

## EDITORIAL

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**SUMMARY**

When thinking about experience design, our attention often goes to individual categories of people, such as customers, patients, users, employees, and the like. However, people do not exist outside of systems. Therefore, when considering designs, we need to consider the entire experience ecosystem and how elements of those system intersect and align. We examine this principle through the lens of medical records and EHR systems. By approaching design through a systems perspective, we can create better solutions that fit the broader needs of system stakeholders. We conclude with recommendations for how to better execute a systems design approach to foster better integrative experiences.

**Key Words**

Experience design; systems design; medical records; EHR systems; experience ethnography

**INTRODUCTION**

“You have heard of the batch approval option, right?”

This interview was one of the final ones that I was going to be doing for a healthcare institution. I had been talking with doctors regarding their use of the hospital’s health record (HER) system, as well as their general philosophy regarding clinical documentation and medical records. Our team had already conducted more than 20 interviews with physicians of varying specialties. I honestly was not eager to do one more, as I thought I had “heard it all” from the previous interviews. Qualitative researchers talk about reaching a *saturation point*, and I was saturated. But even when saturated, there is still room to be shocked.

No, I wasn’t familiar with the batch approval option. Excitedly, he told me how physicians could select all the records in their approval queue, and in one click approve them all as being checked for accuracy. He went on to talk about how efficient it is! I had no doubt that it was efficient, but *we should never confuse efficiency with quality*. But efficiency can be popular, as demonstrated by fast food. Billions are served through efficient standardised processes in rapid production. Quality? Debatable.<sup>1</sup>

As I reported my findings to the hospital’s leadership, I brought up the issue of the batch approval option, wondering if they were aware of this function. “It is one of our most popular features,” they confirmed. “I’m sure it is,” I responded. The question is, “Does efficient and popular equate to quality and effectiveness?” And whose needs should be prioritised when creating the medical record especially when done within enterprise systems.

### MEDICAL RECORDS AS BOUNDARY OBJECTS

Medical records originally were tools to be primarily used by clinicians to guide their treatment of patients. They provided historical as well as future-oriented accounts that tracked symptoms, treatments, and outcomes. Thus, the design and construction of medical records largely was up to the discretion of the physician doing the creating. Such an approach made sense since the physician (and perhaps other physicians) were the intended audience of one.

But even in the “old days” of paper records, there was another audience in the form of medical librarians. It turns out that medical librarians like to have organised information and structured content that makes it easier to classify and categorise. Physicians creating records to their liking with no consideration of other audiences made the work of librarians difficult as there was no standardisation across documents. Librarians started to argue for that kind of standardisation to make their jobs easier as well as to have library collections that made sense, but to limited avail. As it turns out, physicians don’t like to be told how to do things, especially when being told by non-physicians.

Today, however, the healthcare landscape is much more complex. While paper records still exist, we are increasingly moving exclusively to the electronic record. Furthermore, it is not just that electronic records are a duplication of the paper record, but are their own unique thing.<sup>2</sup> The electronic medical record sits in the middle of that complex landscape as the essential thing that ties all of health care together. The implementation of these systems are complex on their own,<sup>3</sup> adding complexity to what is already complex.

Star and Griesemer<sup>4</sup> introduced the idea of *boundary objects* in their examination of amateurs and professionals working together in a zoology museum. They define boundary objects as “objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites”. When working in environments that are inhabited by many different stakeholders with different unique needs, boundary objects allow for flexibility of use with consistency of recognisability. In other words, the object can be changed and configured for particular audiences while still remaining identifiable as that object.

Medical records are a type of boundary object when you consider the number of audiences that rely on them to do their jobs, and the ways in which those jobs can be divergent. We can think of primary physicians, other specialist physicians, patients, caregivers, coders, billers, insurance companies, researchers, administrators, legal personnel, and others who are potential audiences of the medical record.<sup>5</sup> Each of them can be looking for something different to support their needs. At the same time when we are designing something, we need to ask the question, “For whom are we designing?” And when the needs and requirements of different audiences diverge or come into conflict, we need to consider who wins and who loses?

### CUSTOMISATION, STANDARDISATION, AND PRIORITISATION

In previous work I did on the design and implementation of enterprise systems, a fundamental tension can exist between users’ desires for customisation and management/administrative need for standardisation. Users want an interface and content that fit their needs. However, with too

much customisation and freedom to modify the interface, you end up with content that is unmanageable from a system perspective. Whether customisation or standardisation gets prioritised is the ground upon which the enterprise system wars are fought.<sup>6</sup> The outcomes of that war will dictate the type of experiences that are created.

When talking about designing experiences, it is useful to separate out the differences between customer, user, and patient experience as part of the larger experience ecosystem.

In terms of selecting and implementing an enterprise system, those who are responsible for buying the system can be thought of as the *customer*. That group often includes C-level executives and other administrators and managers who are primarily interested in revenue generation and solvency as much as (or even more than) clinical outcomes. Especially in the US healthcare system, billing and reimbursement can be directly related to concepts like case mix indices and severity of illness indicators. *Users* are those who must use the system. Users can include physicians, as well as coders, clinical documentation improvement specialists, health information managers, patients, and others. Some of these users are also *employees*, which then touches on employee experience as a feature of system implementation. Finally, we have *patients* who are users of systems and also recipients of the impacts of systems. Doctors using (or wrestling) with system while seeing a patient impacts patient experience. Doctors pulling up patient information during a consult is part of that same experience. Incomplete, out-of-date, or erroneous information is part of that experience as well.

Taken together, all of these experience channels come to make up the *healthcare experience ecosystem*. When thinking about customisation, standardisation, and prioritisation, we can think about to the extent to which these experience channels are aligned or misaligned through the system itself and the ways in which they impact the design, creation, and use of the medical record. When priorities start to favour certain needs over others, we can have a misaligned system that creates suboptimal or even disruptive experiences for those involved. When dealing with health care, such negative outcomes can be tremendously impactful in ways that are counterproductive.

### DESIGNING A PATH FORWARD FOR MEDICAL RECORD DESIGN

Experience design is a broad field of designers focused on creating intentional experiences that span across experience channels. Looking at the design of medical records, and the systems that support them, we have to think in terms of the larger healthcare experience ecosystem. Just focusing on any one part (eg, system, user, customer, patient, employee, etc.) risks the experiences of others and the outcomes that get produced. Moreover, it is important to not just consider idealised representations of workflow, but how work actually gets done. Using an ethnographic approach for the purposes of design can help to uncover the intricacies of stakeholder needs and an understanding of the larger ecosystem.<sup>7</sup> Considering the stakes involved in health care, we cannot risk neglecting any stakeholders.<sup>8</sup>

In approaching designing anything, but especially in a complex environment like health care, it is important to keep following things in mind when considering stakeholders:

- **Intentionality:** Are we intentionally considering our design decisions in terms of why we are doing them and toward what end?
- **Transparency:** Are we being clear regarding our motivations with our designs, and what we hope to accomplish? Are we sharing our metrics of success?
- **Participation:** Are we inviting participation from the various stakeholders that are part of the experience ecosystem? Are their perspectives being considered?
- **Strategy:** How is the design part of some larger strategy that we are trying to accomplish? How well is that strategy being communicated?
- **Alignment:** Have we considered how the design will increase alignment within the larger ecosystem? Likewise, will it cause different aspects of the organisational and experience terrain to become misaligned and fragmented?
- **Impact:** What are the intended and unintended impacts of our design? Have we dedicated adequate time and resources to examining the post-implementation phase of the design?

When considering any design, there is a certain moral imperative involved given that our designs can and will impact people's lives. Healthcare design carries special consideration given what is involved.

I'm not sure what happened with the batch approval option. It may have resulted in no negative clinical outcomes and delivered good results. I'm not sure if anyone knows, and therein lies the problem. I don't know what the process of consideration was for it. I don't know if the efficiency gains had any impact on the quality of records. By considering the larger experience ecosystem when engaging in our design process, we will be in a better position to deliver designs that matter for our stakeholders.

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