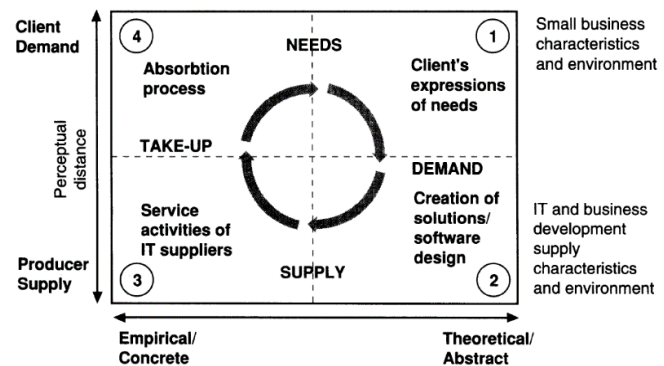Mind the Gaps: Technology Adoption and the Small Retail Business

Uma Swamy and Nancy Hodges, University of North Carolina at Greensboro

Technology can provide a key competitive advantage to small retailers, but not all small firms are able to convert this opportunity into reality, as they often do not have the resources to adopt it or access to the skills required to deploy it (Lee, 2004; Nguyen et al., 2015). Disconnects between ideas about what small retail businesses (SRBs) need in terms of technology and what is available to them in terms of solutions exacerbates the problem. Often, technologies are created without considering business needs and the resulting gaps between operations, process, and technology may lead to major investments that are later abandoned or require customization at substantial costs (Hoque, 2002). Thus, the purpose of this study was to understand the gaps in technology adoption from the perspective of SRBs and small technology providers (STPs). SRBs typically have a high level of need for technology but very limited resources. STPs want to accommodate the needs of small businesses but are constrained by costs and resources.

To address the purpose, Fuller's (1996) Recursive Learning Model, which was developed for understanding IT adoption needs in small business, was used as the conceptual framework. According to Fuller's (1996) model (Figure 1), when implemented correctly, technology should be used as a business development tool that amplifies the firm's core strengths, rather than as just a technical tool. Fuller's model conceptualizes the client's needs (demand side) being understood and fulfilled by the producer (supply side), external support influencing

Figure 1: Recursive Learning Model for Technology Adoption in Small Businesses

effective absorption/adoption by firms (take up) and previous experience leading to new demands for technology once again (needs). The firm's needs and supplier's rationale for new technology design are classified as theoretical, the supply by providers and adoption by firms as empirical, and the extent of the role of the provider in the firm's adoption process as the perceptual distance. When more learning and development occurs, the perceptual distance between the provider and firm narrows, the process becomes developmental, and the model becomes more dynamic and recursive with new demands and expectations being formed. This study focuses on quadrants 1 and 2, which represent demand and the theoretical dimension of the model.

Using a qualitative approach, upon receiving IRB approval, 18 in-depth interviews were conducted with owners of SRBs (n=15) and STPs (n=3) (SBA, 2017). Four of the small businesses were in Canada and the rest were in the US. Interviews were audio recorded with the participant's permission and lasted from 30 to 60 minutes. Questions asked of the SRB owners focused on the technologies they currently use, their views on the benefits of technology and their challenges in adopting it. Questions to STPs focused on the factors that help small businesses adopt new technologies, and the issues they face

ITAA Proceedings, #79 – https://itaaonline.org

with their clients when implementing technology. Interviews were conducted in person and through Zoom.

Interviews were transcribed verbatim and then coded and analyzed for themes by the two researchers (Spiggle, 1994). Three primary themes emerged from the interviews and were interpreted through the lens of Fuller's (1996) model. The first theme was *The Power of Knowledge*. For SRBs, investing in technology was more reactionary than strategic: "Things right now are quite reactionary unfortunately. Once we see a problem happening, we start researching on Google, like to see if there are any companies that exist to solve that specific problem" (P#2). STPs encountered similar issues with their clients: "Some of the smaller customers we deal with do not have a clue and do not care. They just want a system, and they really don't understand what the heck is going on" (P#13). The second theme was *Demands vs. Supply.* For SRBs it was the lack of complete solution in a single package: "HR, payroll, time tracking, scheduling. Those are the things that we're looking for to work well together. And there's just not one platform that does any of those particularly excellent" (P#2). For STPs it was an issue with scaling: "If you want to develop a solution like this, right, it needs a lot of effort and time and then money. But when it gets scaled, it will come to a point where the small businesses can pay a few hundred dollars and start using it" (P#6). Cost was thus a major factor for both SRBs and STPs. *Personnel Power* was the third theme, in that both SRBs and STPs had difficulty finding the right people to do the job: "We know what the work requires us to be doing, it's just finding people and the right people, the one that wants to hang around and will work for a decent wage and, I don't know… trying to get IT people is a real challenge" (P#12).

Interpreting the results through Fuller's model, holistically, the goal is that a SRB's needs (client demand) should be fulfilled by the technology provider (producer supply). The articulation of the perceived needs by the client and the conceptualization of these needs by the provider represents the theoretical dimension of the model. However, in reality, SRBs may not be able to specify their needs clearly, and even if they do so, STPs may not be able to accommodate those needs due lack of resources, high costs, and scalability. Interestingly, there were suggestions from both SRBs as well as STPs to explore support from universities (McDowell & Hester, 1986) and research centers to help small businesses in their technology adoption and absorption process. According to one STP: "If a university is associated with me, I can give that project to a bunch of people who are learning database management and give them a small footprint of my solution and ask them to learn that and migrate it and then do a proof of concept and show us how it will work" (P#6). According to one SRB: "I think one way that would be good is to match up a young person, who is studying marketing or studying computer science or studying something in the universities and as an internship, lend it to a store like me for 3 weeks, 4 weeks" (P#10). However, small businesses may not have access to university resources or support services that may help them in accessing the right talent. They also may not be aware of the various initiatives carried out by external agencies that could provide them with support. This gap points to a need that could be filled by a resource hub, as one SRB explained, "Like for example, if I want to look up a telephone number, I go to a telephone directory or if I want to look for a point A to point B destination, I go to Google maps. Like that, if I want to get some help as a small business on a particular area, so this is the place I go and look at, look at my locality and see who are willing to help" (P#6). These observations suggest that if SRBs, STPs, research hubs, universities, and small business support agencies collaborated and engaged in information exchange regarding business models, process

optimization, and technology automation it may lead to mutual satisfactory resolution of the needs of individual stakeholders.

Findings of this study highlight the importance of matching firm needs with provider solutions and providing small businesses with access to resources to support their requirements. As this study focused on the perspectives of SRBs and STPs, the viewpoints of other stakeholders were not considered. Future studies can employ Fuller's (1996) Recursive Learning model to further explore how technology adoption by small retail businesses can be facilitated through such links as research centers and entrepreneurship hubs.

References

Fuller, T. (1996). Fulfilling IT needs in small businesses: A Recursive Learning Model. *International Small Business Journal*, *14*(4), 25 – 44. https://doi.org/10.1177/0266242696144002

Hoque, F. (2002). *The alignment effect: How to get real business value out of technology*. Financial Times/Prentice Hall.

Lee, J. (2004). Discriminant analysis of technology adoption behavior: A case of internet technologies in small businesses. *The Journal of Computer Information Systems, 44*(4), 57-66.

McDowell, J. E., & Hester, S. B. (1986). Assisting small apparel and textile manufacturers in New York state: The potential for university-based programs. *Clothing and Textiles Research Journal*, *5*(1), 42–46. https://doi.org/10.1177/0887302X8600500106

Nguyen, T.H., Newby, M., & Macaulay, M. (2015). Information technology adoption in small business: Confirmation of a proposed framework. *Journal of Small Business Management, 53*, 207 - 227. https://doi.org/10.1111/jsbm.12058

SBA Office of Advocacy. (2017). *The role of microbusiness employers in the economy*. Retrieved November 21, 2021 from https://advocacy.sba.gov/2017/08/01/the-role-of-microbusiness-employers-in-the-economy/

Spiggle, S. (1994). Analysis and interpretation of qualitative data in Consumer Research. *Journal of Consumer Research, 21*, 491-503. https://doi.org/10.1086/209413