process of exploring the issue. "	86%
Decomposing solutions *Assessing the reusability of an underlying innovation for a new use case*	Decompose solutions based on the requirements of executives within customer organizations	**BEEB:** "We got into the details of our conversation with the chief [of medicine] and see if we can make our stuff work for that." **MANAGE:** "This hospital CIO wanted to know if we could make our application work for them. We had to go through it, see if we could make it work cheaply - but we definitely wanted to, it was a huge opportunity for a new use case."	79%
Allocating resources *Reconfiguring entrepreneurial teams to support new use case development*	Allocate dedicated team members to new use case development efforts	**SLEEP:** "The new use case was going to take some effort as we didn't know a lot about [the new disease area], so we put someone on it, full time." **ELDER:** "We didn't want to focus on Alzheimer's because, well we didn't know that space. A little bit but not well. But the customer made it enticing. It does offer a big opportunity, but [person's name] had to be 100% on it, if we were going to do it. We had to get it right."	79%
Introducing new use cases *Determining how to position a use for customer audiences and the speed at which to deploy a use case*	Leverage strategic pacing to introduce new use cases as complements to processes and systems in place within customer organizations and withhold controversial aspects of new use cases	**SOUND:** "We really are better than all the big company market alternatives, but we would never say that out loud. Instead, we say we work with them." **SLEEP:** "The nurses hated the use-case, totally got rid of their work. So, we gave it to them, as support, to make their job easier. We realized it was the only way to get it."	95%

Note: Frequency calculated based on the total number of firms that leveraged a customer centric process

Table 3: Market centric process activities and representative data

Activities	Application of activity	Representative data	Frequency
Discovery *Identifying new use cases*	Identify use cases based on internal team reviews	**PHYSICAL:** "As a matter of course, we are always assessing if our technology can be applied to a new problem. If we can't quickly identify something, we move on. However, we like to spend a lot of time figuring out how our technology can be applied and adapted to that new problem." **CLAIMS:** "We review our progress ever week. During these meetings we assess how we can grow, if we can evolve our product to compete more effectively in the market	87%
Decomposing solutions *Assessing the reusability of an underlying innovation for a new use case*	Decompose solutions based on analysis of competitors' offerings	**BREATH:** "When we are thinking about new use-cases, we spend a lot of time thinking about what the competition does and how we can differentiate." **CAREAIDS:** "Before we develop a new use cases, we try to understand what the competition is doing. Can we do it better?"	84%
Allocating resources *Reconfiguring entrepreneurial teams to support new use case development*	Allocate team members to work across going business concerns and use case development	**CAREAIDS:** "We think this is a small build, and we will use a lot of what we have to do this. So we don't need a dedicated team." **CLAIMS:** "Reusing existing technology lets us maintain what we are doing and also build new"	92%
Introducing new use cases *Determining how to position a use for customer audiences and the speed at which to deploy a use case*	Position a use case as a substitute for competitive offerings and organizational processes Comprehensively introduce all features embedded within a use case	**NICU:** "You strike when the irons hot, and don't hold anything back. We want our use-case to beat out the big competition, so we want the customer to know everything we can do." **COORD:** "We now have this very comprehensive platform, which integrates 3 new elements of automation. It can basically automate most of the functions coordinators do today to give docs a direct update."	95%

Note: Frequency calculated based on the total number of firms that leveraged a market centric process

Table 4: Use case adoption rates by process

	Customer centric process	Market centric process
Number of use cases by process	21	37
Sub-sectors by process	Care management, Diagnostics, Patient Education, Treatment & Wellness	Care management, Diagnostics, Patient Education, Treatment & Wellness
Percent of use cases targeted at new customer segments	55%	60%
Percent of firms with a female CEO	38%	32%
Percent of CEOs with prior venture experience	38%	35%
Percent of new use cases adoption by at least one customer	70%	30%

Figure 1: A customer centric process for influencing organizational adoption of new use cases

Antecedents   **Components**   **Outcomes**

Restrained application of prior knowledge:

View that information gained while developing initial innovation will not fully apply to generating a new use case

Decomposing to executive's needs:

• Generates a robust set of design requirements

• Supports reuse of underlying innovation

Collaborative Discovery:

• Identifies new opportunity to extend an existing innovation

• Generates a captive customer

Strategic pacing:

• Temporarily withholding aspects of a use case that can displace work or organizational role relations

• Positioning a use case, in the short-term, as a complement to processes and systems customers have in place

Robustly designed use case

Use case adoption

Scaled use of underlying innovation

Increase in market scope

Skepticism of executive's views:

Interest in engaging with diverse members of a customer organization to understand use case opportunity

Dedicated resources:

• Enables vetting of executives' ideas

• Enables deep engagement to uncover contextual understanding of customer work environments