

# KANSEI ENGINEERING + USER EXPERIENCE DESIGN DRIVING INNOVATION IN HEALTHCARE DELIVERING STICKY & INFECTIOUS EXPERIENCES

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## ABSTRACT

In this presentation we will investigate how Kansei Engineering and User Experience Design come together to solve real problems in a large healthcare organization, transcending the boundaries between physical and digital solutions and contexts. We will investigate examples from industry and various methodology for driving collaboration and culture change. We will also discuss the value and, perhaps more importantly, the responsibilities that come with participating in the engineering of sticky and infectious experiences. Organizational structures and other enabling details will also be explored.

*Keywords: User Experience, healthcare, culture, strategy, innovation*

## 1 KANSEI ENGINEERING & UX: COMPARING, CONTRASTING, & COMBINING

At their core, User Experience Design (UX) and Kansei Engineering (KE) have a lot in common. They both have a structured, observation based, and an adaptive design iteration philosophy. More importantly, they both focus on how products *feel* and are *experienced*, differentiating them from simple physical fit and function (Rintoul, 2014; Nagamachi, 1999, p273).

However, even with a high degree of commonality, there are critical differences. It is in this space where we can find synergies between the two methodologies. For example, KE comes from the engineering world, utilizing techniques such as applied mathematics, and evolutionary computational processes (Nagamachi, 1999, p274). KE principles blend the psychological feelings a product or service evokes and help guide product feature decisions to maximize the positive impact and minimize the negative feelings. (Guo, Liu, Liu, Wang, & Wang, 2014).

UX, by contrast, is a branch of design that bleeds into the product space. This sometimes comes from information technology groups, and sometimes from marketing. It focuses more on design

heuristics, best practices, applied psychology, and a more humanities-based method (Nielson & Norman, 2022).

Another distinction is that KE focuses on a *feature-out* approach, analyzing the feature level building blocks as a means of predicting the outcome of feature collections on the overall feeling of a product experience. Whereas UX focuses on the journeys, workflows, and personas involved in the overall design, accessibility, and usability of a system. At Fresenius, we are attempting to take a “best-of-breed” approach, merging the qualities of each methodology to best serve our users.

For example, in our journey map studies, we do not simply aggregate descriptive statistics from demographic data. Rather, we use *feelings* as the key set of features, differentiating moments in a narrative. To do this, we utilize feeling taxonomies, along with other objects / situations / people / places taxonomies, to normalize the feelings and situations expressed through organic open-ended interviewing. This affords an opportunity for creating data models without artificially restricting data collection to surveys. In this case, we view the moments in a journey as akin to the features in a product. Here we mine for the “moments that matter” and try to elicit the proper *Kansei* for each.

In our design practices, we focus on how we want our users to *feel* and not just on what we want them to *do*. This extends both the boundaries of UX and KE by moving into a space of proactive affective systems approach to product/service design. Additionally, when we communicate findings to engineers, and other stakeholders, we employ techniques leveraging immersive storytelling, rather than simply providing spreadsheets of data of report conclusions.

This is the key to creating “magical” experiences. Here we define “magical” as *a delightful, engaging, valuable, awe inspiring, personalized, and surprising pattern of interactions that create sticky and infectious experiences, cultivating deeper engagement and curiosity*. Here we use “sticky” and “infectious” as defined by Malcolm Gladwell in his book *The Tipping Point: How Little Things Can Make a Big Difference* (2000). To bring the next level healthcare disruption, we must deliver magical experience to everyone touched by products or services so that they want more and will spread the word in their network.

These techniques become critical imperatives for healthcare as this is where empathy is a palpable driving force (Lamothe, Rondeau, Malboeuf-Hurtubise, Duval, & Sultan, 2016). The world of healthcare contains environments of high emotion, and it requires humanistic solutions to navigate rich human objectives, such as treatment compliance, pain and stress management, and emergencies. This is a problem space where humans need to be understood and engaged as *humans*, not items on a production line.

## **2 PROMOTING THE KE BASED APPROACH AS A FORCE FOR CULTURAL CHANGE**

Healthcare product and service delivery is ripe for disruption as evidenced by the number of startups challenging the established healthcare enterprises (Joseph, 2021). Technology is a disruption agent as evidenced by the M&A of niche providers by established enterprises (Joseph,

2021). Personalizing healthcare is key as one size fits all does not meet the expectations (Morgan, 2021). Delivery of healthcare products and services aimed at the emotional aspects of end users can make a difference (Birks & Watt, 2007; Nightingale et al., 2018).

Our disruption: Afford delivery of healthcare product/service experiences as a story to maximize the end users' Kansei at each step. Our contention is that the experience continuum must extend all the way from service provider to service consumer, given the significant personal context and connection that infuses the service delivery, especially in dialysis. Therefore, for sustainable sticky and infectious experience delivery, we must consider the Kansei of everyone touching the product or service delivery: patients, physicians, nurses, vendors, and employees.

Technology has an anchor role in this disruption. The digital and physical worlds are coming together in truly unprecedented ways. Thus, infusing KE principles into designing and delivering magical experiences across the engagement continuum will make a huge difference.

Our inspiration is Disney's Imagineering process and objectives: deliver magical experiences to guests across Disney's worldwide properties and enterprises, creating "The Happiest Place on Earth" (Lipp, 2013, p. 1). To build a healthcare organization to adopt this vision, we propose a core set of roles:

1. The Empath: Responsible for understanding the emotional/psychological aspects of a proposed solution and how to elicit and translate feelings expressed, turning them into the requirements for a targeted outcome.
2. The Tactical Designer: An expert in designing products/services with specific features associated with end user's Kansei to make it sticky and infectious. This role focuses on the accessibility, cognitive, and usability needs of the end user and translates requirements into actionable product definitions. They aim to maximize the end user's Kansei to make the product and/or service desirable, attractive, and valuable.
3. The Storyteller: Envision the overall story arc of how the entire narrative of end user interaction with solution fits together. They understand the interconnections between the different journeys and own the blueprint for how the feelings are choreographed into a meaningful signature experience. They are the strategic big-picture thinkers who are imparting a higher layer of Kansei across the entire ecosystem.
4. The Data Scientist: Discovers of repeatable patterns from observational data and the master craftsman of the Kansei process. This person provides the critical data-driven insights that will convert the business desires into actionable requirements through the lens of a system of features and feelings.

You will notice that the first three competencies are derived from canonical UX practices, while the fourth is integrated from the KE domain.

### **3 THOUGHTS ABOUT THE DIGITAL/PHYSICAL MELD AND KE**

The concept of a *story arc* is the core component that anchors magical experiences. A story arc has worlds and experiences blended to maximize a coherent overarching Kansei. This creates

an opportunity to make reality malleable, allowing for a magical experience to emerge across the healthcare product or service, extending possibilities beyond the boundaries of typical constraints. As we breakdown domain barriers and obey the laws of physics, we create a *digital/physical meld* where we suspend reality as we know it, allowing magical experiences to happen.

This *meld* is orchestrated by the core group with support from the entire organization as it takes several iterations before all the components come together purposefully for delivery. This kind of transformation will require enterprise buy-in and years of maturation before it is fully realized. This requires significant investment as multiple story arcs need to be formulated, tested, refined, and integrated into the product and service delivery. However, the investment an organization makes to such a disruption will help retain its valuation and contribute to staying at the cutting edge of continual improvement and creative destruction (Adler, 2019).

#### 4 WHERE TO GO FROM HERE: THE SEEDS OF A VIRAL IMMERSIVE EXPERIENCE

As stated, achieving the magic requires the connection of multiple narratives across user stories; each playing a part in defining different sides of the same larger ecosystem. This transcends people, contexts, the digital and physical spaces, and weaves a lattice of intersecting journeys with a singular emergent outcome. Where we take it next will be a human-centric bubble, containing a shared story made by human hands, for human consumption, utilizing all the technologies, feelings, and expressions that make us unique as people, and bring us together under a single vision of *an experience*.

We are culminating these thoughts into the creation of a “Center for Magical Experience” (CMX) within Fresenius, bringing this disruptive thinking into product and service delivery experience engineering. The core idea for the CMX is to build an idea factory for engineering magical experiences throughout our organization.

Our CMX is very similar to Disney’s Imagineering, GoogleX, and MIT Design Lab where new and creative ways to bend the reality are explored. The key difference in our context is the focus on the *sticky* and the *infectious*, as we encourage the adoption, retention, and socialized spreading of the moments we create, increasing each encounters’ desirability and social reinforcement.

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