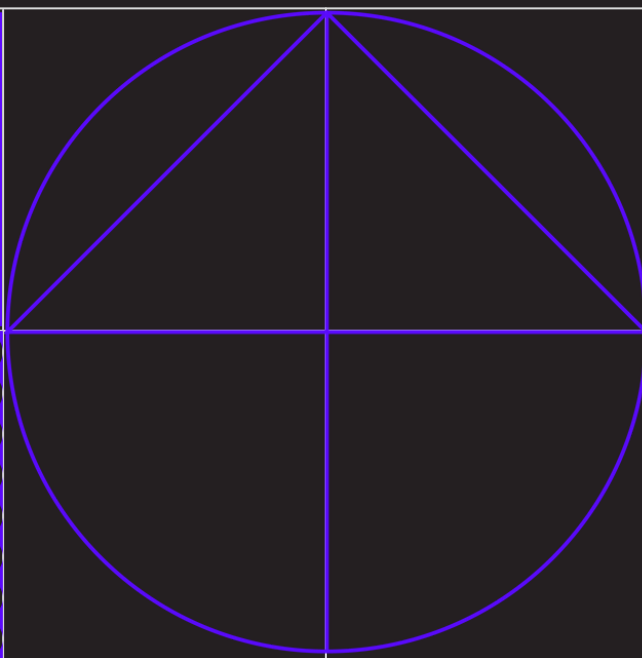
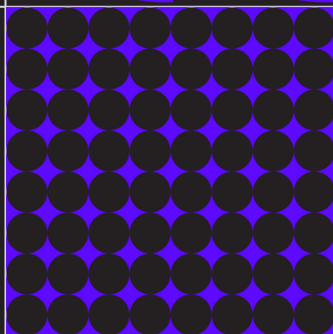
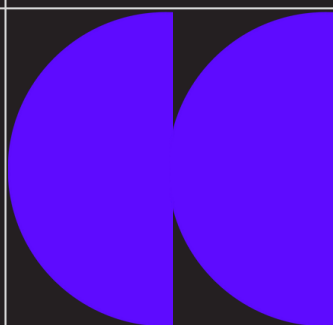


# INNOVATION NORTH

Session 4 Briefing Note:

## TRANSITIONING BEYOND COVID-19



# System Thinking and Design Thinking

In the first Lab session and the associated briefing note, we discussed the conditions appropriate for a traditional approach to innovation (static, controllable environments) and the conditions for a systems approach (complex, chaotic environments).

In the second Lab session, we showed that people prefer to simplify problems, even when they shouldn't, which tends to introduce biases and limit creativity.

**A question that has been recurring since the beginning of the Lab was to compare systems thinking to design thinking. We have decided to tackle that question here. Before we do that, we review why systems thinking is important.**

## Innovators Seek Simplicity - Even Though The World Is Complex

The human brain seeks cognitive shortcuts to simplify decision making for two main reasons:

1. People want to predict future outcomes and control their environment. They dislike uncertainty and unpredictability — both associated with complex environments.
2. People tend to focus on recent, proximate ideas – such as something they heard recently or from someone they know.

These biases are particularly problematic for most businesses, because cognitive biases limit creativity and can create products and services that ultimately fail in today's world. As is widely known, the world is becoming increasingly connected, through digital technologies, integrated transportation systems, and the trade of goods and services. Walmart's supply chain includes more than 100,000 suppliers across the globe, serving retail operations in 27 countries which employ more than 2.2 million people.

The COVID-19 pandemic has clearly highlighted the connections among people and the speed at which work and life can be disrupted. Yet, in spite of this increasing complexity and the frequency and magnitude in disruptions, many business innovators seek to simplify, predict and control their environments.

The Lab seeks to build insights that help innovators sense, respond and adapt to these dynamics and work with the system, not against it. Innovators must look at immediate issues, future challenges, and the larger system. Tesla provides an example.

### **Tesla: Long-term and holistic visions successfully drive innovation**

Tesla made long-term environmental concerns its unique selling point before even knowing if a market existed. Despite criticism from shareholder activists for missed deadlines and weak control, Tesla has kept its reputation as one of the most innovative and fastest-growing companies. Its founder, Elon Musk, has been credited with disrupting several industries, including financial services (with X.com that later merged with PayPal), automotive (electric cars), and aerospace (with SpaceX), because he looked to the long-term future of the wider system and not just immediate customer needs.

## **How To Overcome The Bias For Simplicity to Foster More Radical, Sustained Innovations**

The first step in overcoming our cognitive biases is to be **aware of them**. People will always be victim to their biases if they don't see and acknowledge them. Much like flying a plane on autopilot, cognitive biases just take people to where the system dictates, not where they should go.

A second step in overcoming our biases is **working with people with different backgrounds, expertise and ways of thinking**. However, working with diverse people is not enough, they need to be heard and the ideas integrated. Most people resist new ideas or simply map the new ideas on their existing points of view, without changing what their mental models.

**Take away:** Mental models help people simplify complex realities, but this can be constraining in a dynamic, interconnected system. By being aware of one's own biases and integrating diverse points of view, people are more creative and organizations are more likely to innovate successful products and services.

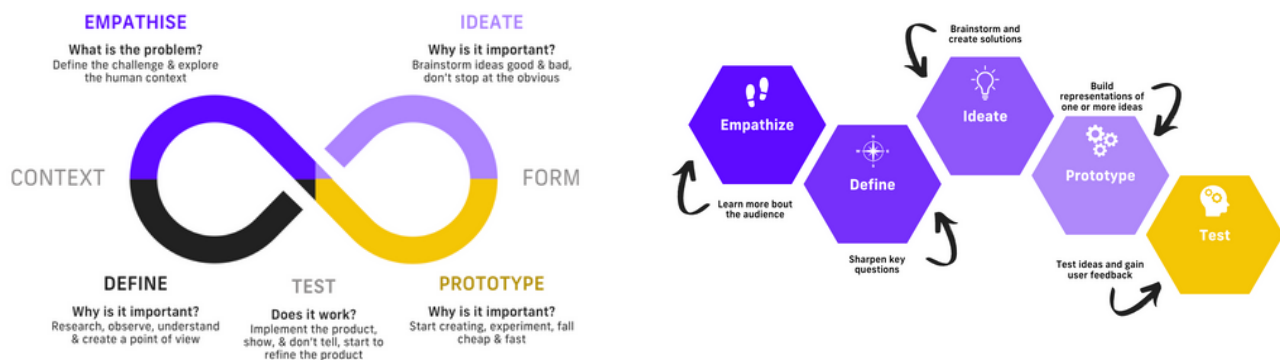
In the second Lab session, Otto Scharmer argued that in order to change the system, we have to change ourselves, from head to heart. In the first Lab session, Peter Senge suggested that prototyping and experimentation are especially important in dynamic systems, as people and organizations cannot predict and control outcomes in complex systems.

One way to implement Scharmer and Senge's ideas is to augment design thinking with systems thinking.

## Design Thinking Is Useful In Stable, Predictable Environments

Many of you are familiar with design thinking. It is an approach to innovation that focuses on the users of the products and services, and so is often called "human-centered." It has been the source of many practical, easy-to-use industrial designs, such as the Oral B toothbrush and many of Apple's products.

Many design firms often offer their own variant of design thinking:



Design thinking has three core components.

**1. Problem Understanding:** What's the problem you are solving? Design thinking offers tools and approaches to identify, understand, and re-define the problem. For example, designers could observe or interview users, gaining insights into their needs. By empathizing with the user, organizations can better define the problem.

**2. Brainstorming:** After the problem is defined and data collected about user needs and activities, designers 'ideate' solutions. It is important that this part of the process is creative and not limited by current approaches to the product and service, assuming that anything is possible.

**3. Prototyping:** Considered one of the most powerful tools of design thinking, designers are keen on prototyping, which puts ideas into action. "Instead of thinking in order to build, building in order to think", prototyping allows designers to experiment and iterate through ideas, to check assumptions, and test ideas to build new insights. The designer may build mockups, create story boards and, together with the user, test first impressions of the product or service.

Design thinking's focus is on the user experience, which can ironically be a limitation in complex environments. When relying too much on users' perception, design thinking can miss the wider context. Users tend to focus on the 'here and now' and on themselves. And, solving the needs of the user, can create a wider set of new problems – such as a proliferation of e-waste with the introduction of each new electronic gadget.

**Take away:** Design Thinking has highlighted the importance of empathizing with users and getting feedback early and frequently through prototyping. However, its focus on the user often limits the understanding of the problem, which leads to solutions relevant for today, here, and the specific user. Further, the solutions might address the symptoms of the problem and not the root cause.

## **Systems Thinking Recognizes Dynamic Connections Among People and Things**

System thinking looks at the whole system, not just the parts. It focuses on the interrelationships and patterns of change, rather than 'snapshots' at specific points in time. To date, non-governmental organizations (NGOs) have applied systems thinking more often than businesses have done. NGOs often tackle complex, societal issues, such as climate change, poverty, and clean water. Businesses, on the other hand, start with seemingly more narrow problems, such as declining sales or increasing competition. As a result, businesses executives often tend to apply business-centric or user-centric design thinking.

The purpose of this Innovation Learning Lab is to develop systems thinking tools for a business context. In doing so, businesses will be able to navigate and succeed in today's disruptive environment.

Although there are relatively few practical systems thinking tools for a business context, there are some general principles that we list below.

### **Sensing**

A systems approach shifts the focus from the 'things' in the system to the relationships between the things, which are often invisible and dynamic. A systems thinker is able to 'sense' the system. Much like catching a ball in mid-air, executives must be able to 'read' the signals, the interactions among the players and other forces (e.g. wind), and adapt quickly. The aim is not to scientifically map a complex system, but rather to see patterns in the system. The IKEA example in the pull-out box below illustrates how this can be done.

### **Zooming in and out**

As smaller systems are nested in larger systems, systems thinkers must be able to zoom into the smaller systems and zoom out to see bigger systems. That requires businesses to not just see their own perspective, but a more societal perspective; to see not just the short term, but also the long term. This brings new trends into view.

### **Co-creating**

Systems thinkers seek to co-create systems solutions with others, especially those people who are affected by the system. No one individual can sense the system, so involving others ensures resilient outcomes.

### **Nudging**

Radical top-down ideas can create unintended consequences. Instead, systems thinkers look to nudge the system. These experiments help systems thinkers identify root causes for the challenge and leverage points that can be amplified through positive feedback loops.

Ironically, a limitation of systems thinking has been that it is bogged down with its own complexity. Systems thinkers offer numerous frameworks and systems maps, and sometimes it is difficult to know which tool to apply, how to apply the tool, and understand the purpose of each one.

## Reducing IKEA's emissions with one map

Ikea commissioned Except, a systems design firm, to lower carbon emissions of its catalogue. Except's main contribution was in visualizing the catalogue's environmental impacts in one image, which permitted Ikea and its suppliers to finally 'sense' their systems impact. The shift from numbers to a visual has significantly reduced the environmental impact of the catalogue.

*"In the first year, the catalogue's energy consumption dropped 8%, while CO2 emission went down 2%. That may sound modest, but with a print run that has an energy footprint the size of the entire South Carolina economy, this adds up to 285,000 barrels of oil left in the ground each year from now on, and the CO2 emissions of 155,000 car kilometers compensated for by IKEA's CO2 savings. Plus, these reductions have only just started to kick in and are accelerating."*

The Lab aims to surface or develop tools and build capacities that will embody the key principles of systems thinking, so that it is useful in a business context. We will create protocols and tools that will help you innovate for the system and adjust the system.

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