

Manuela Aguirre & Josina Vink

Catalyzing Systemic Transformations in Health Care

Lessons learned by design practitioners at Mayo Clinic Center for Innovation

Abstract

Realizing change within the health care industry is notoriously difficult, due in part to the industry's complex set of problems with inextricable interdependencies (Jones, 2013). The challenge is amplified even further amid the constraints of Mayo Clinic, a historically successful health care institution that has been around for over a century. Recently, design has been gaining a reputation for leading innovation of health care products and services to improve the patient experience (Jones, 2013). There has also been an extension of conventional design thinking methods to include social systems design methods that work to create large-scale transformations within health care systems. A systemic approach to innovation enhances the impact that the design process can have by working to influence strategic parts of the system and the ways in which they interconnect (Mulgan & Leadbeater, 2013). This paper illustrates examples of systemic design practice within Mayo Clinic Center For Innovation and highlights challenges as well as patterns of successful systemic shifts learned empirically.

Keywords: systems thinking, systemic design, human-centred design, systems innovation, social systems design, health care, design practice

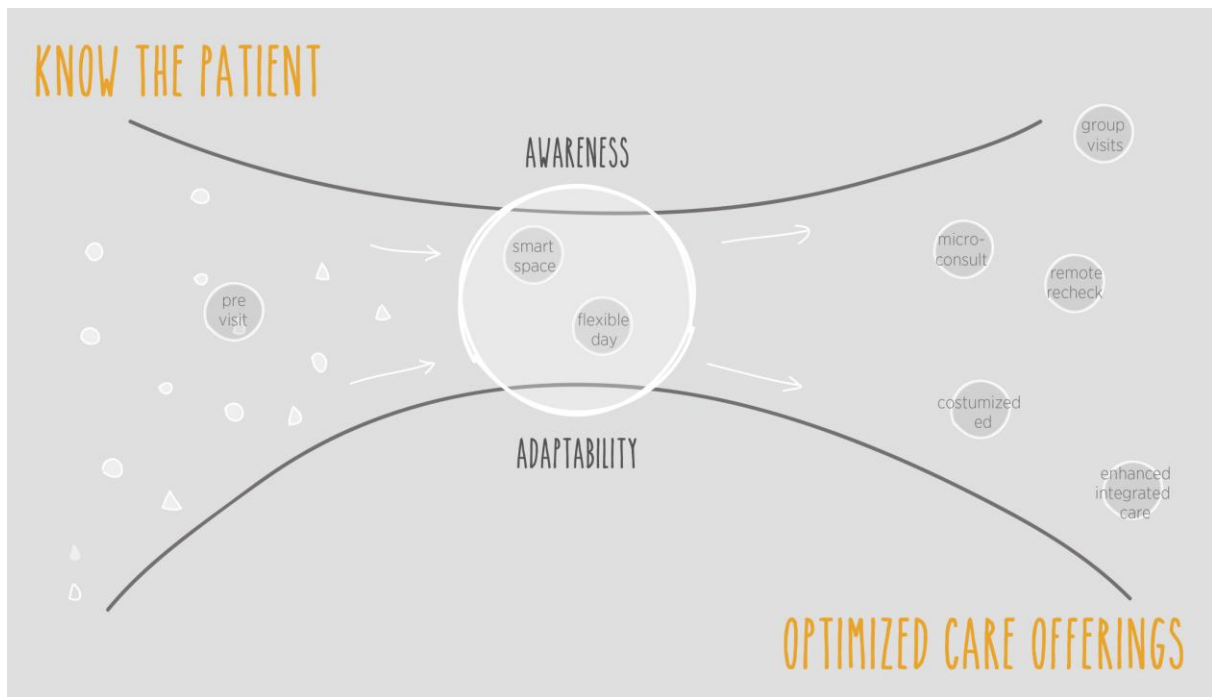
Introduction

Within Mayo Clinic Center for Innovation (CFI), based in Rochester, Minnesota, designers are embedding systems thinking and systems approaches into their design methodology in an attempt to seed critical systemic shifts. These shifts support the evolution of clinical systems and the structure of the organization, enabling Mayo Clinic to play a progressive leadership role within the health care industry into the future.

Mayo Clinic has had many firsts within its industry, including being one of the first health care institutions to embed designers within their clinical practice. CFI started off as a humble experiment with two designers in 2004 and has grown into a robust interdisciplinary team of over fifty people.

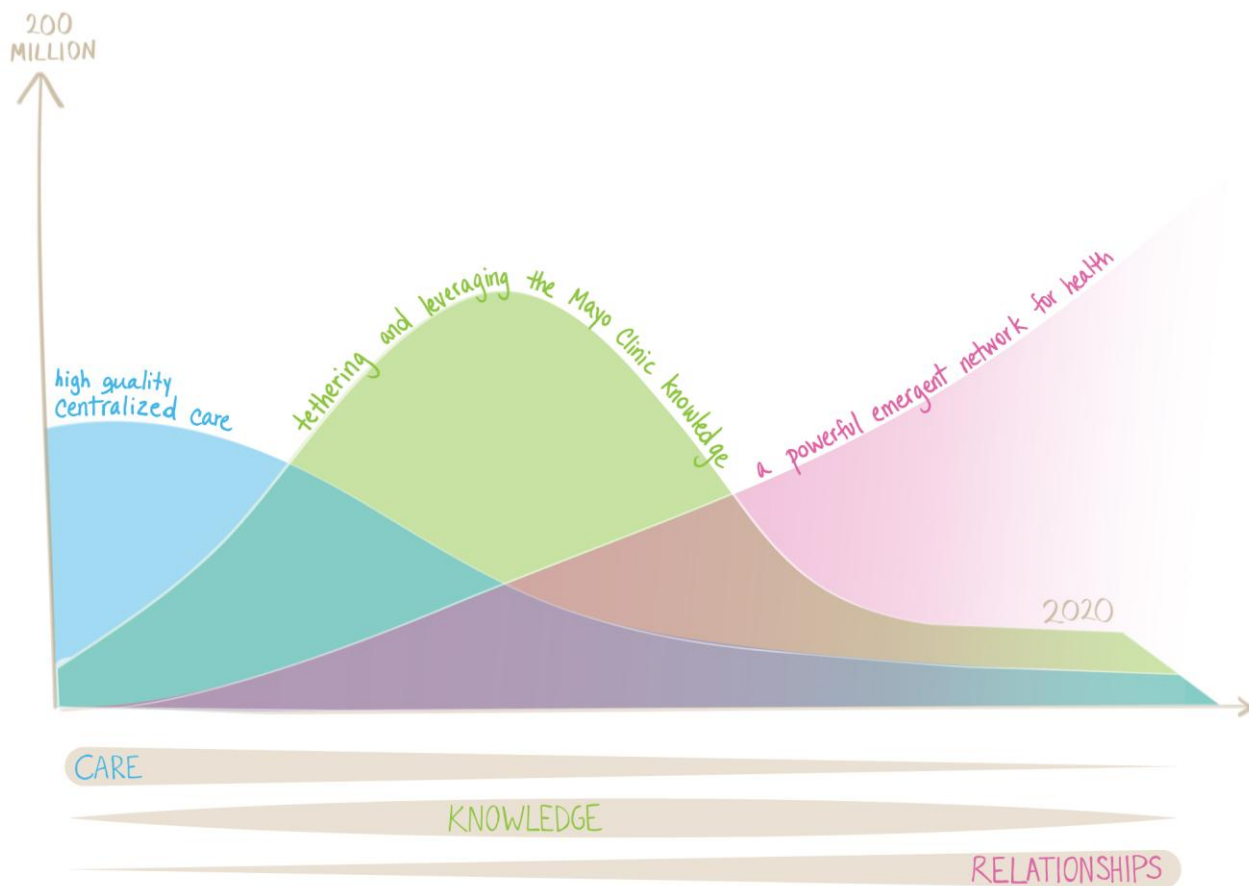
Examples of Systemic Design Projects

CFI is working to create strategic shifts within the practice of medicine. It does this through systems design projects, like the Mars Project, which seeks to transform the outpatient practice by reducing costs by thirty percent, while improving the patient experience and enhancing or maintaining the quality of care. The Mars project began with an emphasis on designing isolated service offerings, such as group visits or micro-consults, but by leveraging systemic design methods, the project has since evolved into a powerful vision for an intelligent and adaptive system for the outpatient practice.



Designers envisioned an intelligent and adaptive system by mapping the fundamental relationships between the originally conceived isolated experiment families and their overall purpose.

Another large-scale systems shift was initiated by designers at CFI through an exploration of Mayo Clinic's commonly understood value proposition - high-quality, specialized care. By understanding the 'essence' of this value proposition and challenging some of the traditional assumptions around why so many individuals choose to come to Mayo Clinic, designers created a road map for the evolution of the organization. This road map involves several fundamental shifts for Mayo Clinic: from a historical focus on centralized care, to a focus on distributed medical knowledge, to a future emphasis on creating a global network of relationships to support health. These powerful shifts strategically enable Mayo Clinic to achieve its stated institutional goal of reaching two hundred million people by the year 2020.



Inspired by the three horizons method (Curry & Hodgson, 2008), designers strategized around the systemic shifts needed to achieve the new institutional goal of reaching two hundred million people by the year 2020.

Efforts on the aforementioned projects as well as dozens of others, enabled powerful learning within CFI around the process of designing much-needed systems change within the health care industry.

Challenges in Creating Systemic Shifts

While systemic design is increasingly necessary for the problems CFI seeks to address, systemic innovation in this industry does not come without its own set of challenges. Some of the recurring barriers faced by designers at the CFI include:

Change Fatigue

With so many initiatives trying to fix the practice all at once, many health care practitioners have limited capacity and motivation for additional changes. For example, surgery teams were simultaneously being asked to increase surgical yields, comply with new meaningful use requirements, experiment with remote follow-up visits, and improve efficiency. Finding ways to allow health care practitioners to focus their attention, at least initially, on a priority initiative, can reduce competing pressures and enable better results.

Prove It

There is a tension between the imagination and experimentation needed for innovation and the evidence-based orientation of health care. As suggested by Roger Martin in his book *Design of Business*, the phrase “prove it” can kill intuitive thinking and become the enemy of design (Martin, 2009). Martin notes that to prove something means to look at the past and innovators can't prove in advance that their ideas will work by inductive or deductive reasoning. In health care, designers must accommodate differences in thinking styles and use both empathy and related evidence to reduce the inherent tension between designers and other stakeholders.

Narrow Vision

Often urgent pressures get in the way of investing in a long-term vision for the future. Short-term interests regularly shift an organization's focus from developing and implementing sustainable solutions that address fundamental systemic issues, toward quick fixes and incremental adjustments. For example, many efforts within the health care industry are focused on improving the efficiency of a struggling business model, rather than re-thinking the existing business model. Designating a significant fraction of design time to bringing to life ‘far future’ design possibilities, helps ensure that urgent pressures do not jeopardize long-term organizational positioning.

Culture Eats Strategy

The sentiment of Drucker's statement that “culture eats strategy for lunch” (Johnson, n.d.) was reflected in many change-making attempts within the health care industry. For example, the hierarchical nature of medicine and the norms of supporting the personalized approaches of health care practitioners at Mayo Clinic, regularly prevented stated strategic priorities from coming to fruition. It is important for systemic designers to either work with the culture or develop a thoughtful strategy for addressing cultural barriers.

Mitigation versus Optimization

The tendency when it comes to a major change is to emphasize risk mitigation rather than optimization of the new opportunity, missing the full potential of the new innovation. For example, when electronic medical records were created, they were made to mimic the paper record. The intention of doing it this way was to ease the transition for health care practitioners, rather than optimize what could be done on a computer. Being cognizant of this tendency can help a designer balance the desire for a smooth transition with the need to fully embrace a new innovation.

Structure Drives Behaviour

As Donella Meadows suggests, “system structure is the source of system behaviour” (Meadows, 2008). Most of the current policies and procedures in health care reinforce the status quo rather than the future state, making changes difficult for people on the ground. For example, the fee for service payment model continues to drive decision-making and behaviour, even though it is not aligned with what is needed in the future. To address this challenge, CFI has created an experimental outpatient design laboratory – a safe space to prototype amid more flexible structures, often essential to systemic innovation.

Adding or Disrupting

Additive innovations, or innovations that layer on to existing systems without significantly changing other parts of the system, tend to be much more openly received by stakeholders. However, often the most significant impact comes from disruptive innovations that break

down current systems to make space for the new. For example, health care practitioners were generally open to idea of group visits as another model for outpatient care, but when they experienced that this new model fundamentally alters the doctor-patient relationship, there was some major resistance. While additive innovations may increase ease of adoption, designers seeking systemic transformation should be weary of focusing too much attention on this work.

Patterns in Successful Systemic Design Processes

With careful consideration of the challenges presented when creating system transformation, strategies around developing and implementing innovation at this scale can be designed more effectively. To assist in avoiding some of the pit falls of this work, designers at the Mayo Clinic CFI have also discovered some important patterns in successful systemic design processes. These insights include:

Making Space for Change

Taking time at the beginning of a process to create space for new things to happen is essential to enabling the adoption of some of the most impactful innovations. This space for change opens up channels needed for the adoption of other innovations. For example, when working with primary care, designers found great success by first designing and experimenting with interventions that save time for primary care team members. Then when the extra time existed, other more powerful innovations, like new offerings to address social determinants, could be implemented.

Embracing the Unintended

Because so much of working within systems is based on emergence (Logan & Van Alstyne, n.d.), being patient and welcoming unexpected surprises is important in systemic innovation (Westley, Zimmerman & Quinn, 2006). Designing for emergence is critical where agents in the system have the autonomy to move around and interact to discover possibilities at their own pace (Gray & Vander Wal, 2012). Because social systems are unpredictable and timing is critical, one must cultivate readiness and move with the energy in a system around a design concept. For example, many designers at CFI spend a considerable amount of their time connecting with different practitioners and departments around an idea. Suddenly, when there is a spark at an unexpected time and place, they move quickly to execute. Projects must factor this abstract, emergent process into work plans for the systemic design process to be effective. As Ataul Gawande says, you can't make a recipe for something as complicated as surgery. Instead, you can make a recipe for how to have a team that's prepared for the unexpected (Gawande, 2012).

Enabling Practice Champions

Supporting health care practitioners who have strategic ideas, the energy to move them forward, and the ability engage others, can be quicker and more effective to support the spread and adoption of innovations within the practice. For example, providing strategic and technical design supports as well as funding to practitioners through awards, proved to be a powerful investment for the Mayo Clinic Centre For Innovation.

Building on "What is Working"

Finding out what is already working within an existing system at a small scale or by individuals who are doing things differently in similar situations, and then amplifying or spreading this idea, can enable systems to leapfrog ahead despite persistent problems

(Pascale, Sternin & Sternin, 2010). For example, designers discovered that some physicians were dictating their medical notes in front of their patients and received positive feedback from them. This idea was transformed into a set of small experiments that later became the foundation for a larger experiment run by designers around smart, transparent, and adaptive practice spaces.

Identifying Strategic Levers

Some of the most powerful system shifts are created by experimenting within a system to discover key leverage points, where small shifts in one thing can produce big changes in everything (Meadows, 2008). A practical example that designers at CFI have discovered is that a quick huddle in the morning of each day, where a primary care team comes together to review the scheduled panel of patients, can have a dramatic impact on the flow, timing, relationships, and trust within the overall practice. The huddle also had a major impact on overall efficiency and patient satisfaction.

Connecting the Dots

Sometimes creating completely new systems is not required for a radical transformation, but all that is needed are connections between existing elements that were not previously linked. For example, when designers sought to create a new support system for family caregivers, the approach taken was to connect many existing capacities and resources within Mayo Clinic and orchestrate them in a meaningful way that could meet the needs of this new user group. Instead of investing in completely new services, existing resources were re-purposed and re-aligned, soon evolved into the development of a new business.

Conclusion

While systemic design is certainly not formulaic, these reoccurring challenges and patterns in successes offer some inspiration and direction in approaching this complex work. As the capacity and methods around systemic design for health care continue to be developed and honed, the future possibilities and potential impact of systemic design within the field of health care is infinite. This emerging practice has the opportunity to not only reshape outmoded health care practices, but also move beyond clinical walls into people's everyday lives and communities, where health is truly defined.

Manuela Aguirre

PhD Fellow, MDes

Design for Public Services – Design for Offentlige Tjenester (DOT)

The Oslo School of Architecture and Design (AHO), Institute of Design

Manuela.aguirre@aho.no

Josina Vink

Regional Implementation Coordinator, MDes

Centre for Addiction and Mental Health

Ontario College of Art and Design University, Strategic Foresight and Innovation

Josina.vink@gmail.com

Manuela Aguirre and Josina Vink were former Designers at the Mayo Clinic Centre for Innovation.

References

- Curry, A., & Hodgson, A. (2008). Seeing in multiple horizons: connecting futures to strategy. *Journal of Futures Studies*, 13(August 2008), 1–20. Retrieved from <http://www.internationalfuturesforum.com/3hblog/wp-content/uploads/2008/11/3h-curry-hodgson-jfs1.pdf> (Journal)
- Dickson, B. F., Friedman, E., & Ross, L. (2011). Innovating in Health Care – an Environment Adverse to Change. *Touchpoint: The Journal of Service Design*, 3(2), 48–53. (Journal)
- Dubberly, H., Mehta, R., Evenson, S., & Pangaro, P. (2010). Reframing health to embrace design of our own well-being. *Interactions*, 17(3), 56. doi:10.1145/1744161.1744175 (Journal)
- Gawande, A. (2012). *Atul Gawande: How do we heal medicine?* TED Talk, Retrieved from http://www.ted.com/talks/atul_gawande_how_do_we_heal_medicine.html?quote=1521 (Video)
- Gray, D. & Vander Wal, T. (2012). *The Connected Company*. O'Reilly Media. (Book)
- Johnson, L. (n.d.) *Culture eats strategy for breakfast*. Relational Dynamics Institute. Retrieved from <http://www.relationaldynamicsinstitute.com/?p=48>. (website)
- Jones, P. (2013). *Designing for Care*. Rosenfeld. (locations 251, 5735) (Kindle Book)
- Logan, R. & Van Alstyne, G. (n.d.). *Designing for emergence and innovation: Redesigning design*. University of Toronto. Retrieved from <http://www.physics.utoronto.ca/people/homepages/logan/VanAlstyneLoganFinal.pdf> (website)
- Martin, R. (2009). *The design of business: Why design thinking is the next competitive advantage*. Harvard Business Press. (Book)
- Meadows, D. (2008). *Thinking in systems: A primer*. Chelsea Green Publishing. (Book)
- Mulgan, G., & Leadbeater, C. (2013). *Systems innovation: discussion paper*. Nesta. Retrieved from <http://www.nesta.org.uk/library/documents/Systemsinnovationv8.pdf> (Online Report)
- Omachonu, V., & Einspruch, N. (2010). Innovation in healthcare delivery systems: A conceptual framework. *The Innovation Journal: The Public Sector Innovation Journal*, 15(1), 1–20. Retrieved from <http://xa.yimg.com/kq/groups/22136350/406689753/name/Healthcare+innovation.pdf> (Journal)
- Pascale, R., Sternin, J. & Sternin, M. (2010). *The power of positive deviance: How unlikely innovators solve the world's toughest problems*. Harvard Business Press. (Book)
- Terrey, N. (2013). Managing by Design: Enacted Through Situated Networks. *Design Management Institute Journal*, 8(1). Retrieved from <http://www.academia.edu/download/30868974/AC12Proceedings.pdf#page=875> (Journal)
- Westley, F., Zimmerman, B. & Quinn Patton, M., (2006). *Getting to maybe: how the world is changed*, (location 629). Random House Canada (Kindle Book)