HCD Maturity Model:
Assessing Human-Centered Design Adoption in the Enterprise

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INTRODUCTION

Think about the last time you placed and picked up an order from your favorite fast food restaurant. The quality of your experience was likely defined by the accuracy and timeliness of fulfilling the order along with the customer service you received. But have you thought about what happens behind the scenes to make those few minutes successful? Likely, multiple members across the company's org chart worked together to determine how to build back-office tools and processes to achieve a desired outcome for the customer experience.

Continuous improvement efforts, such as Lean, Agile, and Human-Centered Design (HCD), ultimately seek to define these back-office business processes to deliver viable, feasible, and desirable customer solutions. In the information technology (IT) landscape, the DevOps movement (Atlassian, n.d.) gained traction because siloed teams were not succeeding in delivering reliable product solutions. Similarly, DesignOps seeks to optimize the "people, processes, and craft in order to amplify design's value and impact at scale" (Nielsen Norman Group, 2019). That is one of the goals of the Human-Centered Design (HCD) Center of Excellence (CoE). However, it is difficult to prove continuous improvement efforts actually improve anything without data.

The purpose of this whitepaper is to introduce the "HCD Maturity Model" the HCD CoE has applied to the Center for Clinical Standards and Quality (CCSQ) Information Systems Group (ISG). Ideally, the goal of this initiative is to measure design's value and impact at scale, not only towards products, but services and policies as well. The adoption of HCD is the shared responsibility that traverses contracts, contractors and federal employees alike in this public ecosystem at the Centers for Medicare & Medicaid Services (CMS).

KEY TAKEAWAYS

- CMS and its contractor partners must share responsibility and accountability in forging a customer-centric culture in "the enterprise," as directed by the Office of Management and Budget (OMB, 2018);

- HCD, as a continuous improvement business process, must be assessed in order to support CMS strategic objectives; and

- Application Development Organization (ADO) evaluations provide insight for teams to better fulfill the CMS mission by identifying greater opportunities to integrate HCD into their work.

HCD MATURITY IN THE ENTERPRISE

HCD IS A SHARED RESPONSIBILITY

Human-Centered Design, or the application of Design Thinking, is the process we use to understand the people for whom we are writing policies and creating or improving programs, products and services. As a continuous improvement effort, the application of HCD is neither limited to the context of software development nor limited to specific HCD job roles.

This means that HCD is also not limited to the people who must practice it. If you have a customer (i.e., public beneficiary, employee coworker, or otherwise), then you have an opportunity to employ HCD methods and activities.

In fact, OMB Circular A-11 (2020) Section 280 (Office of Management and Budget, 2018) provides guidance that impacts how CMS is to manage their customer experience (CX) efforts in order to improve service delivery. CMS is responsible for reporting on the public's valuation of its service quality, process, and people. Therefore, we all must own the customer experience.

WHO DEFINES THE ENTERPRISE?

Given the unique nature of getting work done in a federal agency setting, public organizations like CMS contract and partner with others in order to achieve their organizational missions. This creates a fluid definition of "the enterprise" because it includes federal employees and contractor partners, and their combined focus on new and continuous improvements applied to programs, products, services, and policies.

The HCD Maturity Model works well given this fluid definition of the enterprise because it is scalable. While this model can be applied to

assess adoption and maturity in a variety of contexts, its true value becomes apparent when applied to the broadest context possible: CMS as an organization.

PROBLEM WITH EXISTING MODELS

Given the unique circumstances of CMS and its contractor partners, the biggest criticism with existing models is that they appear to lack scalability and application across contexts. On one end of the spectrum, user experience (UX) models naturally focus on applying HCD to digital product design solutions, which works in narrow contexts, or if the enterprise solely focuses on creating or improving digital products for only certain customer (i.e., "user") types. On the other end of the spectrum, service design and customer experience models, including the CX model introduced by OMB (Office of Management and Budget, 2018), have greater applicability to broad holistic contexts but cannot be applied to narrow contexts for team evaluation.

In addition, unlike established frameworks such as Capability Maturity Model Integration (CMMI) (CMMI Institute, n.d.), there are no known evaluation models or third-party organizations that provide this type of assessment service.

It is for these two reasons that the HCD CoE crafted a model that would fully support CMS' mission: "To ensure that the voices and needs of the populations we represent are present as the agency is developing, implementing, and evaluating its programs and policies" (CMS, n.d.). The HCD CoE reviewed a number of existing models, but the greatest influencers include the capabilities as adapted from Forrester's *User Experience Capabilities Assessment* (Buley, 2015) and the stages as adapted from Qualtric's *The Customer Experience Journey* (Temkin, 2008).

THE HCD MATURITY MODEL

THE MODEL

The HCD CoE adapted the best ideas from existing models, resulting in the introduction of this **HCD Maturity Model** (*see Figure 1, page 4*). As a scalable model, it can be applied to assess design's adoption within product development teams or it can be applied to assess the customer-centricity of large organizations, such as CMS. Because HCD is an innovation and continuous improvement philosophy, it can be applied to **any work** that **benefits any customer** (i.e., internal or external).

This model evaluates HCD adoption across the following criteria:

- **Scope** – Scope can range from designing a specific user interface to researching and designing all touchpoints a customer has with an organization.

- **Strategy** – Strategy is the game plan to manage the parts of the experience that design drives by force of its scope. This can range from no strategy or a passive strategy determined by others to active design participation in defining a strategy.

- **Research** – Research for customer understanding is a fundamental discipline of design maturity, yet few organizations fully commit to ongoing direct engagement with their customers. A key measure of design maturity is whether customer research has become a repeatable and integrated practice.

- **Design** – Design is the heart of the practice. But there are different ways to approach design. Modern customer-centric organizations embrace iterative design practices that involve customers, de-risk design decisions, and naturally complement Agile and Lean methodologies.

- **Staffing** – Staffing modern design teams for core capabilities often evolves to hub and spoke or matrix models. Teams have dedicated design resources and separate, often centralized, design resources that focus on cross-product strategy, patterns and guidelines, and capabilities enablement.

- **Measurement** – Measurement means connecting design work to business operational data (O- data). Customer-centric businesses take experience data (X-data) and O-data as an input to measure and improve four core experiences of business: customer, employee, product, and brand.

These criteria are given an HCD adoption rating that falls within one of five stages of enterprise maturity:

- **Interested** (lowest adoption) - In the first level of HCD maturity, organizations begin to believe that human-centered design is an important part of their business. They start undertaking a number of different efforts without making any major investments, attempting to get a handle on the current situation. There's a flurry of uncoordinated activity and no real leadership for customer experience activities.

- **Invested** - Organizations enter into the second level of HCD maturity after they recognize that human-centered design is worthy of a significant investment; in both capital and key personnel. Therefore, the

Figure 1

HCD MATURITY MODEL

	KEY PRINCIPLE	STAGE 1: INTERESTED	STAGE 2: INVESTED	STAGE 3: COMMITTED	STAGE 4: ENGAGED	STAGE 5: EMBEDDED
SCOPE	**Scope** can range from designing a specific user interface to researching and designing all touchpoints a customer has with an organization.	focus on user interface (UI) development for current sprint development digital only	focus on user experience (UX) design for current and future sprint development digital only	focus on user experience (UX) research and design for PI planning digital only	focus on user experience (UX) research and design for product roadmap planning digital and non-digital across multiple customer touchpoints (micro)	focus on research and design to improve the business ecosystem: customer, employee, product, and brand. digital and non-digital end-to-end customer journeys (macro)
STRATEGY	**Strategy** is the game plan to manage the parts of the experience that design drives by force of its scope. This can range from no strategy or a passive strategy determined by others to active design participation in defining a strategy.	no strategy research and design activities are not considered essential	passive strategy research and design activities are not integrated into project planning	passive strategy research and design activities are integrated into project planning, but determined by others	active strategy research and design activities are integrated into project planning with full support of leadership	active strategy research and design activities help shape business strategy
RESEARCH	**Research** for customer understanding is a fundamental discipline of design maturity, yet few organizations fully commit to ongoing direct engagement with their customers. A key measure of design maturity is whether customer research has become a repeatable and integrated practice.	infrequent (if at all) unstructured qualitative findings rarely influence product decisions product research with SMEs or end user proxies	ad hoc structured qualitative findings sometimes influence product decisions product research with limited end users	milestone-driven structured qualitative and quantitative findings regularly influence product decisions product and end user research with sufficient end users	regular integrated practice structured qualitative and quantitative findings influence product, service, and/or policy decisions for a given division product and customer research with sufficient customers	regular integrated practice structured qualitative and quantitative findings influence enterprise business decisions product, customer, and employee research with sufficient stakeholders
DESIGN	**Design** is the heart of the practice. But there are different ways to approach design. Modern customer-centric organizations embrace iterative design practices that involve customers, de-risk design decisions, and naturally complement Agile and Lean methodologies.	unintended design style[1] single approach[2] for a product high priority features only single design delivered once no documented repeatable process	self design style[1] multiple approaches[2] for a product medium and high priority features multiple designs delivered once the design team follows documented standards, guidelines, and patterns	genius design style[1] multiple approaches[2] across products all relevant features multiple designs delivered iteratively the product team follows documented standards, guidelines, and patterns	activity-focused design style[1] focus on products and services customer experiences multiple designs delivered iteratively the program follows documented standards, guidelines, and patterns	customer-focused design style[1] focus on customer journeys customer & employee experiences[3] multiple designs delivered iteratively the enterprise follows documented standards, guidelines, and patterns
STAFFING	**Staffing** modern design teams for core capabilities often evolves to hub and spoke or matrix models. Teams have dedicated design resources and separate, often centralized, design resources that focus on cross-product strategy, patterns and guidelines, and capabilities enablement.	single person supports entire contract 1 UX to many developers	multiple people support multiple teams 1 UX to 10+ developers	distinct research and design roles span across work streams 1 UX to 5+ developers	distinct teams support the program UX role is part of program leadership to guide product and customer experiences	distinct teams support the enterprise UX role is part of enterprise leadership to guide product, customer, employee, and brand experiences
MEASURE	**Measurement** means connecting design work to business operational data (O-data). Customer-centric businesses take experience data (X-data) and O-data as an input to measure and improve four core experiences of business: customer, employee, product, and brand.	shares X-data with product stakeholders in an effort to measure and improve the product experience	shares X-data with program stakeholders in an effort to measure and improve the product and customer experience	uses O-data and shares X-data to measure and improve the product and customer experience	uses O-data and shares X-data to create and improve operational processes to meet product and customer goals	uses O-data and shares X-data to measure and improve product, customer, employee, and brand experiences

[1] https://articles.uie.com/five_design_decision_styles/

[2] Good product design considers multiple approaches including visual design, interaction design, information architecture, content strategy, and more.

[3] Design broadens focus from product "end users" to stakeholders that define the customer's experience journeys with the business, including end users, customers, and employees.

approach to customer experience becomes more organized with an intensified focus on fixing problems.

- **Committed** - In the third level of HCD maturity, organizations are embracing human-centered design because they understand the specific impact it has on business results like quality, cost effectiveness and customer satisfaction. The effort is no longer isolated to a few groups as customer experience becomes a major transformational effort across the organization. Instead of just trying to fix problems, the focus turns to redesigning processes.

- **Engaged** - When organizations enter into the fourth level of HCD maturity, human-centered design is a key component of everything they do. Instead of re-engineering processes, the focus turns to designing break-through experiences and solidifying the culture. There's significant emphasis on employee engagement and organizations become much less dependent on a centralized group responsible for creating and improving the customer experience.

- **Embedded** (highest adoption) - At the highest level of HCD maturity, which can take organizations several years to achieve, human-centered design is deeply ingrained throughout the organization. Just about every employee feels ownership for maintaining the culture. The leadership team no longer focuses on change but views itself as keeper of the customer-centric culture, which is viewed as a critical asset.

It is important to acknowledge that while this model is scalable, there are shortcomings. For example, if applied to the adoption of design and research to software development, teams comprised of federal employees and contractor partners likely would never reach stages four or five, in part because the context and organizational focus is very different. The reason for this, and why this model is better suited to assess the enterprise rather than teams, is because the latter adoption stages reflect a shared ownership for achieving and maintaining a customer-centric culture that transcends the defined work for any given contract.

Yet this model is meant to assist teams with a crawl, walk, run approach to maturity by expanding focus from functional capabilities towards adopting a mindset of continuous improvement and shared responsibility towards becoming customer-centric organizations.

ASSESSMENT

The team was charged with evaluating adoption in Application Development Organizations (ADOs) to support organizational goals. These ADOs reflect a contractual relationship between ISG and contractor organizations to deliver specific information system solutions for ISG's customers.

The assessment process is intentionally qualitative in nature, relying on interviews and reviewing any artifacts provided during the interviews. For this initial assessment of ADOs, the HCD CoE wanted to gain transparent feedback from key stakeholders. To achieve this, the following objectives were stated from the onset:

- Candid feedback is critical to the efficacy of the baseline assessment.

- The assessment is decoupled from the contract relationship (i.e., this plays no part in the performance assessment of any contract).

- In this context, HCD adoption is assessed at the ADO organizational context or assessing the level of shared adoption

among federal employee and contractor partners across ADOs.

To achieve this assessment, the team conducted interviews with three key stakeholders for each targeted ADO:

- **Contractor HCD point of contact** – Person who can speak to the research and design activities that take place to fulfill a statement of work on behalf of the contractor organization.

- **CMS HCD point of contact** – Person who can speak to the research and design activities that take place to fulfill a statement of work on behalf of the CMS organization.

- **Contractor lead** – Person who represents the overall statement of work on behalf of the contractor organization.

To reiterate, this approach to interviews means that the goal of such assessments is not about assessing the health or value of any contract or contracting organization, but rather, to understand the cultural adoption of and application of such a philosophy in practice in the "enterprise" as defined by the relationship CMS has with its contractor partners.

SYNTHESIS

After conducting interviews with these key stakeholders and reviewing any documents and artifacts to support the research, a team of evaluators synthesized findings from interview and artifact data and mapped it to the model's assessment rubric. The rubric itself attempts to define what people, processes, and outputs are present across any given criteria in order to provide a confident maturity rating.

Understandably there may be overlap between stages, yet evaluators were able to confidently plot the findings based on their qualitative and quantitative data findings. Future assessments will likely include additional quantitative measures as data becomes available.

CONCLUSION

NEXT STEPS

Human-Centered Design is not simply a focus on digital product user interface (UI) design. It is not just about making something pretty. HCD is the application of design thinking towards any work that organizations undertake. Fundamentally, this philosophy posits that businesses can better define, design, and implement products, services, programs, and policies with a well thought out strategy for understanding customer needs and goals and involving their customers throughout the process.

This whitepaper proposes that organizations who truly want to be customer-centric adopt a model of continuous improvement that points to a desired state. While no model or assessment method is truly objective and one-size-fits-all, the HCD CoE wants to serve CMS

by defining the current state "health check" and providing recommendations for those organizations who wish to adopt a customer-centric mindset.

To that end, the HCD CoE offers the following recommended next steps:

- HCD CoE offers partnership with ADOs to provide ongoing coaching to support this ISG-led continuous improvement initiative;

- HCD CoE offers best practices and coaching to ISG leadership to instill a culture of customer-centricity and continuous improvement; and

- HCD CoE recommends recurring assessments of both ADOs and other scalable contexts as a way to demonstrate increasing enterprise adoption.

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