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Exploring the future of consumer retail

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Abstract

This paper describes an academic/industry partnership that leveraged Service Design to explore the impact of online shopping to brick and mortar retailers. NCR, a global software company, sought a partnership with the School of Industrial Design at the Georgia Institute of Technology (Georgia Tech) to understand how different aspects of design could be used to respond to rapidly shifting consumer experience expectations.

Both partners benefitted from the collaboration beyond their original expectations. Taking an iterative multi-semester approach, the effort yielded insights beyond the original intent, resulting in a broader application of Service Design to NCR's sales approach, providing overall more integrated innovation processes. The partnership also showcased the Georgia Tech students' ability to research, analyse, and generate new ideas using Service Design methodologies.

KEYWORDS: user experience, service design methodologies, consumer retail, digital technologies

Introduction: The Threat of Online Shopping

Ecommerce and companies like Amazon.com have shifted consumer habits with how they evaluate, shop, pay for, and take delivery of products and services. Traditional brick and mortar retailers are seeing their customers and revenues shift to those who provide online services, home delivery, and other conveniences enabled through ecommerce, web, and mobile applications.

Conversely, purely online retailers are having to shift their business models to incorporate brick and mortar in order to allow customers to experience their products (like eye glasses

from warbyparker.com), or provide last mile delivery for fresh food (like Amazon's purchase of Whole Foods Market in 2017).

This shift towards ubiquitous commerce presents a unique opportunity for innovative brick and mortar retailers to leverage their existing real estate and employees to compete more aggressively with online.

NCR, founded in 1884 as National Cash Register, provides point of sale, self-service, customer loyalty, and payment technologies to retailers worldwide within its retail division. As a Business to Business (B2B) entity, NCR recognizes two major developments:

- a rapid shift in consumer shopping behavior
- a fundamental shift in the way businesses buy from their partners

Recognizing that traditional computer science or engineering partnerships were not equipped to address this consumer shift, NCR sought a university partnership to collaborate on consumer and customer experience design.

In fall of 2016, the NCR's Sales Engineering arm approached the School of Industrial Design to research and prototype ideas with the goal of "prototyping" the retail store of the future. Uniquely, NCR invited some of its strategic retailer customers to collaborate in the process, providing students with direct access to retail operational leaders to conduct their research.

While the initial challenge focused on technology leveraging the latest digital mobile, display, checkout, data collection and analytical tools available to the retailer, the School iterated and recommended what turned out to be a more powerful approach to tackle this challenge that resulted in a broader application of Service Design to how NCR does business.

Reframing the Problem

Faculty from the School of Industrial Design proposed shifting the focus from the integration of hardware and software to benchmarking the current status of online shopping vis-à-vis shopping in a more traditional 'bricks and mortar' retail venue. This benchmarking was to serve as the foundation for future Service Design work.

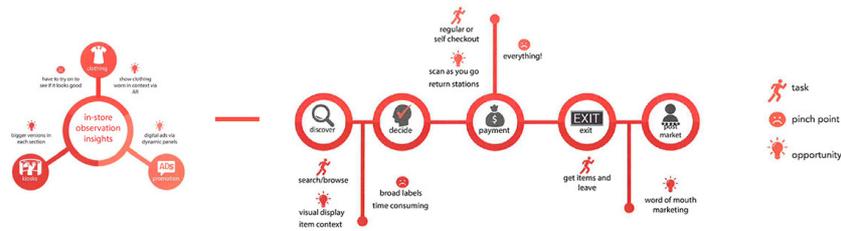


Benchmarking: Online Shopping vs Face-to-Face Shopping

The partnership launched an open-ended project that provided students with the latitude to push conventional boundaries while also providing NCR with the insight and exposure to the potential of integrating Service Design methodology into their business operations and innovation approaches.

Leveraging Service Design Methodologies

To meet NCR's objectives, the student project followed an established Service Design process. The first step incorporated an initial research phase that would cover both primary and secondary data collection including a literature search, surveys, interviews and observational studies in-situ. This would help identify when and where the customer came in contact with the retail operation as well as how the retail operation was structured to respond to the customer. Collectively this information would form the basis to generate a *Customer Journey Map* to outline the *Touchpoints* as well as key *Painpoints*. These *Touchpoints and Painpoints* would then be used to structure a prioritized list of *Design Opportunities*.



Observational Studies are Key to Understanding the Customer Journey

The second phase involved ideation and concept development to generate solutions to address problematic issues identified in the earlier research phase of the project. New technologies are perhaps an obvious solution to minimize or eliminate the points of friction for the customer. However, technology alone can be a double-edged sword – introducing technology without consideration of the full implications for both the customer and the retailer can in fact easily complicate the shopping scenario.



Evaluating Technology Options

Care was taken to prototype and evaluate how new ideas and concepts for change would affect both the consumer and the retailer. Validating initial ideas through a ‘Customer Walkthrough’ provided a strong visual simulation of the proposed concept and helped identify the fluidity of the proposal or unexpected new problems before refining an implementation plan. The students paid particularly attention to engaging customers in the design development process to both engage the customers as stakeholder and at the same time ensure they understood the key issues that drove the value proposition from the customers’ perspective (Trischler & Scott, 2014).

Through this ongoing focus on Service Design principles, the class and NCR identified an important insight: Service Design can be a key competitive advantage for innovation by focusing on the *human* experiences.

With full access to five strategic retailers, the students and faculty achieved the original goal requested by NCR and provided operational designs to the participating retailers, some of which were implemented and are in play today.

However, and more importantly, students and faculty suggested there was an opportunity for NCR to look inward and consider applying Service Design to how it designed products, sold them, and delivered support. This insight, made possible by completing the previous efforts, demonstrates how to successfully introduce Service Design to a non-design oriented company with positive results.

Design & Business at NCR

NCR is in the middle of a 10-year business transformation, having implemented traditional design processes across the organization. Having leveraged traditional quality initiatives (such as Six Sigma and Kaizen) with mixed results, NCR has been looking for a more collaborative innovation methodology to address a rapidly changing marketplace. NCR needed to reinvent the way it delighted and advised their retail B2B customers. To do so required thinking beyond the technology and focusing on the overall consumer experience, the excitement of

shopping, and the promise of brand. This required a re-thinking of how to innovate, sell, and deliver.

The Design Culture at NCR

NCR has a strong legacy of innovation, from the development of the first generation of mechanical cash registers in 1884, to process innovations related to the sales process during the early days of the company. NCR has over 1,700 patents and maintained market leadership across multiple directional pivots in its history. But this legacy lent minimal insight as to how it can guide its retail customers safely through this seismic consumer behavioral shift

NCR was aware that leading companies elevated service design to a strategic position (Fjuk, 2016), and even defined customer experience leadership as a core corporate goal. For example, NCR has been applying user experience design and design thinking principles in product development for several years. But this happened outside of the purview of the sales organization, or any other non-product functions within NCR.

The Georgia Tech partnership raised awareness to the possibility of Service Design providing a competitive edge in the sales process by applying the co-creation concepts to customer collaboration. How that would play into the sales organization was less clear, yet the school was able to help NCR navigate this change as a result of its curriculum transformation.

Curriculum Innovation at Georgia Tech

Located in the heart of the campus of one of the world-leading technology schools, Georgia Tech's industrial design program has undergone a fundamental transformation over the last few years. Like many other academic disciplines, industrial design had been locked into an historical model that evolved in response to the industrial revolution. The Bauhaus model had served the School well, however, it was apparent that new technological innovations, had disrupted all facets of the traditional approach to the design process that business and industry relied on. At the same time, it became apparent that the development of new products, systems and service now required a unique combination of research, design skills and prototyping methods not commonly associated with any of the more traditional technical disciplines (Buxton 2007, Moggeridge, 2007, Kolko, 2010). In response, the School of Industrial Design undertook a major revision of the entire curriculum to leverage traditional strengths and integrate a robust hands-on understanding of electronics, sensors and communications technologies, while maintaining a clear focus on the core values of user-centered design.

Design as a Strategic Tool

The goal of the program revision was to develop a more fundamental strategic role for design in business and industry to help cultivate a better understanding of the need to engage stakeholders not historically considered part of the design process, seek out new collaborators and at the same time assist business and industry understand the need to influence and revitalize organizational culture to more effectively address the changing marketplace (Yee, Jefferies & Tan, 2014, Budd & Wang, 2017).

This approach to leverage design in a strategic role within the organizational culture of business and industry has proven to be one of the more valuable outcomes of the collaboration for NCR.

Learning Through Collaboration

The opportunity to collaborate with NCR provided an ideal platform to demonstrate the benefits of Georgia Tech's revised approach. A core tenant of any Service Design engagement is the integration and navigation of multiple stakeholders (Mager, 2004) for joint value creation (Yang, 2016). Since the first Service Design class taught in 2012, the School has taken the approach to teach Service Design in the context of Organizational Activation – not only looking at the frontline actors, but always pointing the students to higher level systems thinking in both: the analysis of current customer experiences and the creation of new experiences.

Service Design is a highly participatory design process (Stickdorn, 2012), and is best taught with industry partners. NCR proved to be a valuable partner as they quickly enabled access to an extended stakeholder set. The company demonstrated a willingness to take a calculated risk by enabling communications with NCR's own customers – giving the students better real-world information to base their suggested service design solutions on.

Teaching Goals and Objectives

The faculty worked with the team from NCR to structure a series of projects to deliver on a learning experience that embodies core principles of Service Design.

- **Sequenced:** Students map existing journeys, find pain and gain points, and then suggest new and improved journeys.
- **Multi-Stakeholder:** Navigating and mapping stakeholder relationships reveals powerful leverage points and help with the root cause analysis of current pain points.
- **Iterative collaboration:** Students drive iterations through frequent interaction with the industry partner and connected stakeholders.

Personas

The personas the study focused on include both customers - Millennials and Generation X'ers - and store employees - Floor employees and Store Managers.



Millennials



Generation X'ers



Floor Employee



Store Manager

Venues

The venues compared in the study include Grocery Stores, Mass Merchandisers (Hypermart), and Online Stores.



Grocery



Hypermart



Online

Understanding the Stakeholders

These three core principles were further amplified by developing a highly participatory collaborative relationship with NCR, evidenced by frequent and regular co-creation sessions.

The projects were created to incorporate the development of several core soft skills.

- **Empathy:** Students not only create personas and empathy maps to further their own understanding of the end users, they use these empathy tools when communicating with the industry partner.
- **People skills:** The collaboration with several stakeholders including NCR and their customers, requires rapid people skill development on the student side, carefully balancing 'gives' and 'gets'.
- **Facilitation:** Breakthrough service innovation happens in carefully crafted workshop formats, requiring the student to become a skilful facilitator of group processes.

The Framework for the Student Project

Through the definition of an open-ended project, the Sales Engineering Group at NCR provided students with the latitude for exploration and innovation while providing NCR

with the insight and exposure to the potential of integrating Service Design methodology into their sales and business operations.

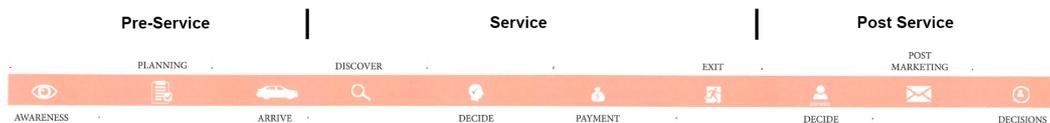
The goal was to study changing consumer habits and design the ‘store of the future’ to provide the most enjoyable shopping experience to consumers of all ages. Student teams were given the flexibility to choose a grocery store (i.e. Publix or Kroger in the US or mass merchandisers (i.e. Target or Costco in the US). They were also provided with a list of suggestions to consider:

- Address shoppers your age, as well as shoppers your grandparent’s age
- Provide a seamless shopping experience that incorporates mobile, web, and physical environments
- Consider security in your design so the retailer can address theft and fraud
- Feel free to completely redesign the physical layout of your store
- How people pay for things is critical in your thinking. How do you deal with cash vs credit card vs PayPal vs Apple/Android wallet?
- How can a store recommend one product over another, or provide coupons or incentives to buy something unobtrusively?
- What different ways can purchased items get from the store to the consumer’s house? Delivery? Drive through pickup? Uber?
- How can retailers have less people working in the front of the store? Cashiers, managers, customer service, returns, etc? With rising labor costs, how can consumers use automation and mobility without enabling additional theft and fraud to the store?

Data Collection, Analysis, and Synthesis

The research phase of the project leveraged design research methods to identify the key criteria affecting consumer retail. NCR identified two primary shopping venues - major grocery chains and mass merchandisers. The student strategy was to benchmark the customer shopping experience in each of these shopping venues versus online shopping with a goal to identify Design Opportunities. The entire class (17 students) worked collaboratively on data collection, field observation, analysis and identification of design opportunities.

The students first conjectured an initial concept for a Customer Journey based on their perception of their own past shopping experience. They then generated and circulated a survey and spent time in the field for observations to identify and validate actual shopping habits of a range of shoppers representing different identifiable demographics.



Key Points in the Customer Journey

By benchmarking online shopping versus shopping in more traditional physical retail venues, the students were quickly able to recognize how online retailers had much more effectively leveraged ‘Pre-Service’ – through online promotion and targeted advertising as well as ‘Post-Service’ – through testimonials and direct email follow-up.

Once the students had verified shopping habits of the different personas and updated their Customer Journey Map, they leveraged one of the key Service Design techniques to identify Touchpoints and Painpoints. As previously noted, a Touchpoint is any point of contact between the customer and a service provider while a Painpoint is any point of confusion, frustration or friction between the customer and the service provider. By correlating the Touchpoints and Painpoints against the Customer Journey Map and comparing Journey Maps for different personas, the students were able to clearly visualize the most problematic

issues for a range of different customers. A similar process was used to develop a Journey Map for employees of the retailers.



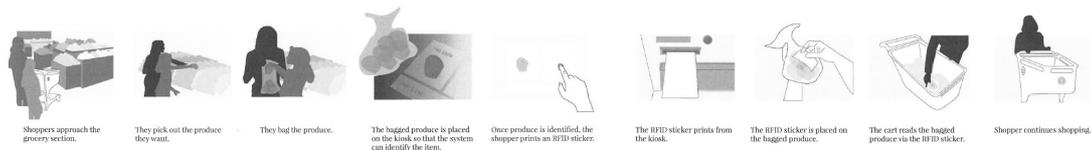
Tracking the Customer Experience

The students then analysed the results of their findings to identify an extensive range of Design Opportunities at key points in the Customer Journey to serve as the basis for further exploration during the second phase of the project when they subdivided into teams that would focus on a specific individual target venue.

Ideation & Concept Development

For the second phase of the project the students self-selected into five teams, each focused on developing comprehensive concepts for innovative customer experiences for either a large food retailer or a mass merchandiser. Key priorities for the students were to explore the opportunities to integrate application of new technologies to enhance the customer shopping experience and at the same time improve operational logistics for both employees and store managers in the retail chains.

How it Works: Produce Section



Storytelling Brings a New Concept to Life

Storytelling in the early stages is important to support communication and clarity of ideas. Each student team developed a series of storyboards as a preliminary step in evaluating a range of ideas for the application and integration of potential new technologies as well as new concepts for innovations in service delivery.



A New Scenario for Mass Merchandising

Concepts for the Mass Merchandisers focused on the integration of digital technologies. By providing customers with a dedicated ‘retail app’ and the choice to ‘opt-in’ to rewards programs and location tracking, retailers have new opportunities to engage their customers, provide an advanced level of personal service, while at the same time opening the door to gather data and monitor shopping behaviour.



An Innovative Approach to Food Marketing

Surveys and interviews with customers in the food store chains suggested there was an opportunity to develop a more proactive approach to marketing new food products by

providing hands-on demonstrations. In response one student team came up with an innovative concept to engage customers in cooking demonstrations in the store – allowing them to buy pre-configured recipes and/or cook their own meal in the store to take home for dinner.

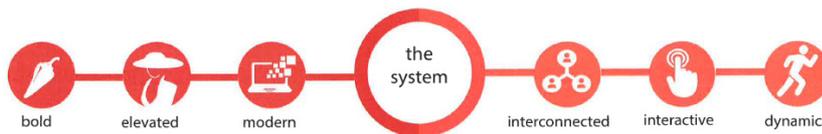


Integrating Virtual Display Technology

One of the key observations from the research focused on the role of the cell phone and near ubiquitous use of social media. Often people shop for clothing with others and/or use their personal media to share images of items with their ‘trusted friends’ for recommendations. Concepts for new display technology allow customers to quickly scan the available stock, view any garment on a virtual model, then ‘grab’ a copy on their phone to add to their ‘wish list’ or send to a friend for reference.

Building Brand with Service Design Strategy

In order to optimize both customer engagement and organization activation it is essential to establish a clear and consistent brand strategy. Effective brand recognition helps to support and foster both customer and employee loyalty.



Brand Continuity is Essential

Each student team was careful to consider the selection and implementation of new marketing and display concepts as well as the integration of new technologies to ensure all proposals for change would support a consistent and well integrated brand strategy across multiple media platforms.

Academic Benefit: Better Integration of Design and Business

The partnership with NCR proved especially fruitful. The involvement of a ‘real world’ partner underscored the value of the studio project for the entire class. The opportunity to establish an ongoing rapport throughout the project with a team of business experts willing to provide clear and concise feedback – both positive and negative was a new eye-opening experience.

The class, made up of juniors, had a semester to learn the history, architecture, and challenges with retail, and propose innovative solutions that addressed the pinch points they discovered during their research. The speed at which they did their work, the clarity and accuracy in which they quickly learned to analyze an entire retail scenario, and the excitement they generated in such a short time was highly rewarding for the NCR stakeholders involved.

The students developed several universally useful models and ideas of the consumer experience that will inform future projects in this partnership. The following are conclusive results from the class' work:

- Designed a universal consumer experience diagram that compares online to

brick and mortar grocery and mass merchandiser, along with painpoints and consumer desires.

- For brick and mortar retailers, demonstrated that table stakes are to enhance the current shopping experience with Amazon-like interactions: read or leave customer reviews for products while in store or online, leverage a secure digital "wallet" that allows easy payment from anywhere, and convenient methods for returning items anytime without interacting with live people.
- The future is about bringing the community into the built space. Examples: a town hall like feel where people meet to eat, drink and talk while shopping; providing useful health and well-being lessons, like how to cook meals which you can then bring home and feed your family; and a place to learn useful life skills related to the store's merchandise or services.

Corporate Benefit: Service Design and B2B Customer Centricity

The class and instructors helped NCR recognize how the application of Service Design could help them modernize their sales strategy and sales enablement. Each of the student teams underscored the importance to engage a diversity of stakeholders including both customers and employees, to help management more fully understand the needs and concerns of customers while shopping, and the ability of the store employees to assist the customers and support their needs, as part of a holistic social dynamic (Snelders, 2014).

The collaboration with the school has been one of the major drivers for the recently expressed focus on Service Design at NCR on *both* sides – business development *and* product innovation. The positive uptake demonstrates the hunger and willingness for older technology companies like NCR to consider new customer-experience focused methods to rethink innovation and go to market more quickly.

The Retail Sales Team initiated a new sales strategy of design and Service Design based on the student's recommendations that enabled a more dynamic, collaborative approach to guiding their customers. For example, it is not sufficient to simply install a stand-alone self-service checkout kiosk and expect that all customers will appreciate or fully understand the operation of the device with no human-mediated support (Darzentas & Darzentas, 2014). Recognizing the strategic importance of this work has helped create a company-wide initiative to leverage Service Design at scale.

There are four key areas where NCR now is incorporating the methods and principles of Service Design:

1. Customer Co-Creation and Sales: Collaborating on journeys and stories, NCR is able to shift the focus from technology to experiences. The journeys help highlight different end users of NCR solutions: consumers, operational actors, management actors.
2. Internal change management: through stakeholder maps, personas, co-creation workshops, internal journey mapping and blueprinting, Service Design helps expedite internal change management initiatives.
3. Solution Innovation: Industry-specific journeys streamline the efforts of NCR's Industry Solutions Group (ISG)
4. Product Innovation: In the Customer Experience Design (CXD) group to streamline new software product development: Personas, Journeys, Blueprints serve as inputs for the traditional agile software development process

A New Role for Service Design: Advancing B2B Partnerships through B2C Innovation

NCR stakeholders witnessed the power of co-creation first-hand with Georgia Tech. After gathering positive feedback from customers and sales teams, NCR recognized the power of approaching B2B relationships through a Service Design lens. By focusing on the Business to Customer (B2C) experience for NCR customers using Service Design, NCR has been able to create a competitive advantage for itself: richer collaboration, more credible innovation guidance, and a refreshing change in how to partner.

Transforming an Organization Through Service Design Thinking

By deploying the practice of Service Design in multiple areas of the organization, NCR is positioning itself to be *the* innovation leader in the field of unified commerce. Speaking a common internal language of experiences and journeys facilitates better collaboration, quicker time to market, and deeper customer engagement which ultimately drives more business for NCR.

Leveraging ongoing efforts to deploy Design Thinking methods, Service Design at NCR adds a systems layer to the conversation. This shift enables a more integrative approach to Innovation (the creation of new platforms and disruptive customer experiences) and innovation (the creation of transformative consumer experiences based on current platforms).

Early feedback indicates that NCR's customers and partners appreciate the change as well. For example, selling was traditionally a one-way conversation: death by PowerPoint. By incorporating lower case "innovation", NCR is investing in tools and training to evolve the sales process to one of collaboration and transformation of the consumer experience. This helps NCR move into the role of advisor and partner.

A Virtuous Cycle: Service Design Awareness

Through sharing project results widely, awareness is spreading. Internal Service Design ambassadors help coach and educate stakeholders. This in return is building interest in partnering on future Service Design projects.

The creation of NCR's "Industry Solutions Group" in 2016 was a first step towards heightened customer centricity throughout the organization. Through the partnership with Georgia Tech, company leaders now have recognized the need for service design throughout the organization, and the company is growing cross-functional capabilities, from sales to operations. A major transformation is underway to change the way NCR is approaching internal innovation processes and customer collaboration. NCR has recognized how service design can act as a translation layer (Vollmer, 2014), and how it increases the internal awareness of the end-to-end customer experience (Fjuk, 2016).

NCR recognized the strategic value with investing in Service Design by creating 5 new positions (2 full time, 3 interns) in the sales engineering group in 2017. This includes hiring a Georgia Tech faculty member to lead this initiative. The objectives for the team:

- Designing a new technical selling methodology to complement existing sales methods
- Conduct studies to determine applicable journeys and personas to drive sales focus
- Design a set of tools, templates, and training to facilitate a collaborative approach to sharing journeys with customers
- Partner with the marketing, solution management, and engineering functions to incorporate a Service Design approach to bringing new journeys to market

Conclusions and Future Work

In the US, Service Design is enjoying a rapid growth in industry recognition, and Service Designers are in growing demand (Service Design Network, 2017). Georgia Tech's students are uniquely positioned with Service Design now fully integrated into the overall curriculum. Similarly, this project helped foster the adoption of Service Design methods as a valuable set of strategic design tools at NCR.

- Through the unique and frequent collaboration sessions with multiple stakeholders, students got a real-world service design experience, and were able to develop their soft skills at an amplified level. This hands-on approach is integral to any comprehensive service design education.
- The same collaboration sessions that enabled the students to develop their soft skills enabled hands-on Service Design immersion for NCR stakeholders, thus greatly expediting the corporate understanding of the power of Service Design. This approach has had a direct and dramatic impact on the speed of adoption within the NCR organization and its interactions with customers.
- By structuring the partnership as a multi-semester series of projects with defined handover points of information, students got to witness how their work lives on and matures over time.
- As will be investigated in a subsequent work, the Service Design team at NCR has identified the need for a new role, Solution Experience Manager. The catalyst for this insight was the discovery of competing and conflicting initiatives within the company that degraded the overall experience customers had when buying products and services from NCR.

Closing Thoughts

Students gained rich insights of the ups and downs of a consultative B2B relationship through their project with NCR and NCR's customers. The students learned the retail industry quickly as part of their research, and were able to quickly garner trust with the retailers they worked with. They created concepts which were ripe for future investigation in this ongoing partnership, and would yield keen insights that ultimately help guide retailers as they determine how best to compete against the purely online world.

NCR and their retail customers who participated with the classes were energized by the experience. With Service Design as the catalyst, participants enjoyed the fresh design assessment to their businesses, and were prepared to incorporate the results from the students into their business plans. The company realized that the student projects surprisingly encouraged internal organizational change and the benefits to embedding Service Design into the core of the customer collaboration and innovation processes.

Based on the success of this project, NCR and the School of Industrial have agreed to structure the partnership as a multi-semester series of projects with defined handover points of information, to help make it possible for students to witness how their work lives on and matures over time. Each semester's results will inform the next semester's research such that a growing body of work continues to grow and mature.

Future opportunities for exploration include:

- Leveraging Service Design into the selling process
- The use of Service Design for cross-functional organizational design
- Leveraging academic design/industry partnerships for organizational design
- Extending the industrial design process in tech companies to influence go-to-market approaches with Service Design

References

- Bredendieck, Hin. (2009). *Beyond Bauhaus: The Evolving Man-Made Environment*. Atlanta: published by the Georgia Tech College of Architecture.
- Budd, J., & Wang, W. (2017). *Industrial Design Education: Taming Technology to Enhance User Experience*. In *Archives of Design Research*, 30(3), 17-27
- Buxton, Bill. (2007). *Sketching User Experiences: Getting the Design Right and the Right Design*. New York: Morgan Kaufmann Publishers.
- Darzentas, J. & Darzentas, J. (2014). *Accessible Self Service: A Driver for Innovation in Service Design*. In *Proceedings of ServDes 2014— Service Futures*. (pp 143-153). Linköping, Sweden: Linköping Electronic Press.
- Fjuk, A., Yttri, B., Kvale, K. (2016). *Preparing the Organization for Change by Using Service Concepts*. In *Proceedings of ServDes 2016— Service Design Geographies*. (pp 143-151). Linköping, Sweden: Linköping Electronic Press.
- Kolko, Jon. (2010). *Thoughts on Interaction Design*. Burlington, USA, Morgan Kaufmann Publishers.
- Mager, B., Gais, M. (2008). *Service Design*. Germany: Utb Gmbh Publishers.
- Moggridge, Bill. (2007). *Designing Interactions*. Cambridge, USA: The MIT Press.
- Snelders, D., van de Garde-Perik, E., & Secomandi, F. (2014) *Design Strategies for Human Relations in Services*. In *Proceedings of ServDes 2014— Service Futures*. (pp 133-142). Linköping, Sweden: Linköping Electronic Press.
- Stickdorn, Mark, Schneider, Jakob, et al. (2010). *This is Service Design Thinking*. Amsterdam, The Netherlands, BIS Publishers.
- Service Design Network (2017). *Conference on Service Design growth in the US*. Retrieved Nov. 5th 2017, from <https://www.service-design-network.org/chapters/chicago/events/sdn-us-national-conference-service-design-within-us>
- Trischler, J., & Scott, D. (2014). *The Identification of Innovative Customer Groups for Collaborative Design Activities*. In *Proceedings of ServDes 2014— Service Futures*. (pp 23-34). Linköping, Sweden: Linköping Electronic Press.
- Vollmer, Florian (2014). *People, Activation, Execution: The Layers of Service Design*, in *SDN Touchpoint Magazine*. (pp. 66-69).
- Yee, J, Jefferies, E., & Tan, L. (2014). *Brave New Worlds: Transitions in Design Practice*. In *Proceedings of ServDes 2014— Service Futures*. (pp 67-78). Linköping, Sweden: Linköping Electronic Press.
- Yi-Fang Yang, Shu-Shiuan Ho, Tung-Jung Sung Kvale (2016). *Co-Creating Value: Customer Engagement through Virtual and Physical Channels*. In *Proceedings of ServDes 2016— Service Design Geographies*. (pp 256ff). Linköping, Sweden: Linköping Electronic Press.