



CPUX-M Curriculum

Certified Professional for Usability and User Experience
Essentials in UX and HCD Management

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Introduction

This curriculum defines what a candidate needs to know to pass an examination for the Essentials in UX and HCD management. Candidates should have previous knowledge about User Experience (UX) and Human-Centred Design (HCD) corresponding to the CPUX–F curriculum (available at www.uxqb.org).

This curriculum:

- focuses on the aspects of management that are particular to HCD
- conforms to the established practices for HCD management, as described in popular textbooks, recognised articles, and international standards
- conforms to the CPUX–F curriculum (available at www.uxqb.org)
- can be prudently presented in a one-day seminar, including appropriate exercises that take up about 30% of the time. The description of the model seminar is included in the accompanying Trainer’s Guide.

Readers are assumed to have some practical experience with HCD from working as a UX or related professional. No HCD management knowledge is required.

Each chapter starts with a summary followed by definitions with notes and examples. The terms shown in boldface in a definition are elaborated in a separate definition. Moreover, the index at the end of the curriculum can be used to locate a definition quickly. Some terms are defined in the CPUX–F curriculum.

Learning objectives

Learning objectives (LOs) are brief statements that describe what candidates are expected to learn from the curriculum. A table at the start of each section presents LOs.

The following keywords characterise LOs:

- *Know* – recall facts and basic concepts, that is, recite, recognise
- *Understand* – explain ideas or concepts, that is, compare, contrast, substantiate, summarise.

Persons used in examples in this curriculum

Many of the examples in this curriculum reference the following fictitious organisations and persons.

Delta Market is a fictitious chain of more than 500 medium to large grocery stores. With more than 50,000 employees, Delta Market is known for taking HCD seriously.

Cecilia Osterman is the Chief Executive Officer (CEO) of Delta Market. Cecilia started as a sales associate for Delta in 1995. She worked her way up from a sales associate, to manager of a small Delta market, to manager of a large Delta market, to chief marketing officer. In 2007, she was appointed CEO of Delta Market.

Huxley Smith is the UX manager at Delta Market. Huxley is an experienced UX professional. He was hired in 2012 and led Delta’s transformation from an organisation that cared little for

UX to one that has embedded HCD at the heart of its processes. Today, Huxley is the manager of a team of 12 UX professionals who provide guidance and support to about 100 people working in various HCD roles in other departments.

Mark Oswald is the Chief Marketing Officer (CMO) of Delta Market. Mark was appointed in 2011 after a long career at Alpha Market. He moved to Delta Market because he knew Cecilia and her visions and wanted to be part of them. Mark is Huxley's boss.

Susan Serco has been the director of Delta's customer support since 1998. Her staff answers customers' questions. In early 2012, Susan was frustrated to see that her people were repeatedly answering the same questions. Susan says, "I have a top-twenty list of problems, of which 14 are probably simple to correct, but the product teams won't listen!"

Wesley Mangor started in Delta's Information Technology department in 1993. When the web took off, he created Delta's first website and advanced to be the manager of the web department, which consists of about 30 people.

Emma Comspell started as a communications specialist at Delta Market in 2008. She quickly became frustrated by the poor user interfaces of IT systems that she had to defend publicly even though she despised them. She supported Huxley in his early work, for example, by translating Huxley's articles for Delta's internal newsletter from geek speak into plain English that was fun and easy to read yet serious. In 2013, she joined the UX team.

Alpha Market is Delta Market's closest competitor. Five years ago, Alpha had twice the market share of Delta but they are now similar in size and market share. Alpha focuses on cool features on their website and in their apps. Alpha employs a number of excellent graphic designers. Some rebellious graphic designers carry out usability tests, which are tolerated by management. Minor findings from usability tests are implemented, but major findings that are expensive to implement are mostly ignored. Instead of field studies, Alpha relies on input from store managers, who say that they know their customers very well. Recent newspaper reports and social media comments have been scathing about the user experience of Alpha Market's offerings, especially when compared to Delta. Several customers are quoted as saying, "Why doesn't Alpha simply do it the way Delta does?"

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1 The challenges of HCD management

To be successful, UX professionals (User experience professionals) must explain the business relevance of HCD (**Human-Centred Design**) and focus on how their ongoing HCD activities and **UX visions** will substantially help the business.

A key challenge of HCD management is to educate the organisation to understand the business advantages of a human-centred approach where decisions are based on data from users and other stakeholders rather than opinions. Design driven by opinion is widespread and may lead to poor designs, **opinion wars** and dissatisfied users.

To achieve long-run HCD success and increased **HCD maturity**, regular engagement with executives and nudging the **organisational culture** are essential.

HCD managers are also responsible for building and maintaining **HCD infrastructure** across projects and a **human-centred quality system**.

Learning objectives

1.1	Understand the basics of human-centred design
1.2	Understand how to explain the business relevance of HCD
1.3	Understand how to successfully engage with executives for long-run HCD success and HCD maturity
1.4	Understand that data rather than opinions are essential to show the value of HCD work
1.5	Know how to overcome resistance to HCD

1.1 Human-centred design

Human-centred design

An approach to design that aims to make interactive systems more usable by focusing on the use of the interactive system and applying human factors, ergonomics and usability knowledge and methods.

The overall goal is to produce interactive systems that are usable, that is,

- they do what users need—which is often not what co-workers, managers, marketing people, etc., think
- they do what users want quickly
- they are pleasant to use
- they support recovery from errors.

Human-centred design addresses the whole user experience (UX)—that is, what happens before the user interacts with the system, the interaction itself, and what happens after the interaction.

A UX manager must constantly focus on

- Users: Are all decisions based on data or insights from real users?

- Evaluation: Are deliverables, in particular prototypes, conscientiously evaluated with real users?
- Iteration: Are problems that are discovered in usability tests corrected? Are the corrections evaluated to check that they work?

The human-centred design process is shown in Figure 1.

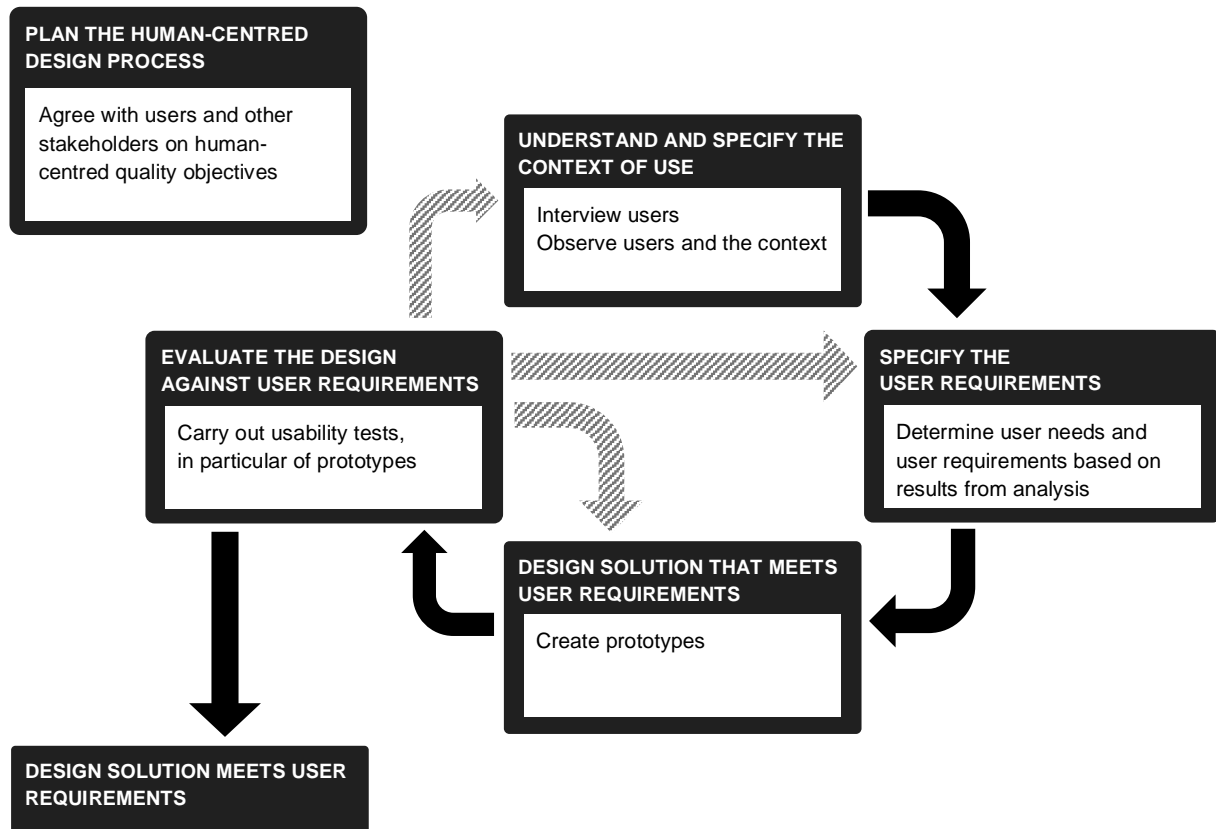


Figure 1. The interdependence of human-centred design activities. The shaded arrows indicate iterations. For example, if the evaluation shows that the context of use has not been fully understood, analysis is resumed. For more details, see the CPUX-F curriculum. [Alt text added to the group of hatched arrows and to the group of black arrows]

1.2 The business relevance of HCD

Management sets business goals, business objectives, and visions across the organisation.

UX professionals, in particular UX managers, translate business objectives into human-centred quality objectives and the business visions into UX visions. They also nudge the organisational culture towards a better understanding and implementation of HCD. They further define and implement HCD processes and guidelines, often in the form of a human-centred quality system.

Regular engagement with executives and C-level management (people with CxO in their title) and nudging the organisational culture are essential for long-run HCD success and increased HCD maturity.

To successfully engage with executives, UX professionals must

- understand what drives executives and managers
- understand and speak the language executives and managers use
- be able to explain the business value of HCD and translate HCD into business value
- create UX visions for reaching business goals.

Executives are driven by:

- revenue, cost and profit
- Return On Investment (ROI)
- Customer Lifetime Value (CLV), the total amount of money a customer is expected to spend in a business during their lifetime
- brand recognition and image
- staying ahead of or at the same level as competitors
- corporate social responsibility (CSR)
- legal requirements
- and more.

Example

- Cecilia considers: If Delta spends a million dollars developing a new online ordering system, how much more money will Delta make for the organisation and its shareholders?

1.3 Base decisions on data rather than opinions

Everyone has opinions about users, user interface design, usability, UX, and HCD. Unfortunately, discussions based on opinions are seldom productive. Discussions about opinions may lead to an opinion war. An opinion war starts when someone asks, “Why are your opinions better than mine?” Opinion wars are a sign that an organisation lacks HCD maturity and does designer-centred design or complaint-driven design rather than human-centred design. In some organisations, the Highest Paid Person’s Opinions (HiPPOs) trump empirical insight and data.

Opinion war

A serious disagreement where the key arguments are unsubstantiated opinions rather than evidence-based data or facts.

Measuring human-centred quality through qualitative or quantitative usability testing or user surveys produces data that reflect real user behaviour. User data, such as the percentage of users who can successfully complete a key task and the average task completion time, can be used to make peace in an opinion war.

Other HCD methods are subjective, for example, focus groups and usability inspections. Controversial outcomes from a subjective HCD method can be dismissed as mere opinions in an immature organisation and start an opinion war.

1.4 Demonstrate that HCD is not trivial

Immature organisations often resist systematic HCD efforts, particularly when the HCD activities start to cost money. Many people in organisations feel that they know their users and that they can successfully achieve a good UX without systematic HCD activities.

Typical objections to systematic HCD activities are

- “We already talk to users. I talked to some friends and they liked the idea of our new app.”
- “I have been in this business for 35 years. I know our users.”
- “My annual assessment is based on whether I get the product out on time and under budget; UX and HCD are not factors in how my work gets measured.”
- “We already do great HCD work: We have several talented visual designers who create the artwork and layouts for digital projects based on creative briefs and client meetings.”

Such objections can be overcome by demonstrating that non-trivial UX problems exist in the organisation’s products. This is best done by

- usability testing—invite stakeholders to observe usability tests live because seeing is believing
- field studies of users
- feedback from customer support—analyse customer support databases and extract lists of, for example, the 20 most frequently asked questions.

As long as such activities do not cost significant money, most organisations will tolerate them, especially if they are carried out by engaged employees in limited time.

2 Business terms that every UX professional should know

UX professionals' work must be driven by their organisation's **business goals** and **business objectives**, which are descriptions of what the organisation expects to accomplish. **Business strategies** describe how the organisation plans to achieve its **business goals** and **business objectives**.

UX professionals should be able to translate UX and HCD involvement into **business value** by computing **Return On Investment (ROI)**, and demonstrating the value of HCD efforts through **Key Performance Indicators (KPIs)**, **Objectives and Key Results (OKRs)**, or **conversion rates**. When there are doubts about the features needed in a fully functional product, a **Minimum Viable Product (MVP)**, may save the organisation from spending money on unnecessary development.

Learning objectives

2.1	Know the concepts: business goal, business objective, and business strategy
2.2	Understand how to translate UX and HCD involvement into business value by computing Return On Investment (ROI)
2.3	Understand how to demonstrate the value of HCD efforts through Key Performance Indicators (KPIs), Objectives and Key Results (OKRs), or conversion rates
2.4	Understand how to calculate Return On Investment (ROI)
2.5	Know the concept: Minimum Viable Product (MVP), and the purposes of it

Business goal

An achievable outcome for an organisation that is typically broad and long-term.

Business goals might pertain to the organisation as a whole, departments, employees, customers, and other stakeholders.

Examples of business goals:

- increased revenues
- decreased costs, for example, for customer support or fewer product returns
- increased new business, also known as market share
- increased existing business, including repeat sales, upselling, and retention
- increased long-term viability, also known as shareholder value

For examples of business goals and corresponding human-centred quality objectives, UX visions, and HCD strategies, see section 4.1.

Business objective

A specific, measurable target for an organisation to achieve a business goal.

Business objective differs from business goal in the sense that a business objective is measurable and specific. It sets a target so the business strategy can be planned around it.

Although the terms, business goals and business objectives are loosely interchangeable, business objectives are most often a subset of business goals.

Examples of business objectives:

- Increase the share in the Home Loan segment to 15% by the end of the current financial year.
- Achieve 15% growth in revenues and earnings within the next 12 months,
- Reduce employee turnover by 20% by introducing a new employee-assistance program.
- Double the number of social media likes on Facebook and YouTube.

Business strategy

A long-term plan for helping the business achieve specific business goals.

Strategy is about changing something. The core of any strategy is:

- A. Where are we now?
- B. Where do we want to be in three years? In five years?
- C. What are the right tactics to get from A to B?
- D. Once we have reached B, how will we prove it to our colleagues?
- E. What might stop us, and how will we overcome that?

2.1 Translating HCD into business value

Business value

All forms of value that determine the health and well-being of the organisation in the long run.

Business value expands the concept of value of the organisation beyond economic value (also known as economic profit and shareholder value) to include other forms of value such as employee value, customer value, supplier value, managerial value, and societal value. Many of these forms of value are not directly measured in monetary terms.

One of the most important tasks of a UX manager is to translate UX and HCD involvement into business values, that is, to show how HCD benefits the organisation, for example through improved ROI, KPIs, conversion rates, and user satisfaction scores.

Examples of business values:

- **Honesty:** Huxley and his team conduct usability tests on all aspects of Delta's user interfaces where he suspects potentially unethical designs. He presents results to management and makes sure that questionable designs are corrected.
- **Ingenuity:** Huxley and his team generate prototypes that illustrate new business concepts and ideas and test them with customers, who like some ideas, dismiss other ideas and suggest crucial improvements.

Return On Investment, ROI

A performance measure used to evaluate the profitability of an investment or compare the profitability of different investments.

ROI estimates the amount of return on a particular investment, relative to the investment's cost. To calculate ROI, the benefit (or return) of an investment is divided by the cost of the investment. The result is expressed as a percentage or a ratio.

The formula is:
$$\text{ROI} = \frac{\text{Current value of investment} - \text{Cost of investment}}{\text{Cost of investment}}$$

ROIs are estimates, not exact financial calculations. Don't waste executives' time by explaining where the numbers came from—just make sure that you can back up the numbers if they ask.

Avoid “user satisfaction,” “customer loyalty” and “time saved by users” in ROI calculations because their monetary value is difficult to assess.

Example 1: Improving the effectiveness of Delta's online ordering system

After seeing worrying results of a quantitative usability test of the online ordering system on Delta's website and hearing complaints about the system from customer support, Huxley decided to make online ordering more effective.

Huxley estimated that the changes would cost 200,000€. This was the cost of investment. The number of attempted online purchases was 600,000 per year. Based on the results of the quantitative usability test, Huxley estimated that the changes would reduce the number of users who abandoned the ordering system due to poor usability from 20% to 5%. Successful sales averaged about 50€ each with a profit margin of about 4%. The value of the investment was $(20\% - 5\%) * 600,000 * 50€ * 4\% = 180,000€$.

Further, Huxley and the support manager agreed that the changes would decrease the number of calls to support regarding online ordering by about 50%. With about 60 calls per day regarding online ordering averaging about 5 minutes and a total cost of 100€ per hour for a support staff member, the yearly savings would be $50\% * 60 * 5/60 * 100€ * 360 = 90,000€$.

The ROI was positive even for the first year, so Mark accepted that the change could be made.

Example 2: Arguing for a pattern library

Huxley wanted to build a pattern library for Delta Market. Such libraries can save designers and developers time, but creating one takes a lot of time initially.

So, Huxley looked up how long it took the design and development teams to build a single component, a video plugin, for a recent project. He then multiplied that by the number of times they had created different versions of that same element for different projects over the past few years.

It took Huxley an hour to gather this information and perform the calculation. Huxley showed Mark how much time was wasted on one single component, the video plugin, and how much Delta was wasting on all components. That argument was enough to convince Mark to fund the library.

Huxley could have done a much more extensive calculation of the ROI: He could have looked up the exact amount of time spent each time that component was recreated. He could have performed these calculations for other UI elements—not just video plugins, but also tables, breadcrumb trails, form fields, and so on.

None of that extra work was necessary for Huxley to prove his point—and Mark wouldn't have studied the calculations anyway. Huxley spent only as much effort as he needed to help Mark understand the vast amounts of time being wasted.

Key Performance Indicator, KPI

A quantifiable measurement used to gauge an organisation's overall long-term performance.

A KPI is something that everyone in the organisation—not just the UX professionals—cares about, for example, profit, cost, and employee productivity.

KPIs help determine an organisation's strategic, financial, and operational achievements, especially compared to those of other businesses within the same sector. Examples of UX and HCD related KPIs are effectiveness (task success rate), efficiency (task completion time), and satisfaction.

In HCD, KPIs are often expressed as quantitative user requirements.

Examples of KPIs for Delta Market:

- Net Promoter Score (NPS), that is, Customers' willingness to recommend Delta to family, friends and neighbours
- Customer loyalty, measured as number of visits and amount of monthly purchases; Delta tracks this with a customer loyalty card, which Delta makes attractive through multiple benefits for registered customers
- The time for self-checkout of a standard set of products
- Number of errors made by users during the self-checkout
- The number of calls to customer support

Examples of KPIs for the performance of Delta's UX professionals:

- The number of person-hours it takes one of Delta's UX professionals to conduct a usability test with five users and communicate the results
- The number of days it takes before a simple, reasonable request from customers is implemented

Objectives and Key Results, OKR

A goal-setting framework consisting of significant, clearly defined objectives and 3-5 key results that define the achievement of each objective.

OKRs are similar to business objectives and KPIs. The main difference is that OKRs are more specific about what must be achieved to fulfil an objective.

Example:

Business objective: Increase social media engagement

- Key Result 1: Research and identify the three most popular social media sites among two new target audiences and develop an engagement strategy by Jan 1
- Key Result 2: Participate in six Twitter chats involving industry leaders
- Key Result 3: Respond to new Facebook comments within three hours
- Key Result 4: Increase the number of followers on Facebook and Twitter by 20%

Conversion rate

The number of visitors to an online service that achieve a goal desired by the organisation out of the total number of visitors.

A conversion can refer to any goal that you want the user to achieve. It often refers to a sale.

Example:

- Delta Market's website has 2,000,000 visitors in a month and makes 50,000 sales. The conversion rate is 50,000 divided by 2,000,000 or 2,5%.

Typical conversion rates range from 1% to 4%. Conversion rates are influenced not only by users' satisfaction but also by marketing and business decisions, for example, prices.

Example:

- If a user visits Delta's website to find opening hours for a physical store, investor information or information about available jobs, the visit may be successful even if there is no conversion. Also, if a thrifty user visits Delta's website four times before buying something, the four visits together constitute a conversion.

Minimum Viable Product – MVP

A version of a product with just enough features to be usable by early **users**.

An MVP is used to validate market needs and provide feedback for incremental development.

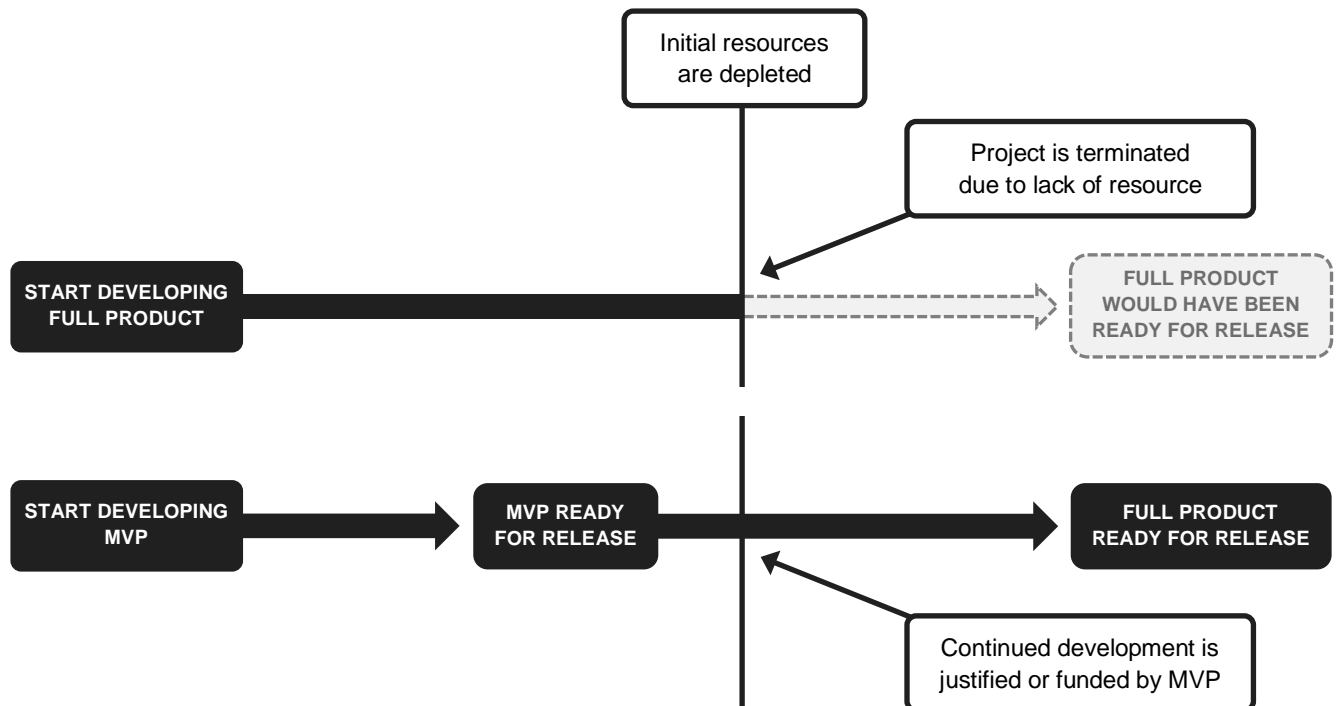


Figure 2. Going directly for the product with the highest Return On Investment (ROI) leads to termination because you run out of resources before you are able to convincingly demonstrate a working product (top). Developing an MVP before the highest ROI product may avoid termination because the MVP validates the market need and produces some revenue, which can be used to justify further development (bottom).

MVPs must be growable. The product manager and the UX manager must ensure that the MVP is expanded into a usable product with a high ROI after the viability has been demonstrated.

3 UX and HCD management and leadership

A **UX manager** is appointed by the organisation and has formal authority to impose change. A **UX leader** has little or no formal authority but instead uses persuasion to define a **UX vision** and push it forward. A **product manager** is responsible for the development of a product.

A **product roadmap** is a master schedule of the product or service changes that a product team plans to release. **Product roadmaps** are used for project planning.

Managing UX and HCD includes understanding how to prioritise HCD activities and how to repay **design debt**, which is the additional cost that result from releasing easier technical solutions instead of releasing the best approach.

A part of HCD management is to build an effective **HCD infrastructure**. An **organisational HCD model** describes how UX professionals are organised in an organisation. The three general types of **organisational HCD models** are **centralised model**, **decentralised model**, and **hybrid model**. A special case is the **UX team of one**. **DesignOps** and **ResearchOps** are the orchestration and optimisation of how people work together. The **organisational HCD model** also describes HCD roles and business partners.

Learning objectives

3.1	Understand the main responsibilities of a UX manager
3.2	Understand UX leadership skills
3.3	Understand the difference between a manager and a leader
3.4	Know the responsibilities of a product manager
3.5	Know project planning and product roadmaps
3.6	Understand how to prioritise HCD activities
3.7	Know what is important for building an effective HCD infrastructure
3.8	Know the concepts: DesignOps and ResearchOps
3.9	Know UX roles and business partners

UX manager

An individual who is formally responsible for making a UX team as effective as possible.

A manager is appointed by the organisation and has formal authority to dictate change. Managers have direct and indirect subordinates.

A UX manager must understand what needs to be done to create great user experiences, but doesn't need to be a superb UX professional, just as a soccer team manager doesn't need to be better than every player. A UX manager also needs to be able to set HCD strategy and tactics, create a HCD culture and prioritise HCD activities.

UX leader

An individual who proposes a viable **UX vision**, pushes the **UX vision** forward, and provides mentoring and input on HCD methods and processes.

Leadership happens through persuasion. A leader is not formally appointed; a leader becomes a leader when someone follows them. They are no longer leaders when nobody wishes to follow them. If you can get someone to say, “I love your vision,” you have a follower. People follow a leader because they want to join the adventure of making a vision happen and want to contribute.

Many successful managers are also leaders. While managers can direct their subordinates to make change, leaders make change happen through example and persuasion.

UX leadership skills are:

- driving a UX vision;
- translating UX into business value;
- communicating ideas and insights;
- mentoring;
- HCD evangelisation.

UX leadership can happen in very small acts, for example, restating a technical or business outcome in terms of UX outcomes, refining an HCD process or relating a discussion about a user interface to the UX vision.

Product manager

An individual who is responsible for the market success of a product.

The product manager owns a business strategy, develops user and organisational requirements, and manages feature launches. The product manager also owns the product roadmap. Product managers facilitate cooperation between people with different skills like sales, marketing, quality, UX, and development. They support the UX professional’s work and emphasise its importance. Product managers do not necessarily understand the details of UX or HCD.

Most product managers are not actual managers despite the title, because they manage a product rather than staff. Product managers are sometimes called product owners.

3.1 Basic UX and HCD leadership and management skills

3.1.1 Project planning

Project planning often includes a kick-off meeting. Use the kick-off meeting to set up expectations for the UX contribution and educate others on what UX professionals do. For example, identify what is known about the users and their environments, and identify gaps in the knowledge by asking questions like:

- Who are the target users?
- What data is available regarding their top tasks, for example, the top-five tasks?

- What are the current pain points that affect users?
- How does this project make the organisation successful?

Plug HCD activities into the product roadmap.

Product roadmap

A representation of how a product is supposed to develop across releases in defined time periods with regard to its functionality.

Product roadmaps are used for communication between product management, requirements engineering, systems engineering, and management, to build a shared understanding of the long-term product plan and activities associated with that plan.

3.1.2 Prioritising HCD activities

If you have more work than you can handle, the following options are available:

- Instead of producing HCD deliverables such as scenarios, user requirements, prototypes, and usability test scripts, offer to review HCD deliverables that product teams have created on their own. Prioritise product teams where experience shows that your advice has the most impact; assign a lower priority to product teams that are asking for your assistance simply to set a mark in a checklist.
- Prioritise product teams according to the importance of the business goal that they are pursuing.
- Hire a consultant to help you out; check the qualifications of the consultant carefully to ensure that their HCD approach is compatible with the approach used by your team.

Make a note each time you have to say “no” to a request. The percentage of rejected requests to the total number of requests is a powerful metric for getting more resources.

Design debt

The additional cost of rework caused by rushing a compromised solution rather than taking the time to produce an appropriate solution.

Design debt is a lot like any debt: it sneaks up on you if you aren’t paying attention to it. It accrues over time when features are iteratively changed and added to a product without fixing existing problems.

The cost of having to go back and fix problems after launch is always higher than launching ideal solutions in the first place, that is, the design debt is repaid with high interest. Design debt is often incurred when UX professionals are working under tight timelines or impractical project constraints. Other factors that contribute to design debt include:

- misinterpreting the product vision;
- ignoring or misunderstanding user needs;
- disregarding brand standards and style guides;
- design by committee or design based on opinion, in particular HiPPOs (Highest Paid Person’s Opinion);
- skipping usability testing;
- acquiring or merging with other products.

3.2 HCD infrastructure

HCD infrastructure

The basic organisational structures, facilities, tools, staff, core knowledge and quality assurance standards needed for the operation of HCD in an organisation.

HCD infrastructure improves access to data, supports best practices, simplifies activities with templates, and provides useful and usable hardware and software.

Organisational HCD model

A description of how UX professionals are organised in an organisation

Centralised HCD model

An organisational HCD model where UX professionals report to a UX manager, but receive specific requests from a product team where they work as temporary internal consultants.

Advantages:

- **HCD at a high level:** A UX manager or executive exists to champion HCD.
- **Wide range of UX and HCD skills:** Increased breadth and flexibility to provide product teams with exactly what they need.
- **Broad opportunities for UX professionals:** A variety of work keeps UX professionals challenged and less “bored” with their work.
- **Known career paths:** Job titles, descriptions, and career paths are established for HCD roles.
- **Shared resources among the UX team:** Shared design resources, research resources, and processes allow knowledge sharing among the UX team.

A disadvantage of the centralised model is limited immersion with product teams.

Decentralised HCD model

An organisational HCD model where UX professionals are permanent members of product teams.

Advantages:

- **Increased trust and opportunity:** UX professionals are better able to build trust with their product team members.
- **Immersion:** UX professionals can offer better advice because they are involved from start to end. They experience deeper learning and can deal with more complex issues. This may also increase their job satisfaction.
- **Manager’s sense of responsibility:** A manager who is responsible for a UX professional may make great efforts to ensure UX success.

A disadvantage of the decentralised model is limited contact between UX professionals.

Hybrid HCD model

An organisational HCD model that comprises a central team for HCD infrastructure, combined with local dedicated UX teams embedded within autonomous product divisions.

The hybrid HCD model combines many of the advantages of the centralised and decentralised HCD model. A disadvantage of the hybrid HCD model is that UX professionals may have two managers.

UX team of one

A solitary UX professional, possibly in a small organisation or start-up.

The UX professional in a UX team of one should:

- Interview stakeholders in the organisation to learn about their needs; see section 7.1.
- Look for allies, that is, co-workers who suffer from poor UX but may not be aware that you can help them achieve their business goals. Examples: Salespeople trying to sell a product that is hard to demonstrate or explain, or call-centre management responding to a poor design that generates many customer support calls.
- Tell their co-workers what they have to offer, for example, organise informal seminars and listen to their comments and needs; see section 5.3.2.
- HCD evangelisation; see section 5.3.
- Apply the strategy described in chapter 7 to boost the HCD maturity of the organisation.

DesignOps

Processes, tools and skills that support designers in creating consistent, quality designs.

DesignOps is a collective term for addressing challenges such as:

- **Workflow:** how the design work flows within the organisation
- **Governance:** who needs to see the work, and when; who approves the work and checks for quality
- **Tools:** what teams need to get the job done
- **Infrastructure:** what teams need to work efficiently. See section 3.2.
- **Budget:** how much it costs to run teams
- **Headcount:** how many people are needed, with which skills
- **Education:** what skills and knowledge are missing and how to learn them
- **Pipeline:** what projects are coming up and how well staffed the team is
- **HCD evangelisation:** help the organisation understand the value of HCD. See section 5.3.

ResearchOps

Processes, tools and skills that support user researchers in planning, conducting and applying quality research at scale.

ResearchOps includes

- **Standardising** research methods and supporting documentation to save time and enable consistent application across teams, for example, scripts, templates, and consent forms
- **Recruiting** and managing research participants across studies

- **Communicating** insights gained from user research
- **Tracking** UX issues within and across projects
- **Vetting software and vendors**
- **Building out infrastructure**, such as research repositories, for example, libraries of patterns, reusable UX components and tagged usability test reports

Organisational silos

The isolation that occurs when departments within an organisation do not want to, or do not have the adequate means to share information or knowledge across departments.

Many organisations have multiple projects that all impact user or employee experience. Only a few of these projects are innovation or design projects—the rest implement changes in standard operating procedures, legal changes such as GDPR, IT updates, etc. Most projects impact UX and need to be coordinated. A UX manager can use user journey maps to coordinate projects and identify overlaps and contradictions between running and planned projects.

DesignOps help to tear down organisational silos by helping everyone achieve consistency.

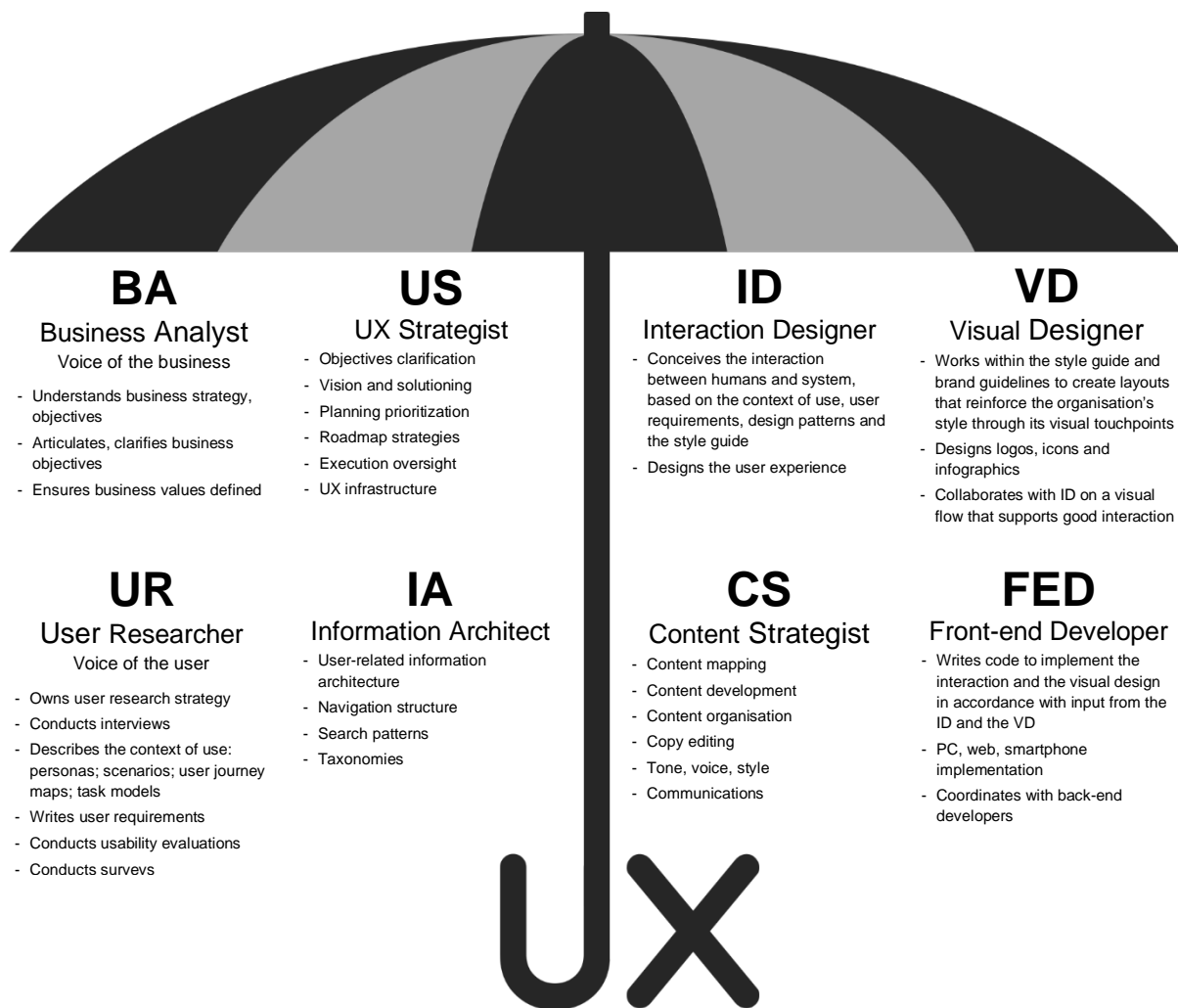
Example:

- At Alpha Market, one team is responsible for Alpha's website. Another team is responsible for Alpha's apps. The two teams use different style guides and different taxonomies. Communication between the teams is limited and this leads to inefficiency and a poor UX. The teams are examples of organisational silos.

3.3 HCD roles and business partners

HCD is a field of professions. Figure 3 shows examples of HCD business partners and examples of roles that UX professionals can have. Most UX professionals are doing work in several of these areas, especially if they are a "team of one".

The eight roles are shown with the strategic and discovery elements on the left side, and design and implementation on right side, but there is much overlap.



Creating a great UX requires a team effort

Figure 3. Examples of HCD roles and business partners. Adapted from a figure by Matthew Carroll (@MECUXD)

4 Crafting and driving UX vision

A **UX vision** is a **use scenario**, a **prototype**, or a **user journey map** that communicates one or more **human-centred quality objectives**.

A **HCD strategy** is a long-range plan for helping the business achieve specific **business goals** through **HCD tactics**.

Learning objectives

4.1	Know the concepts: human-centred quality objective and UX vision
4.2	Know the concepts: HCD strategy and HCD tactic
4.3	Know examples of business goals, business objectives, human-centred quality objectives, UX visions, and HCD strategies
4.4	Know how to craft a UX vision

4.1 UX visions and HCD strategies

Human-centred quality objective CPUX-F

An intended outcome of the development of an interactive system for the user, relating to usability, accessibility, user experience, or avoidance of harm from use.

UX vision

A broad narrative statement or visualisation that communicates one or more human-centred quality objectives for a product or a project.

UX visions need to be in contrast to the existing UX. A UX vision does not highlight a product, but an experience.

By defining a UX vision, an organisation sets a standard by which it can evaluate every UX decision it makes along the way and judge whether it supports, enhances, or detracts from that vision. Keeping all team members focused on a desired outcome can be an accelerator.

The visualisation of a UX vision can be a prototype, a storyboard, or a video. For example, in 1987, Apple came out with a concept video that showed a hypothetical computer of the future. The video touched upon numerous upcoming technological advances, including voice technology, tablets, and videoconferencing, to name a few.

HCD strategy

A long-range plan for helping the business achieve specific business goals through HCD activities.

A HCD strategy is one possible way to achieve a UX vision. Use scenarios, prototypes and user journey maps illustrate aspects of the UX vision.

A HCD strategy can be about how to improve a specific product or service, or how to position HCD within the organisation, for example, increase HCD maturity

Table 1. Examples of Delta Market’s business goals and corresponding human-centred quality objectives and UX visions

Business goal	Corresponding human-centred quality objective	Corresponding UX vision
▶ Increase Delta’s market share from 20% to 25%.	▶ Increase the Net Promoter Score from 60% to 80% for a broad sample of Delta’s customers.	▶ Delta’s customers are “fans” of Delta. They prefer Delta to Delta’s competitors because of Delta’s proverbial UX, which reliably offers a frictionless and pleasant user experience. They recommend Delta to family, friends and on social media, and they enthusiastically tell stories of pleasant experiences at Delta markets and on Delta’s website and app.
▶ Increase profits by cutting costs.	▶ Double the efficiency of the shift planning system.	▶ The shift planning system works so smoothly and efficiently that most sales associates hardly pay attention to it.

Table 2. Examples of Delta Market’s business goals and corresponding HCD strategies. Although good offers and reasonable prices are a part of Delta’s UX, price is not a competitive factor.

Business goal	Corresponding HCD strategy
▶ Offer the best service among competing markets.	▶ Measure the customer experience of Alpha Market and Delta Market. Use the comparison to identify and eliminate pain points for Delta Market.
▶ Increase the market share among 18-28 year olds from 20% to 30%.	▶ Based on focused user research, make the UX for 18-28 year olds particularly usable and attractive.
▶ Add customers with high purchasing power by offering full-service online purchasing and delivery.	▶ Develop the UX of a new full-service online purchasing and delivery service so it offers a great UX for the target group.

HCD tactic

The day-to-day HCD activities applied within a HCD strategy to reach a business objective.

Examples of general HCD tactics:

- Create personas and scenarios based on field studies.
- Create user requirements and discuss them with stakeholders.
- Create user journey maps and discuss them with stakeholders.
- Create prototypes and usability test them.

Examples of HCD tactics for the HCD strategy “Develop the UX of a new full-service online purchasing and delivery service so it offers a great UX for the target group” are in Table 2.

- Analyse the context of use through interviews and focus groups
- Determine user needs and derive user requirements with users and other stakeholders
- Create to-be user journey maps and discuss them with users and stakeholders.
- Develop low-fidelity prototypes based on the to-be journey maps and usability test them with members of the target group
- Iterate until usability tests show that the user requirements are met or exceeded

4.2 Crafting a UX vision

One easy way to craft an effective UX vision is to start with the current UX. Use qualitative and quantitative user research to find out what makes today's experience with a product or service frustrating or satisfying for the users. Ensure everyone has a shared understanding of the current experiences by documenting the findings in as-is scenarios and user journey maps. The user journey maps show what's frustrating and what's delightful.

The UX vision can be derived by asking, *What will the user journey look like if we make it effective and delightful for the entire journey?*

Many user journeys need to be analysed to find the ones that are most compelling for both users and other stakeholders. The more detail that is available about those journeys, the easier it is to understand what works well now and what to improve.

The qualitative findings will tell the stories of what it's like to be a user today.

- What makes the delightful parts so delightful?
- What makes the frustrating parts so frustrating?

The quantitative data tells about the scale and severity of the problems.

- How many people have similar experiences?
- How much do the frustrating experiences cost us?
- How much work will we need to do to resolve the problems?

Make sure all co-workers, stakeholders and executives hold a shared understanding of the UX vision. Only then can the UX vision live up to its potential. For more information about how to do this, see sections 5.3 and 7.6.

5 Creating a shared HCD culture

Organisational culture is a set of shared assumptions that guide behaviours, for example, “Quality is more important than deadlines.”

An important part of **organisational culture** is **feedback culture** and **error culture**. In a **feedback culture**, every co-worker feels they have the right to give feedback to another person in the organisation no matter where they may fall on the organisational chart. In an **error culture**, mistakes are allowed and seen as a way to improve.

Culture cannot be decided. To create a shared HCD culture, use **HCD evangelisation** to convince co-workers about how HCD activities can be beneficial for meeting their **business goals**. A **style guide** and **informal seminars** are great tools for **HCD evangelisation**. Use public relations to repeatedly inform co-workers about UX and HCD in plain language using examples.

Learning objectives

5.1	Understand elements of organisational culture that are relevant for UX professionals
5.2	Know the meaning of, “Culture eats strategy for breakfast”
5.3	Know how to influence the organisational culture
5.4	Know how to create a feedback culture and an error culture
5.5	Know the concept: HCD evangelisation
5.6	Understand how a style guide, informal seminars, and public relations can be used for HCD evangelisation

5.1 Organisational culture

Organisational culture

A set of shared assumptions that guide behaviours

Organisations often have very differing cultures. Although an organisation may have its own unique culture, in larger organisations there are sometimes co-existing or conflicting subcultures because each subculture is linked to a different management team.

“Culture eats strategy for breakfast” is a famous quote from legendary management consultant and writer Peter Drucker. He says that strategy is important—but that a powerful culture may derail even the best strategy. For example, if the organisational culture is that nothing matters more than keeping deadlines, HCD activities such as usability testing just before an important release may be considered a nuisance, even if they are included in the product strategy.

Table 3. Examples of elements of organisational culture that are relevant for UX professionals

Supportive of HCD activities	Resistant to HCD activities
Making work easier for customers is more important than making work easier for us.	Customers are irrelevant—they will visit our stores and websites regardless of whether doing so is easy or pleasant.
Critical questions are welcomed; mistakes are expected: “If you make no mistakes, you’re not doing your work properly.”	Critical questions are dismissed or ignored; “We don’t make mistakes.”
Visualisation that enables user involvement is more important than designers’ opinions.	Design is based on specifications that are incomprehensible for users.
Competencies are more important than roles.	Highest Paid Person’s Opinions (HiPPOs) trump empirical insight and data.
A good UX requires careful work by professionals.	UX is just common sense; anyone can do it.
“Let’s usability test it with customers.”	“I have worked for Alpha for 34 years. I know what our customers want.”
“I need to report this problem to the UX team.”	“Crap happens!”

To influence the culture of an organisation that is at a low HCD maturity level:

- Run usability tests of the organisation’s products and ask sceptical co-workers and thought leaders to observe them.
- Communicate UX successes repeatedly in plain language using examples.
- Get support from top and middle-level management.
- Evangelise UX; see Section 5.3.

5.2 Creating a feedback culture

Feedback culture

An organisational culture where every co-worker’s feedback to another co-worker or team is acknowledged, appreciated and considered seriously no matter where they may fall on the organisational chart.

Feedback is not free. Provide a reasonable response to all feedback about the UX of a product. Consider rewarding people who provide feedback, for example by crediting them publicly for their input. Otherwise your sources of feedback may dry out quickly.

Error culture

The handling of errors and their consequences.

Error culture is an essential part of a feedback culture. In an error culture, mistakes are allowed, reported without fear of retaliation and seen as a way to improve. Error culture requires that errors happen, are reported and corrected. The HCD process only works if the organisation has an error culture and is ready to accept even major changes to a solution.

To create a feedback culture and an error culture:

- **Set the tone from the top.**
Managers and leaders must set a good example. They must consistently ask for feedback (up and down the hierarchy and sideways) and visibly show that they receive feedback well.
- **Create a feedback-safe environment.**
Employees need to feel safe and know that if they give candid feedback, they won't face negative repercussions.
- **Praise publicly and critique privately.**
- **Give feedback close in time to the activity that prompted the feedback.**
- **Set clear expectations around feedback.**
Address the following: Who gives feedback? Who receives it? How often does it occur? How is it done? What is the goal of feedback? What are the rewards and consequences of feedback?
- **Strike the right balance of positive and corrective feedback.**
Everyone loves positive feedback. But if you only focus on the good stuff, you risk ignoring problems. On the other hand, if you only focus on corrective feedback, you risk ignoring successes and undervaluing employee contributions.
- **Highlight decisions made based on feedback.**
When you make a decision or change based on someone's feedback, let them know.
- **Have regular one-on-ones.**

5.3 HCD evangelisation

HCD evangelisation

A process where UX professionals promote UX and HCD internally and persuade co-workers that UX and HCD can be beneficial to meeting the co-workers' business goals.

To evangelise effectively, UX professionals need to understand where their co-workers in other disciplines, for example, the product team members, are coming from and communicate the message of UX to them in terms they can understand. To understand your co-workers, do a listening tour. Listen to your users – not the end users, but the product teams. What are their priorities, and how much awareness and support for UX currently exists? What do they expect from you? What do they think about your UX offerings?

Tell the product teams what you can offer and how it can help them meet their needs and performance objectives. Put together clear and informative short talks.

Other efficient tools for HCD evangelisation are a style guide, informal seminars, podcasts, and public relations for UX.

5.3.1 Style guide

A style guide helps an organisation create consistent user interfaces. A style guide consists of a set of specific user interface guidelines and a set of governance rules for the administration of the style guide.

Governance rules: In close cooperation with management, create rules for governance, for example, how will compliance to the style guide be checked; and what happens if a designer or a developer despite polite requests does not adhere to the style guide

Changes: Governance rules also describe the procedure for changing the style guide. Requests to change the style guide should be simple to submit; any paperwork should be handled by a small committee with an administrator of the style guide. Requests should be processed quickly. The process for adding or changing the style guide should be published and part of training.

Promotion: Sell or promote the style guide internally, for example, make it easily available, advertise it in the organisation's newsletter; promote the benefits of the style guide by providing short examples of how it will improve consistency and design; and ask top management to publicly endorse it.

Training: Offer optional half-day training courses based on lots of exercises of the type, "find the deviations from the style guide on this sample screen and suggest improvements."

No policing: Never "police" a style guide, that is, never enforce it strictly with reproaches or even threats. Instead, politely ask co-workers who deviate from the style guide for their reasons for deviating.

Usability of the style guide: Keep the style guide short. Include lots of examples from interactive systems in the organisation. Test the usability of the style guide.

Provide an infrastructure: Provide a way for colleagues to ask questions and have them answered quickly. Track decisions and publish updates through multiple communication channels. Provide code for patterns.

5.3.2 Informal seminars

A UX manager has an educational role. For example, a UX manager may start monthly UX or HCD seminars where team members, people from other departments, or external speakers share insights and bring in new ideas. Such seminars can be informal, for example, they can take place on Fridays, with pizza delivered. Seminars can be remote or hybrid.

An informal seminar should be fun and informative. For example, show video clips from recent usability studies where people use your organisation's products. This builds a shared experience among developers, marketing, and executives. The video clips should be short, include some general positives, specific negatives to show some of the usability issues, and end with some general positives. Allow time for questions and discussion.

There are many proven techniques for experientially teaching UX, for example, reviews, usability inspections, reflections on what you have learned, and show and tell, where co-workers—hopefully enthusiastically—present their work to their peers.

5.3.3 Public relations for UX

The UX manager is responsible for developing and maintaining a public relations program to make stakeholders aware of the work of the UX team.

Write a regular column in your organisation's internal newsletter. Anecdotally summarise your user research and exciting insights to the wider organisation. Get help to write appealing columns in plain language, for example from a copywriter in the marketing department. Focus on what it means in practice to be human-centred.

To get the message through to users, UX must be consistently and repeatedly addressed in plain language using examples. UX professionals often forget either 'repeatedly,' 'in plain language' or 'examples,' where all are a necessity.

Speak regularly at internal staff events. This encourages feedback from co-workers and make them aware of their responsibilities as good ambassadors for the organisation's digital offerings: "You are an important part of our organisation's face."

Example

- At Delta Market, all sales associates are expected to be familiar with Delta's app and Delta's website so they can help customers who have a question about the app or refer to it.

At every all-employee meeting, executives should give an update on UX delivery and visions. Keep a watchful eye on how UX is communicated by executives. Discretely follow up on any apparent deviations from the agreed UX visions, especially from new executives. Support executives in pushing the UX visions forward by providing compelling stories, prototypes, and data.

6 HCD maturity

HCD maturity is the ability of an organisation or a product team to define and meet **human-centred quality objectives** that help to achieve **business goals** and **business objectives**. The **HCD maturity scale** used in this curriculum has six levels, incomplete (lowest), performed, managed, established, predictable, and innovating (highest).

A neutral expert is needed to assess the **HCD maturity** of an organisation or a product team.

Learning objectives

6.1	Understand the purpose of a HCD maturity scale
6.2	Understand a HCD maturity scale with the levels incomplete, performed, managed, established, predictable and innovating
6.3	Know how to assess the HCD maturity of an organisation

HCD maturity CPUX-F

The level of understanding and implementation of a systematic human-centred design process that helps an organisation to achieve business goals.

HCD maturity scale

A ranked measurement scale of HCD maturity levels that covers the full spectrum of HCD maturity levels from lowest to highest HCD maturity.

The description of each HCD maturity level must be so precise that it enables external, neutral assessors to determine if the organisation or a product team has reached this HCD maturity level.

A HCD maturity scale can be used to:

- Assess the current HCD maturity level of an organisation to find out what the weaknesses and strengths of the organisation in developing human-centred products are. The assessment results indicate the areas that need to be fixed.
- Set HCD maturity goals for an organisation or a product team
- Assess the capability of a vendor to deliver usable products; for example, an organisation could require that vendors or consultants can prove that they have reached at least a specified HCD maturity level.

Most HCD maturity scales today have five to eight levels.

6.1 A HCD maturity scale

The HCD maturity scale used in this curriculum has six HCD maturity levels as shown in Table 4.

Table 4. A HCD maturity scale based on ISO 33020.

Level	Description
Incomplete	<ul style="list-style-type: none"> • No HCD activities. • Design is based solely on opinions and complaints. • There is no formal budget for HCD. A good UX is fine if it comes for free, but no one is committed to delivering it. • Product managers may say that they care about UX, but when it comes to making inconvenient decisions to improve the UX, for example, delaying a release to correct critical UX problems, nothing happens.
Performed	<ul style="list-style-type: none"> • HCD activities are ad hoc, that is, they are carried out whenever engaged people see a need for them; they are not planned up front. The activities may or may not be done properly. • Sometimes, there is little or no time to implement human-centred research findings.
Managed	<ul style="list-style-type: none"> • Some projects plan HCD activities before the project starts and the plan is followed and monitored; the plan is adjusted if the need arises. • There is a budget for UX. • Style guides are available, and some projects adhere to them. • Management may refuse to make inconvenient decisions that are strongly recommended by UX professionals.
Established	<ul style="list-style-type: none"> • All projects comply with the human-centred quality system. • The HCD process is uniform. Projects may still differ in the way they carry out HCD activities if the quality system allows tailoring the HCD process to specific needs. • The organisation improves the HCD process based on input from stakeholders.
Predictable	<ul style="list-style-type: none"> • Metrics are used to define and measure the success and quality of a product; examples of success and quality metrics are effectiveness, efficiency (for example, task completion time), and satisfaction. • Corrective action is taken if a metric does not fulfil agreed qualitative or quantitative requirements. • Products are released only if they meet agreed requirements.
Innovating	<ul style="list-style-type: none"> • The organisation's decisions and actions are based on user research and active user involvement. • Human-centred quality objectives and strategies are aligned with business goals and business objectives.

Further examples of characteristics of HCD maturity and immaturity are:

- **UX expert**

Immature: Anyone can declare themselves a UX professional or a UX expert without having the corresponding competencies.

Mature: Only people who have demonstrated defined competencies may call themselves UX professionals. An organisational career guide describes the competencies and skills for various levels of UX professionals, from Junior to Principal.

- **Cross-organisational UX**

Immature: UX teams work in silos.

Mature: UX teams cooperate across organisational boundaries.

When you define goals for your team, aim at the next HCD maturity level. You will fail if you try to jump more than two levels. Also ask yourself honestly which level your organisation actually needs to reach.

6.2 Assess the HCD maturity of an organisation

“You can’t judge your own baby,” so you will need a qualified impartial external expert to assess the HCD maturity of your organisation or product team. Or, even better, two impartial experts, working independently.

A HCD maturity assessment of an organisation is carried out by assessing a number of recent representative development projects.

The overall assessment is based on the individual assessments. The findings from the individual assessments are hidden in the final results to preserve the anonymity of the projects and people. Assessments are always about the practices of an organisation or a team, not about individuals.

Often, managers believe that their organisation’s HCD maturity is much higher than what an external expert would conclude (an optimism bias).

The resources spent on an assessment of HCD maturity depend on the goal. The goal could be a rough classification to identify next steps for improving the HCD maturity of the organisation. The goal could also be a certification following an ISO standard.

It’s not enough to base the assessment on, for example, 30-minute conversations with ten UX professionals and managers in the organisation. A HCD maturity assessment must include reviews of human-centred project objectives and strategies as well as observing interviews, reviewing the subsequent summaries of the interviews, reviewing user requirements, observing usability test sessions, reviewing the corresponding usability test reports, and more. All reviews must be carried out by highly experienced UX professionals and based on carefully reviewed checklists.

After a HCD maturity assessment, use the advice in Chapter 7, Boosting HCD maturity, to set appropriate new HCD maturity goals for the UX team or the organisation.

7 Boosting HCD maturity

HCD maturity can be boosted from the low levels Incomplete or Performed to the medium levels Managed or Established or higher using a **HCD strategy** with nine steps. The key elements of the nine steps are: run **usability tests** to create a climate for change; show how changes based on **usability test** results measurably improve UX; and use the results to implement and sustain change.

The nine steps are illustrated with examples of the specific actions taken by Delta Market to increase its **HCD maturity**. Delta Market and the actors are described in the introduction.

Learning objectives

7.1	Understand the nine steps for boosting HCD maturity from a low to a medium HCD maturity level
7.2	Understand specific measures for showing the importance of UX

7.1 Understand the stakeholders and the business goals

Interview executives to better understand the organisation's business goals and strategies. Conduct field studies to better understand the context of use.

7.1.1 Understand executives

Huxley was hired as UX manager in 2012 and led Delta's journey from low to high HCD maturity.

Huxley's first step was to interview executives. For these interviews, Huxley used an interview checklist, which included:

- What are Delta's business goals?
- Tell me about current and planned products and relate them to Delta's business goals.
- Tell me about Delta's strategy and roadmap plans.
- Where do you see Delta in three years? In five years?
- What are the biggest obstacles to getting there?
- What is your bonus based on? How can I help you achieve it?
- What keeps you up at night? Can I help you solve it?

Huxley paid attention to the language that executives used so he could learn to speak their language. For example, Huxley learned that he should never mention a problem without proposing a specific solution or next step to finding a solution; and always present facts before opinions, separating them clearly.

7.1.2 Understand the users

After interviewing the executives, Huxley started learning about Delta's users, in particular the customers. He interviewed about 25 people with various roles: sales

associates; store managers and deputy managers; frequent customers; infrequent customers; unhappy customers; customer support; and suppliers, for example, delivery schedulers. He interviewed people in the flagship stores and in smaller stores far from the main office.

Huxley also worked for two weeks in two of Delta's stores, filling the shelves, checking out customers, answering questions from customers, and talking to customers and sales associates. He kept a diary to keep track of his findings.

Several executives told Huxley that Alpha Market was Delta's biggest competitor. To see what the competition was up to, Huxley visited several Alpha Markets and used Alpha's website to make purchases. Huxley also made returns and asked questions to customer support.

Huxley published the insights from the field studies and used them to identify user needs and current pain points.

7.2 Create a sense of urgency—Show the Importance of UX

Demonstrate convincingly that you have a problem-plagued platform. The most convincing way is to carry out a usability test with representative users to demonstrate specific, qualitative obstacles to profit. Use the user needs and pain points identified in step 1 to focus the usability tests so they illustrate critical problems in representative key products and user journeys.

7.2.1 Usability tests to increase awareness of UX

From the field studies, Huxley learned that Delta's website's ordering system had major efficiency problems for experienced customers, which they complained about loudly. Susan, the director of Delta's customer support, was painfully aware of these problems and provided Huxley with numbers and additional details. Susan had tried to convince the web manager, Wesley, to do something about the problem, but Wesley was focused on adding new features to the website.

To demonstrate the problems, Huxley carried out two usability test sessions of the ordering system with representative users in early May. He used the user needs and pain points identified in the field studies in step 1 to focus the usability test so it illustrated the problems.

From Susan's feedback, Huxley knew that he might later face problems when he wanted the web department to make changes to the website, so he carefully scheduled the usability test sessions at times and places that were convenient for the web department. The usability test sessions took place on a Friday afternoon in rooms close to where the web department was located. Susan and Huxley invited relevant stakeholders to attend and announced the usability test as a social activity. Relevant stakeholders were store managers, other managers, product owners, marketing, developers, and more. Susan, who was widely known and respected, wrote and signed the invitations. While Huxley and the stakeholders observed the test participants, Susan observed the 14 observers who had turned up and made notes.

The usability tests clearly demonstrated specific, qualitative obstacles to profit.

7.3 Generate quick wins

Define KPIs (Key Performance Indicators) based on the field studies. Carry out another usability test with representative users to establish a baseline for the KPIs. Make improvements based on the data from the usability test. Then run a third usability test and measure the KPIs again. Document progress and substantiate it with numbers. Note if changes introduced any new problems. Communicate the success.

7.3.1 Measure KPIs before and after UX problems are corrected

Huxley spent the rest of May defining a credible baseline that would be suitable for demonstrating quick wins. He defined a number of KPIs for the ordering system on the website and asked Mark, the Chief Marketing Officer, to review them. Mark and Huxley's discussions improved the list considerably. The final list included:

- time it takes an experienced customer to order two specific products
- time it takes a customer who has never used Delta's website before to order two specific products
- time to set up a shopping list with six given items
- time it takes an experienced customer to order the six products on the shopping list from the previous KPI
- customer satisfaction with the ordering procedure after completing the previous tasks
- customers' willingness to recommend Delta's ordering system to family and friends.

Huxley measured the KPIs for Delta Market and Alpha Market in 10 usability test sessions. With only 10 test participants, the results were not statistically significant, but the results were unambiguous anyway.

The usability tests in step 2 had impressed some of the thought leaders in the web department, including Wesley. With a bit of help from Susan and Mark, Huxley managed to talk Wesley into correcting some of the usability problems from step 2 in accordance with Huxley's recommendations. Huxley and Susan selected the problems that they estimated would have the largest impact on the KPIs.

In June, after the corrections had been made, Huxley carried out another usability test with 10 representative users to measure the KPIs. The KPIs showed that the efficiency of the ordering system had increased by about 60% based on changes that had taken about 50 hours to make. Huxley documented progress and substantiated it with numbers.

7.4 Create a vision for change

Show what the UX could do or look like in three years. Advertise the project widely and invite stakeholders to participate. Suggest that the executive team or the Board discuss and provide input to the UX vision in a one-day workshop. Ask the executive team to approve the UX vision.

7.4.1 Create and iterate visualisations of the vision for change

Huxley created a series of prototypes, storyboards, and to-be user journey maps that visualised what Delta's UX could look and work like in three years. He asked friends and UX colleagues to comment on his ideas and the presentation of the ideas. He advertised the project widely and invited all stakeholders to contribute. Based on the feedback, Huxley constantly improved both the vision and his presentation. After some iterations, he advertised widely that the vision was now based mainly on input from stakeholders.

Huxley suggested to Cecilia, Delta's CEO, that top management or the Board should discuss and provide input to the UX vision in a one-day workshop. Huxley's results had impressed Cecilia so she asked the executive team and the Board to comment on the UX vision, which most of them did. The executive team approved the UX vision in late October.

7.5 Form a powerful coalition of stakeholders and UX staff

Use the short-term wins to argue for more resources. Monitor return on investment and track KPIs for the money spent.

7.5.1 The HCD Committee

Huxley used the short-term wins and the UX vision to argue for more resources. He asked Cecilia to nominate a small, powerful HCD Committee of stakeholders and UX staff that would oversee all HCD activities. He also asked for 500,000€ for appropriate HCD training and pilot activities for a three-year period, such as conducting contextual interviews and running usability tests. In December 2012, Cecilia appointed the HCD Committee and appointed Mark as her proxy in the Committee.

Huxley realised that while he handled steps 1 to 4 on his own within ten months, he would hardly be able to handle the following steps alone. Cecilia authorised the HCD Committee to hire additional UX professionals. In addition, Emma, a communications specialist who was interested in UX, was transferred to Huxley's team.

The HCD Committee instructed Huxley to report ROI and track KPIs so they could check that the money was spent wisely.

The following Steps 6 to 9 happened from 2013 to 2019. Step 9, in particular, took quite some time.

7.6 Communicate the vision

Ensure the entire organisation repeatedly and consistently hears about the 3-year UX vision. Regularly bring up the UX vision when talking about new projects, features and requirements. Communicate UX successes to management and co-workers.

7.6.1 Walk the talk

Huxley ensured that the entire organisation repeatedly and consistently heard about the 3-year UX vision in vivid, engaging and exciting presentations and discussions.

At every all-employee meeting, executives gave an update on Delta's UX delivery and visions. Huxley kept a watchful eye on how UX and HCD were communicated by executives. He discretely followed up on any apparent deviation from the agreed UX visions, especially from new executives. Huxley supported executives in pushing the UX visions forward by providing compelling stories, prototypes, data, and PowerPoint slides.

Huxley told his UX team, "Walk the talk. What you do is far more important and believable than what you say. Produce usable deliverables, for example, articles, usability test reports, tools, and presentations."

7.7 Empower action—Remove obstacles

Recognise and reward people for making change happen. Identify people who are resisting the change and help them see what's needed. Make suitable UX tools available. Ensure the tools are usable and follow up on the use of the tools.

7.7.1 Recognise and reward users for helping to improve UX

Delta started recognising and rewarding customers and users for making change happen, that is, improving UX and HCD. For example, a sales associate reported to Huxley that some customers could not figure out how to access the shopping list in Delta's app. These customers would never think of contacting customer support. The usability problem was fixed, the sales associate was handsomely rewarded for reporting the problem, and the story was disseminated widely in Delta.

The UX team made tools available that helped improve UX, for example, a library of UX patterns; and a human-centred quality system. The UX team also provided easy access to real users and discouraged the use of substitutes.

The UX team followed up on the use of the tools and adapted them to meet user needs whenever required. For example, it took Emma, a communications specialist, two months to create Delta's 50-page style guide. After getting tough but fair feedback, Emma spent another 3 weeks rewriting the style guide. Emma advertised the value of tough feedback widely.

The number of deviations from Delta's style guide in Delta's user interfaces—the KPI for consistency—improved considerably.

The UX team communicated repeatedly and in plain language in Delta's internal newsletter that it was OK for people outside the IT-department to report UX problems and suggest improvements.

7.8 Build on the change—Don't let up

Many change projects fail because victory is declared too early. Real change runs deep. Quick wins are only the beginning of what needs to be done to achieve long-term change.

7.8.1 Give success a stage

Mark decided that they should celebrate wins all the way to the top of the organisation. By giving success a stage, HCD awareness scaled organically from product team to product team. After every win, Huxley analysed what went right and what needed improvement.

The UX team reached their goals for the online ordering system. They improved the internal inventory and ordering system. They helped make the new home delivery system a success. They persistently pointed out how their human-centred approach helped them understand what the real pain points were and how user feedback significantly improved Delta's competitiveness.

7.9 Anchor the changes in the organisational culture—Make it stick

Articulate the connections between great UX and organisational success. Tell success stories about the UX and repeat other stories that you hear. Executives must regularly and publicly show that they appreciate the efforts made by the UX professionals.

7.9.1 Promote HCD

Delta's UX team made continuous efforts to ensure that HCD was seen in every aspect of Delta Market. They presented examples of great UX and not-so-great UX every chance they got and pointed out how it affected competitiveness and profit. They listened carefully to the feedback. They told their own success stories about UX and documented them with numbers. They repeated other stories they heard.

When training new staff, Huxley often showed up in person to make sure that Delta's HCD culture was communicated properly.

Cecilia, Mark, and Huxley knew that it would take years and hard work before Delta's HCD culture was fully oriented towards great UX. Signs of changes are shown in Table 3.

Huxley says, "Culture changes slowly and almost unnoticedly. I am delighted when I hear a designer say, 'Maybe we should test this addition to our app with users,' or when I hear a sales associate enthusiastically recommend our new, efficient online ordering system to customers who are waiting in a long checkout queue. Or when designers cry out 'HiPPO' when a manager voices an unsubstantiated personal opinion."

8 Measuring the business value of HCD activities

UX is measured to show progress towards a **UX vision** and to show the value of UX work. **Metrics** are used to quantify the business value of HCD activities. **Qualitative** and **quantitative usability tests** are used to measure how far a current **prototype** is from meeting **qualitative** or **quantitative user requirements**. **A/B testing** is used to compare two or more versions of an **interactive system**. The **Net Promoter Score, NPS**, and **user surveys**, for example, the **System Usability Scale, SUS**, are used to measure UX.

Learning objectives

8.1	Understand how metrics can be used to quantify the business value of HCD activities
8.2	Know qualitative and quantitative usability test
8.3	Know A/B testing, Net Promoter Score, NPS, user surveys, and the System Usability Scale, SUS

8.1 Measuring the effect of HCD activities

Metrics

A set of quantitative data points used to measure, compare, and track the human-centred quality of an interactive system over time.

Metrics ensure that design decisions are made based on fair evidence rather than opinions. Examples of UX metrics that reflect business values are performance measures such as success rate, task completion time, and satisfaction scores, such as NPS and SUS.

Examples of helpful tools that are available for measuring the effect of UX work:

- qualitative usability tests
- quantitative usability tests
- A/B testing
- Net Promoter Score, NPS
- user surveys
- System Usability Scale, SUS
- comparing the number of user-reported problems to the support line before and after a release.

Qualitative usability test CPUX-UT

A usability evaluation that involves representative users performing specific tasks with the interactive system to enable identification and analysis of usability problems, focusing on understanding user needs, goals, and reasons for the observed user behaviour.

Quantitative usability test CPUX-UT

A usability evaluation that focuses on obtaining figures for the effectiveness, efficiency, or satisfaction of an interactive system.

Both qualitative and quantitative usability tests can be used to measure task success rate, which is the percentage of all attempts to solve a usability test task that are successful.

Quantitative usability tests can also be used to measure

- task completion time, which is, roughly speaking, the average time to complete a usability test task
- error rates; the number of errors that users encounter during the completion of a task.

A/B testing CPUX-UT

A way to test changes to the design of an interactive system against the current design and determine which changes produce positive results.

A and B can be competing designs and each version is presented randomly to half the actual users of the interactive system. Other times, A is the current design that most users see and B, which might be more daring, is served only to a small percentage of users until it has proven itself.

The purpose of A/B testing is to validate that a new design or change made to an element in an interactive system is improving the interactive system before the production version is modified. Moreover it is a method to generate quantitative data to answer the question, “which version leads to more conversions?”

A/B testing tells you what happened, but not why. To understand why, you must interview users or conduct usability tests so you can “see” why for yourself.

Net Promoter Score, NPS

A satisfaction metric that quantifies how many more people are likely to promote a product compared to those likely to criticise it.

The single question to be asked is, “How likely are you to recommend <organisation> to a friend or colleague?” The answer must be provided on an eleven-point scale, with zero marked as “Not At All Likely,” and 10 marked as “Extremely Likely.” In some versions of NPS, people get asked a subsequent question about why they gave it that score. Scores from 0 to 6 are considered to be Detractors; scores of 7 or 8 are considered Passives; scores of 9 or 10 are considered Promoters.

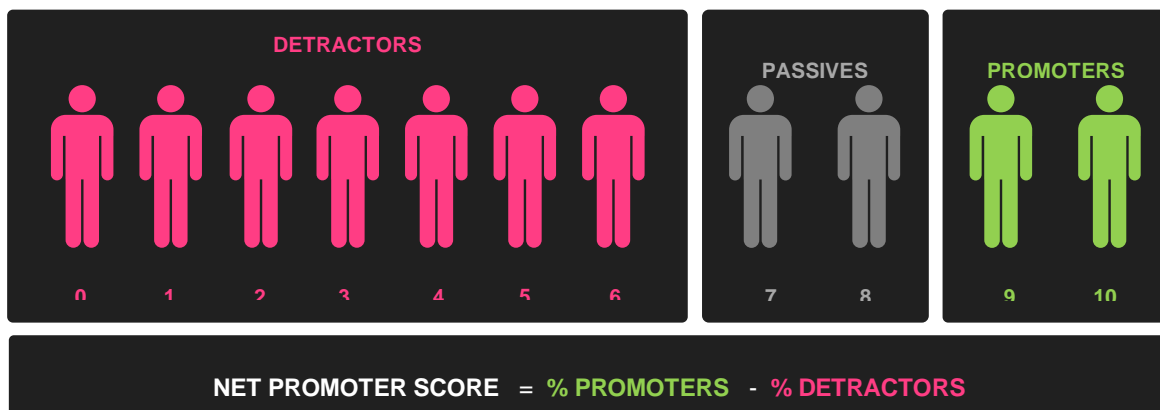


Figure 4. The NPS is computed as percentage of Promoters minus percentage of Detractors. The Passive respondents do not influence the calculation. [Added Alt-text: “marked as decorative”]

Many managers consider NPS a valuable measure of customer satisfaction, so knowledge of NPS is an important part of speaking executives’ language.

Example

- 4,500 of 10,000 customers rate their likelihood to recommend Delta Market to a friend 10, while 2,500 rate it 9; 1,000 rate it 8; 1,000 rate it 7; 500 rate it 6 and 500 rate it 5 or lower. The NPS is $(4,500 + 2,500) / 10,000 - (500 + 500) / 10,000 = 60\%$.

NPS meets all the common requirements of a useful business metric: it’s easy to measure; it produces a number you can track; and it feels legitimate. It is simple to administer and understand, and is well known in the business community. NPS correlates with standard measures of user satisfaction such as SUS and can secure buy-in for UX from executives.

However, NPS tells you what happened but not why. Also, when used by itself, NPS is not always a good description of the overall UX. For example, let’s assume that 50 out of 50 customers rate Delta Market 5 or 6. This might seem somewhat acceptable, but the NPS score is $(0\% - 100\%) = -100\%$, and the score is indistinguishable from the case where all 50 customers rate Delta Market 0.

User survey CPUX-F

A data-gathering method where users are asked to report facts and opinions by completing a questionnaire.

User surveys can be used to evaluate users’ satisfaction with an interactive system, for example, an ease-of-use rating where users rate the statement “This interactive system is easy to use” on the five-point scale, strongly disagree, disagree, neutral, agree, strongly agree. Often, a questionnaire is used.

System Usability Scale, SUS CPUX-UT

A simple, ten-item attitude scale providing a global view of subjective UX assessments.

SUS is used to measure usability and user experience in a user survey.

The 10 questions in SUS are:

1. I think that I would like to use this system frequently.

2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

Each question is answered on a five-point scale with the ending points “Strongly disagree” and “Strongly agree”.

The SUS has been widely used to evaluate a range of interactive systems. The scale has been extensively used since 1986 and has produced data that allow SUS ratings to be used for comparisons with other interactive systems. If you make changes to the SUS questions, comparisons to the SUS-data from other sources may no longer be valid.

9 Risk management

Much of what **UX managers** do is reduce various types of **risks**. A **risk** is a factor that could result in future events with negative consequences. The opposite of a **risk** is an **opportunity**, which is a factor that could result in future events with positive consequences. **UX managers** should be aware of typical HCD related business **risks** and **opportunities** as well as typical HCD related risks.

Learning objectives

9.1	Understand the concepts: risk and opportunity
9.2	Understand typical business risks and opportunities
9.3	Understand typical HCD related risks

Risk

A factor that could result in future events with negative consequences.

Opportunity

A factor that could result in future events with positive consequences.

9.1 Examples of business risks and opportunities

9.1.1 Business risks of poor UX design

- Users won't buy or use the software product because it lacks effectiveness, efficiency, or satisfaction.
- Users buy the software product but return it and demand their money back. The software product works as specified, but users can't figure out how to use it.
- Customer support gets overwhelmed, because users buy the software product but repeatedly need to call customer support because they don't understand how to use it.
- Users buy the software product but find it difficult to use. They report their dissatisfaction to friends and social media, which causes a decrease in consumer trust and brand equity.
- Bad press and legal actions affect sales
- Users resist using a software product that is essential for their daily work because of a poor UX. If users are forced to use it, stress is generated, productivity falls, and an oppressive atmosphere builds up.
- Product team members quit because they feel that their talent is wasted

9.1.2 Business opportunities resulting from great UX design

- The organisation's profound understanding of users, which comes from careful user research, enables it to add value that none of its competitors currently deliver.
- The organisation's products are not only usable, they are desirable.

- Users are fans of the brand and the products because of the renowned user experience. They are willing to pay more for the great user experience that is promised and delivered.
- There is little or no risk of releasing an unusable product.
- The total cost of the HCD effort is known from the early phases of the development.
- The need for customer support is reduced.
- The brand is strengthened by the uniformity of the products' operation and appearance.

9.2 Examples of HCD related risks

9.2.1 General risks

- Has a competitor ever tackled this UX challenge? How did it work out?
- Is there any reasonable scenario under which this new UX could cause the organisation to cease to exist?
- Is there too much work for our UX team? Success can be a risk.

9.2.2 Organisational risks

- Do we have the required qualified UX professionals?
- Are there any 'Taboo' topics, such as poor underlying software architecture, which the organisation tries not to change?
- Is HCD critically dependent on one specific person? Will HCD work continue if this person leaves the organisation?

9.2.3 Contractor risks

- Have our contractors demonstrated that they have the necessary HCD qualifications?
- How will we find out early if a contractor is delayed or unable to deliver acceptable HCD results?
- How will we detect quickly if a contractor deviates from our procedural standards or the agreed style guide?

9.2.4 Analysis risks

- Are we planning to talk to a reasonable number of real, representative users rather than proxies and pleasers?
- How accessible are the users? Do we know how to reach them? Are they willing to talk to us?
- Do we have the appropriate level of statistical and analytic skills to be confident of our analyses?

9.2.5 User requirements risks

- Are we capable of defining testable user requirements for usability evaluation?
- Will any errors in the user requirements be detected as early as possible?

9.2.6 Design risks

- Do those responsible for designing and developing the product and its associated processes and artifacts have sufficient knowledge of basic UX principles?
- Are early, low fidelity prototypes made as cheaply as possible, so they are easy to discard if they don't work?
- Are prototypes created and evaluated in a continuous process? Or is the first evaluation carried out after a long and costly design process?

9.2.7 Evaluation risks

- Are usability evaluations performed in a timely manner so there is time to make required changes before the software product is implemented?
- Will additional usability evaluations be performed after the product has been implemented and experienced users have become available?
- Is the environment for usability evaluation realistic? For example, is the sample data set sufficiently large and consistent?

9.2.8 Implementation risks

- What are the downstream dependencies to make this successful, for example, customer support bandwidth and custom integration by customer?
- Does the new initiative have a third-party integration risk?
- Is some organisational change required on the part of the user to get value out of this?

10 Ethical design and sustainable design

Ethical design is an approach to human-centred design that puts **user needs** over personal or organisational needs.

Sustainable design puts people and planet first by delivering **interactive systems** that aim to use the smallest amount of energy possible.

Learning objectives

10.1	Know the concept: ethical design, and why it is important
10.2	Know the concept: sustainable design, and why it is important

Ethical design CPUX-F

A behavioural principle that prioritises user needs over personal or organisational objectives.

When creating interactive systems, UX professionals influence the mindset and behaviour of users. Potential conflict arises when the design of an interactive system favours the goals of the organisation over the rights and needs of the user. Therefore, UX professionals have a responsibility for their design decisions.

For example, it is unethical to guide users into potentially harmful behaviours to achieve business goals.

A popular description of ethical design is “Design made with the intent to do good.”

Examples of ethical design:

- An online streaming service offers a one-month free trial period. The free trial is automatically terminated after a month. The user is informed about the termination one week in advance and given the option to register a credit card to pay to continue their subscription.
- A social networking site displays the time the user has spent actively browsing over the last 24 hours underneath their profile picture to make them aware of the time they are spending on the site.

Examples of unethical design:

- An online streaming service offers a one-month free trial period. Part of the sign up process involves registering a credit card for future subscription payments. Users are not informed in advance that their trial period is about to end and their credit card is charged to pay for their subscription
- During checkout, an e-commerce website displays a box that allows customers to sign up for promotional emails. By default, the box is checked. To avoid being spammed, users must uncheck the box.

Sustainable design CPUX-F

An approach to designing that prioritises people and planet by minimising the resources required for the use of interactive systems.

The cumulative impact of the world's websites is such that if the Internet was a country, it would have been the sixth largest polluter in 2021.

Examples:

- Design efficient site navigation and search.
- Explore better solutions for data-heavy UI patterns such as carousels.
- Avoid decorative video and images, use lower resolutions, avoid auto-playing video content.
- Provide downloads as compressed files.
- Use hosting platforms that run on renewable energy.
- Reduce or remove embedded third-party technology such as social sharing buttons, embedded maps, ad pop-ups and published content services.
- Reduce standby power consumption and encourage full shutdown.

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