SQ mag

KEY EXPERIENCE INDICATORS

As the founder and CEO of User Vision, one of the UK's leading independent UX and service design consultancies Chris Rourke focus on quality in user experiences

GETTING STARTED WITH USABILITY AND USER EXPERIENCE

The managing director of ProContext in Cologne Germany Thomas Geis shows how to start this movement in your organizsation

CREATING GREAT EXPERIENCES IN EVERYTHING YOU DO

User experience designer, educator and author Jennifer Smith explains the process of creating a human-centered system

USABILITY FROM A PRODUCT MANAGER'S PERSPECTIVE

HansBernd Kittlaus chairman of ISMPA® and an internationally renowned expert on Software Product Management (SPM)

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OCT 2021

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IT'S OUR ANNIVERSARY!

Stephan Goericke
CEO, International Software Quality Institute

SQ MAG CELEBRATES IT'S 5TH ANNIVERSARY

The SQ mag was created to communicate trends in the software quality world and other related fields in the IT industry. Over the years we have had the honor of bringing you articles, interviews and insights from international experts in the world of software quality, agile, artificial intelligence and much more. We are delighted to be able to celebrate the 5th Anniversary of SQ mag with you and look forward to the next 5 years to come! We thank all our readers and guest authors for making this possible.

In this special 10th edition, we focus on usability and user experience (UX) which are increasingly important to ensure the quality of end-users interactions with a particular service or product. Nowadays good UX is expected, if a customer encounters issues or has an unsatisfactory experience they will seek alternatives. It can be a key differentiator and give a competitive advantage to an organization.

Our authors explore user experience and usability from multiple perspectives including usability from a product manager's perspective, Understanding the process of creating a human-centered system, getting started with usability and user experience in your organization, and more.

We hope you enjoy this issue of SQ Mag as much as we have enjoyed putting it together with our guest authors – enjoy the read!

Yours sincerely,

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CONTENT

USABILITY FROM A PRODUCT MANAGER'S PERSPECTIVE

In the last 20 years, usability has turned into a key success factor for software-intensive products. Successful product companies like Apple have demonstrated the power of excellent user experience design (UX design). Today any software product manager needs to focus on the usability of her/his product, certainly for consumer products, but more and more also for enterprise products.

A software product manager is responsible for managing software with the objective to achieve sustainable success over the life cycle of a software product or software parts of software-intensive products, i.e. systems or services. This generally refers to economic success, which is ultimately reflected by the profits generated. Software product managers have the business responsibility across different versions, variants and associated services of a product. They have to manage a broad set of product-related activities as shown in the ISPMA® SPM Framework (Figure 1). They have to act proactively and be the responsible and engaged driver of their products. It has become quite obvious that good usability has a direct impact on product success. Purdue University's
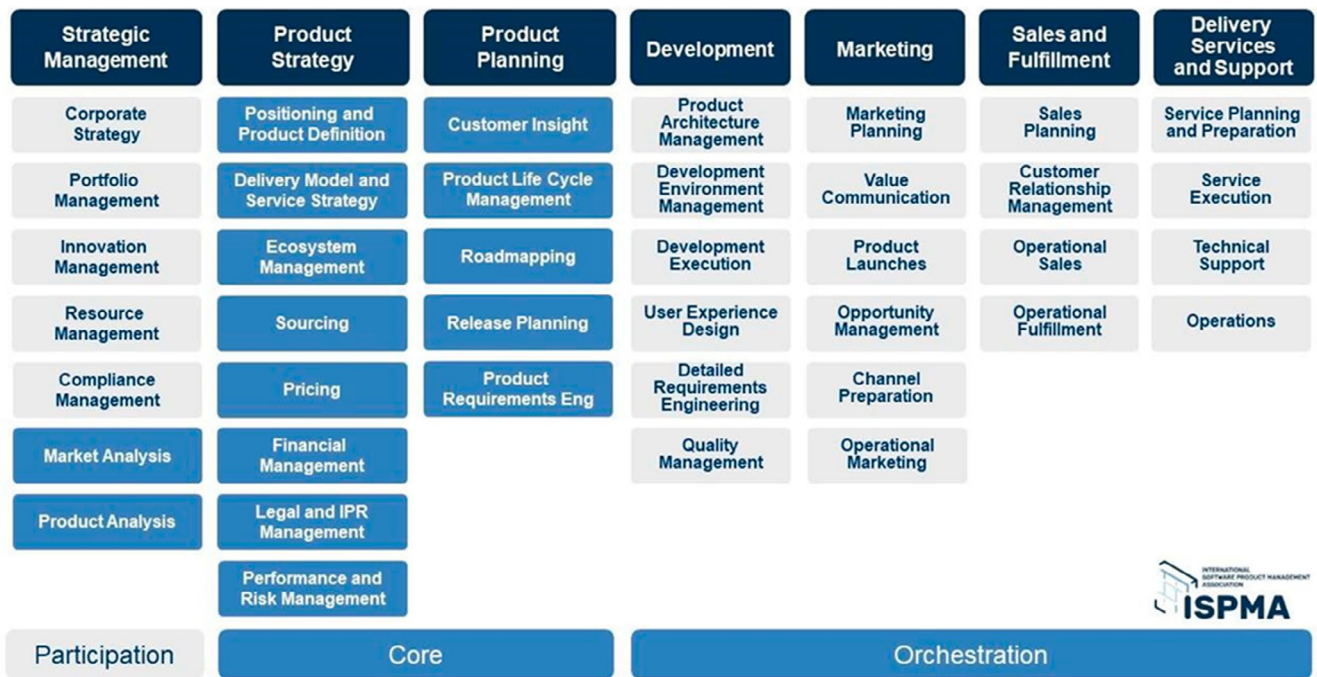
Kyungdoh Kim e.a. proved this for cell phones in 2012 already ([Kim, Proctor & Salvendy 2012]).

The SPM framework provides a holistic view on the activities of software product management. It is structured horizontally (columns) based on the functional areas of a software organization. There is an additional overlay structure with "Core SPM", "Participation" and "Orchestration". Activities under Orchestration are under the responsibility of the respective functions. However, the activity of Orchestration itself is a core responsibility of SPM.

UX Design is functionally placed in the Development column which does not necessarily mean that it needs to be

part of a software development unit. Often UX Design is organized as a shared-resource department that works on products that belong to different product units. Some companies focus more on the requirements perspective and put UX Design close to Product Management, some focus on the implementation aspect and keep it closer to Development. In any case, tight cooperation of UX Design and Product Management must be ensured.

"User Experience (UX) design can be a key factor for differentiation and competitive strength. It addresses every aspect of the users' interactions with a software product or component with the purpose of shaping the user's behaviors, attitudes, and emotions about

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Strategic Management	Product Strategy	Product Planning	Development	Marketing	Sales and Fulfillment	Delivery Services and Support
Corporate Strategy	Positioning and Product Definition	Customer Insight	Product Architecture Management	Marketing Planning	Sales Planning	Service Planning and Preparation
Portfolio Management	Delivery Model and Service Strategy	Product Life Cycle Management	Development Environment Management	Value Communication	Customer Relationship Management	Service Execution
Innovation Management	Ecosystem Management	Roadmapping	Development Execution	Product Launches	Operational Sales	Technical Support
Resource Management	Sourcing	Release Planning	User Experience Design	Opportunity Management	Operational Fulfillment	Operations
Compliance Management	Pricing	Product Requirements Eng	Detailed Requirements Engineering	Channel Preparation		
Market Analysis	Financial Management		Quality Management	Operational Marketing		
Product Analysis	Legal and IPR Management					
	Performance and Risk Management					

Participation	Core	Orchestration

Activity under SPM responsibility   **Activity** under other function's responsibility

Figure 1: ISPMA® SPM Framework V.2.0

ISPMA reference architecture v 2

that product or component." It is much broader than just usability, as it is "... covering or interacting with disciplines like graphic design, information architecture, Human-Computer-Interface (HCI) design, interaction design and usability engineering." (ISPMA® FL (2021))

M. Cagan (2013) distinguishes four design-related activities that are critical to the success of software products: interaction design, visual design, rapid prototyping and usability testing. These four roles need to "... work closely with the (software) product manager to discover the blend of requirements and design that meet the needs of the user." (M. Cagan (2013)).

"Due to the objectives of UX Design, there is a significant overlap with the product manager role, especially in the following areas:
- Developing a deep understanding of customers' real needs
- Understanding intended product usage
- Developing product scope and product definition
- Eliciting high-level product requirements

In these areas, software product managers may find that UX designers are powerful allies that help them define a product that serves customers and users even better - or they might be in stark conflict, quarreling over decisions and accountabilities." (ISPMA® EL (2021))

Recently, there have been attempts to combine the roles of product manager and UX Designer into one. While this may be conceptually attractive, we consider it as wishful thinking since it is difficult enough to be an excellent UX designer or an excellent product manager. How unlikely is it to find that super(wo)man who manages to be excellent in both?

"A software product manager is well advised to canalize the creativity of UX designers into the refinement of early product concepts and utilize their experimentation skills to get evidence that the product concept works for the intended users. If the UX designers discover significant problems in user acceptance and product effectiveness, the product manager may have to pivot the product concept." (H.-B. Kittlaus & S. Fricker (2017)).

The better the cooperation between Product Management and UX Design works, the higher the chances for product success.

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Hans-Bernd Kittlaus
is an internationally renowned expert on SPM and a highly experienced SPM trainer and consultant. He has been working for software organizations of all sizes, and runs his own company InnoTivum (www.innotivum. com). Before he was head of SPM and development units of IBM. He is the chairman of ISPMA®, and has published numerous articles and books, the latest being "Software Product Management" (see Literature).

INTERNATIONAL SOFTWARE PRODUCT MANAGEMENT ASSOCIATION
ISPMA

WHAT'S

SQ MAGAZIN, AVAILABLE IN GERMAN

What makes a digital system robust against attacks? And how can we ensure that this system is ready for use again as quickly as possible after the crisis? These are the most important factors when we talk about resilient systems. Read about this in the 60th issue of SQ Magazin, a specialist magazine for software quality. Written by and for knowledgeable specialists from business, industry and research.

More information:
www.sq-magazin.de   **AVAILABLE IN DECEMBER 2021!**

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DESIGN THINKING 2.0 AVAILABLE NOW

Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.

More information:

https://pages.isqi.org/design-thinking/

HAPPENING

RWANDA ICT CHAMBER VISITS iSQI GROUP IN POTSDAM, GERMANY

Rwanda ICT Chamber visited iSQI Group head-quarter in Potsdam, Germany to officially present the Memorandum of Understanding (MoU) signed between both organizations and further discuss the objectives of the partnership in Rwanda.

More information:

https://www.beamingknow-ledge.com/rwanda-ict-cham-ber-visits-isqi-group-in-potsdam-germany/

CREATING GREAT EXPERIENCES IN EVERYTHING YOU DO

Experiences, both good and bad, impact each of us daily. Great experiences are rarely noticed yet bad experiences are committed to memory. If something works well, you reach your goal and are on your way because of a successful experience. Perhaps you have tried to exit from a car park (parking garage), and poor signage makes it difficult to find the exit. An online shopping experience can be frustrating because it takes too long to locate the items you want, or even complete the purchase. These poor experiences often remain with you long after they occur. What is the process for creating successful experiences?

> " THE MOST IMPORTANT ELEMENT IS KNOWING WHAT PEOPLE WANT AND NEED TO REACH THEIR GOALS.

In this article, we provide a strategic overview of a process that helps you create the optimum experience for your users. Apply these steps to everything you make, whether a website, an application, a script for a sales call, or even a presentation slide deck. This article references ISO-9241 which includes a list of human-centered activities that are used to create successful experiences of all things.

You can learn more about this standard from the UXQB®, the International Usability and UX Qualification Board. I also teach courses on the UX certification process at the American Graphics Institute.

In a simplest form you can look at the process of creating a user experience as five steps which involve research, analysis, planning and testing before creating the final solution:

1. Plan the process. What are you creating, is it a website, a mobile app, ticket machine? While it appears simple, it is important to make certain you and any others working on the project agree on the final product being created.

2. Use research to understand the context of use.
Research does not need to involve a scientist in a lab. As a developer, designer, or business manager you can research how users reach their goals right now. This can involve interviewing users, conducting surveys, and even observing users.

3. Specifying the user requirements. Define what your product needs to include for your users to reach their goals.

4. Build the design. Start with low-fidelity solutions such as post-it notes and sketches until you find a solution that works. This stage also includes creating low and then high-fidelity prototypes.

5. Evaluate your proposed solution. Testing is done throughout this process, confirming the solution achieves its objectives.

If you put your prototype to the test and it works, you can move on to development knowing that you are successful. If your product prototype is not yet meeting the needs of the users, cycle through some of the same processes again until it is successful. Creating a successful experience is iterative, and you need to keep working towards your goal. You may find that you need to go back and make changes based upon updated user information or lessons learned as you test your solution.

Understanding the process of creating a human-centered system

Here is an example of this process being used for the creation of an app being built for an auto insurance company.

Step 1: Plan the process

This auto insurance company knows that they need to focus on a better digital solution but is not sure where to start. They know that they need a plan of action, so they organize a team to create a User Experience (UX) project plan.

What is a UX project plan?
A UX project plan includes timelines, budgets, resources, and deliverables. In this example, these are created for the auto insurance app. Obviously things can change along the way, but it is important to know the details and share them with others so there are fewer surprises later in the process, when they are more difficult and costly to change. The plan includes many of the processes that the organization will go through, as well as the resources, such as time and money, needed to complete the project.

Step 2: Analysis. Understand the context of use by performing research.

By interviewing, observing, and surveying insurance subscribers, the team can discover what is most important to their customers and where the challenges arise. Keep in mind that the users do not have to be their subscribers but could be subscribers of other insurance organizations as well.

What is discovered with these interviews, observations, and surveys is called the as-is scenario. This describes how users are completing their tasks to reach their goals currently, without the future solution that we envision developing.

In the case of the insurance app, through observation the team may learn that many users are spending significant time trying to take pictures of damage and finding where to send documents, or repeatedly making phone calls to determine the status of a claim. While these steps may be necessary, what is most important is finding their ultimate goal. Successfully reaching a settlement with the insurance company. For consistency and to ensure success, certain items that are needed at this stage. These are all part of the standard for human-centered design discussed earlier and include:

A Context of use description

This is a description of the users goals (settle a claim), tasks (steps they take), resources (time and money spent), and environments (on the form of as-is scenarios) derived in this step by observations, contextual interviews and focus groups.

User group profiles: A description of similar users. In this example, it could be subscribers for the auto insurance company. If you have another user group, such as the repair shops, who submit bills for subscribers, you can categorize them as a separate user group because they have different goals than the subscribers.

Task models: A description of subtasks within a task that must be carried out for the user to reach their goal. In this example, this could include users taking a picture of damage to their car, emailing it to the insurance organization, and following up with a phone call. All are subtasks to reach the goal of submitting an insurance claim.

As-is scenarios: This is a description of what the users are doing now to reach their goals. Remember, your solution has

not been created yet, and this clarifies how users are achieving the objective currently. You obtain this information from interviews, surveys, and observations.

Personas: This is a description of users to which you attach fictitious names along with what they intend to do when using an interactive system. Typically, personas are created to include a picture of the fictitious person, a name, age, and any other information that relates to their use of the system you are creating.

Journey maps: These provide a visualization of all the touchpoints users interact with along the way. In many cases, these can be started with a post-it note indicating every step, or touchpoint, that someone is taking to reach their goal. This sequence of touchpoints can be converted into a chart that contains additional information such as the level of satisfaction of the user at the time.

Step 3: Specify the requirements you need to include to help the user reach their goal.

Focusing on the primary goal, to submit a claim for reimbursement, the team needs to think about what capabilities are required within their system so that the needs of the user can be satisfied. At this stage the discoveries made in Step 2, Analysis, are used to build the user needs and requirements. These user needs and requirements must align to the context of use that was created in the research and analysis stage.

What is a user need? It is a prerequisite identified as necessary for a user, or a user group, to achieve a goal. One of the goals that was specified in step 2, Settle a claim from a car accident.

Here is what a user need might look like using the auto insurance app as an example:
While trying to submit a photo and documentation to an insurance agent **(context of use)** a subscriber **(user)** needs to send a photo and description of damage electronically to the agent **(prerequisite)** to have it reviewed and settle a claim **(goal)**.

Other requirements might also include:

Market requirements: Based on marketing policies this could include requirements to use branding colors and other specific assets for the insurance company in this example.

Organizational requirements: Include rules such as confirming that the subscriber is over a certain age, or is a verified subscriber of the insurance organization.

User requirements: A requirement that provides the basis for design and evaluation of an interactive system to meet user needs. For example, users need to have the option of submitting a photo in a digital format and receive acknowledgment that it has been received.

Step 4: Produce the Design solutions that meet your user requirements.

Now is the time to convert the user needs and requirements into a design solution. This is when the team starts to visualize what the app might look like. This includes the words, buttons, and other visuals that appear on the screen. Nothing should appear on the screen unless it has a purpose and helps users reach their goals. When producing the design solution the deliverables include:

Use scenarios: This is the text describing the intended usage of your app or website. In the auto insurance an example it might look like this:

Before leaving the scene of an accident, Janet launches her auto insurance app and chooses to take a picture of the damage to her car. Once she takes the picture, she submits the image to her agent that was pre-assigned to her. She includes a description of the accident and the damage. She sees an alert that the information was successfully uploaded.

Storyboards: Storyboards look like cartoon strips and vary in presentation from stick figures to more advanced illustrations. The purpose of a storyboard is to illustrate the interaction between the user and system that you are building. In many cases the storyboard is replicating something you already defined in the use scenario. Thought and talk bubbles can help show what the user is thinking as they use the system.

Example of a very low-fidelity storyboard

Task models: These are the tasks that you expect a user to go through when using your system to reach a goal.

The information architecture: The information architecture defines the information you find on each screen, how content is grouped and categorized, and what your navigation looks like. Typically, it starts in a low-fidelity form, like post-it notes on a wall, and after testing and iteration is typically presented in a form that is similar to a site map. This is one of the most critical components of a successful user experience.

The start of the information architecture can be done with post-its to allow for quick iteration.

A style guide: Style guides are also known as design systems. These guides are typically created in a program such as Adobe Illustrator, XD, or Sketch. They include examples of images, text styles, branding colors, logos and other items you plan to use. Creating a style guide makes it easy for you to separate distracting visuals from the information design. When testing your system in the early stages this can avoid having a solution dismissed because one of the stakeholders doesn't like a color choice or thinks an image isn't appropriate.

Wireframes: Wireframes are typically a low-fidelity reference to the placement of text and other elements on a page. Since the purpose of a wireframe is to show position and minimal content, they do not show color or other visual elements.

Low fidelity prototype: An example of low-fidelity prototype could be a paper prototype. Designers sketch their screens and put them in sequence to test whether users can find the features they need to reach their goals. Testing at this stage saves

A wireframe example from Balsamiq Wireframes

time and money, but you need to set-up your testers expectations before you show them a low-fidelity prototype. A low fidelity test is explained to users that it is in low-fidelity form and is not actually clickable, with the goal of determining if the user can find the features needed to complete common tasks and reach a specific goal.

An example of a paper prototype

High-fidelity prototypes: A high-fidelity prototype is typically a clickable example of what the interactive system will look like when complete. It is nearly complete and has the planned colors, imagery and other assets applied to the structure of the app. Designers use products like Adobe XD, and Sketch

to create clickable prototypes. Designers can send these assets directly to their developers when the final review is complete using plug-ins such as Zeplin and Anima to speed the development process.

What is next?
Use your deliverables to test and evaluate your system. Ask users to try and reach their goals, ask them about any challenges they may be encountering and observe their actions. If users are still being challenged when trying to reach their goals, go back and do more interviewing, observing, and iteration to make improvements. If the system works, your Design solution meets the user requirements and you can move on into development.

Interested in learning more? The UXQB offers certification for usability professionals and provides a number of options for learning the international usability standards. Find out more at UXQB.org.

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Twitter: @agitraining

Twitter: @jsmithers

SWISS TESTING DAY

iSQI joined the Swiss Testing Day on the 14th of September in Zürich to network and collaborate with Infometis AG. The main topics were DevOps and the current state of mind in the IT industry and future trends to look out for.

iSAQB SOFTWARE ARCHITECTURE GATHERING - DIGITAL 2021

The Software Architecture Gathering is the international conference highlight for all those working on solution structures in IT projects: primarily software architects, developers and professionals in quality assurance, but also system analysts who want to communicate better with their developers.

More information: https://conferences.isaqb.org/

TESTBUSTERS DAY & NIGHT BY ISQI & RAIFFEISEN BANK

Speakers from around the world gave presentations about Test Automation, Quality Engineering, and DevOps. Christian Kinne, iSQI product manager, hosted an introduction session to the DevOps certification scheme from iSQI.

A4Q WORLD CONGRESS EDITION 2

A4Q World Congress is back! Following the successful first edition, the Alliance for Qualification, as the organizer, is now gladly announcing the second edition of the international virtual congress. Date: 27- 28 of October 2021.

More information: https://a4qworldcongress.com/

HAVE YOU

MINI TUTORIAL WITH LLOYD RODEN:
STATE TRANSITION TESTING

Join Lloyd as he explains how this technique can be used on almost all applications and within any software development lifecycle with power and ease. He will demonstrate how the state transition diagram can be built using a free tool and how to increase test coverage, depending on the risk and time available within a project.

Learn how to become a master of this technique and how it can be used to find bugs!

Watch the full video here: https://youtu.be/U4oqKxynEgE
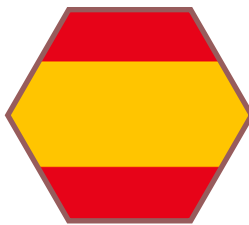
TESTING IN AGILE ENVIRONMENTS:

Learn the main differences between agile development and traditional methods, principles, techniques, and the fundamental processes of agile testing.

Learn how to become a master of this technique and how it can be used to find bugs!

Watch the full video here: https://youtu.be/u6rC1EMNRNI

7 GOLDEN PRINCIPLES OF SOFTWARE TESTING

We all like the stepping stones when we are starting something new or want to learn more about a subject. For testing, we have general and common guidelines to best assist the QA career development.
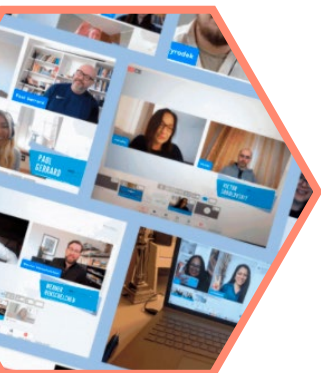
Watch the full video here: https://youtu.be/Q-D5xZ0FQu4

ADVANCED LEVEL ISTQB
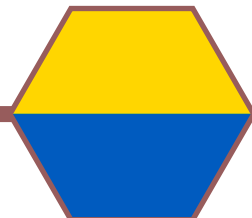
Trial, mistakes and achievements! What are the skills needed to succeed in the ISTQB® Advanced level certification and find out where to start training?

Watch the full video here: https://youtu.be/UCw2GWb35Ww

SEEN ...

GETTING STARTED WITH USABILITY AND USER EXPERIENCE IN YOUR ORGANIZATION - BUT HOW?

Every organization building interactive systems (software, hardware and combinations of both) is faced with the challenges of producing high usability and user experience (UUX) for their users. Marketing, product management and R&D are motivated to achieve high UUX, however, to get there seems to be an almost impossible task. Given project culture and approaches that "have worked in the past" are hard to question, so what has to be changed? Existing approaches in projects have to be modified on a step-by-step basis, otherwise, additional efforts are per-ceived to be overwhelming by projects and thus are not taken at all.

Human-centred design (HCD) versus Usability and User Experience (UUX)

Human-centred design is the process that enables systematic planning, analysis and design for high UUX. HCD is defined in ISO 9241-210 and includes 5 activities that are crucial to systematically and predictively produce UUX.

These activities are
- **Planning for human-centred design in each project**
- **Identifying and documenting the context of use for each target user group**
- **Deriving the user requirements for each user task to be supported by the interactive system**
- **Producing solutions that serve the user requirements**
- **Testing with users throughout the project to ensure UUX of solutions under development**

The below figure is taken from ISO 9241-210 ("Human-centred design for interactive systems"). The standard was last revised in 2019 and gives comprehensive guidance on HCD. The numbers in the figure below refer to the clauses within the standard where the respective guidance is given. The above activities immediately make sense, but how to apply them in practise? Most projects are not in a greenfield project environment. Projects rather extend an existing system or integrate a variety of existing systems in a future-oriented way. Therefore information on context of use, user requirements and existing solutions is already available. However, the information is typically stored in individuals heads rather than in an informing format available to project teams and agreeable by all - including the users of the system.

Hiring UUX Professionals is a first step - but it can fail

More and more companies start to hire new staff with a professional background in UUX. However, having a minority of UUX professionals in the room does not solve the problem. UUX professionals are often misused as "firefighters" whose advice is rather flogged to death in discussions than implemented by those who de facto have their hands on the design without the necessary background. The most frequent case for companies starting with HCD is to hire one (1) UUX Professional who often leaves the company shortly after due to lack of professional support and frustration about ignored competent advice.

Adopting a sprint approach for early project phases engages stakeholders in HCD

"Sprints" are project activities aiming at a defined deliverable in a short time. These approaches emerged from agile practises and produce deliverables that can be then experienced very fast by the project team and other stakeholders including the users of the system to be developed. So far, sprint approaches are applied as "design sprints" or "implementation sprints" in projects, where it is assumed that the user requirements are clearly understood - irrespective of them being documented or not. However, sprints can also easily be applied in very early project phases to perform e.g. a "user requirements sprint". In particular, in the scoping phase of the project, a user requirements sprint can speed up the project dramatically and enables planning of focussed user research that will then deliver the unknown context of use information and user requirements that the project team requires anyway.

Figure 1 from ISO 9241-210 "Interdependence of human-centred design activities"
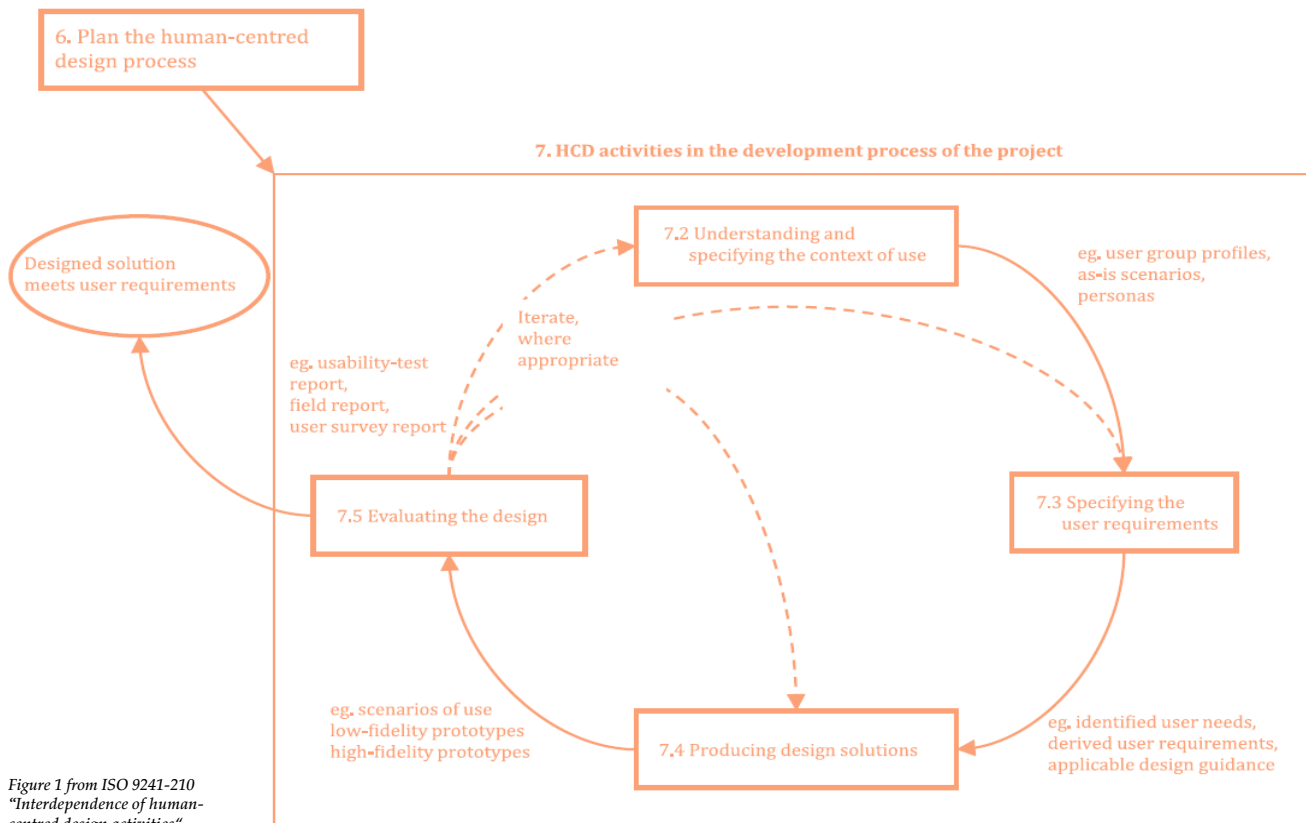
User requirements sprint - how to

Every project has a kick-off workshop. Such kick-off workshop is ideally announced and organised as a „user requirements sprint". This already clearly indicates what the output of the workshop is. Ideally, this user requirements sprint is facilitated by a facilitator who is familiar with and experienced in documented HCD-related information in a professional style. Furthermore, the facilitator has to be capable in identifying open questions based on discussions rather than „solutioning" without plausible user requirements. The certification scheme „Certified Professional for User Requirements" (CPUX-UR) of the UXQB (www.uxqb.org) is a helpful entry qualification for everybody who wants to perform user requirements sprints in their own organization. In the mid-run, it should be the inhouse UUX professional(s) who facilitate user requirements sprints as a natural and inherent starting point for each and every project. Below figure 2 illustrates the format of a user requirements sprint.

The participants of a user requirements sprint should be the project „core team". Representatives of the project sponsor are also welcome. The workshop should be planned for two days. There should not be more than 10 people in the room. It is not important (or not even advisable) to have real users in the workshop, since the focus is „inside in", i.e.
- **explicating and structuring information on what the team members believe to know already (known knowns)**
- **explicating and structuring research questions for which the team members agree that further user research is necessary (known unknowns)**

User research in terms of contextual interviews with users (and observations) should be an activity that naturally falls out of the user requirements sprint and follows the user requirements sprint (see lower grey shaded box on figure 2). The user requirements sprint itself produces the rationale and research questions for necessary user research. Otherwise, user research will not take place in the project at all. Remember, we have to bring HCD into the project on a step-by-step basis. The stakeholders have to be "picked up" from where they currently are.

As a first step in the user requirements sprint, the project objectives from a business perspective have to be inventoried. Think about 7± 2 bullet item statements that rationalize the project. Statements can be as simple as "Closing a gap in the product portfolio" to "Keeping up with functionality of our competitors". The second crucial step is to list all user groups that are to be (better) supported with the outcomes of the project. It is helpful to differentiate the user groups by the tasks that they complete when using the system. Possible user groups for a system that supports online scheduling of appointments at the doctor can be
- **Medical doctors, who ensure a balanced distribution of patients throughout the course of the week**
- **Doctor's receptionists, who welcome patients and prepare the consultation for the medical doctors**
- **Patients, who make appointments for their consultations**

Once the user groups are specified, the "project objectives from the perspective of the users" (also referred to as "Human-centred quality objectives" should be specified. Again a list of 7± 2 bullet item statements per user group is sufficient. These human-centred quality objectives are not yet user requirements, they rather complement the project objectives form the business perspective and help gathering relevant research questions. Possible project objectives from the per-spective of the user group"patients" can be
- **electronic scheduling of appointments without direct interaction with the receptionist**
- **electronic shifting of appointments**
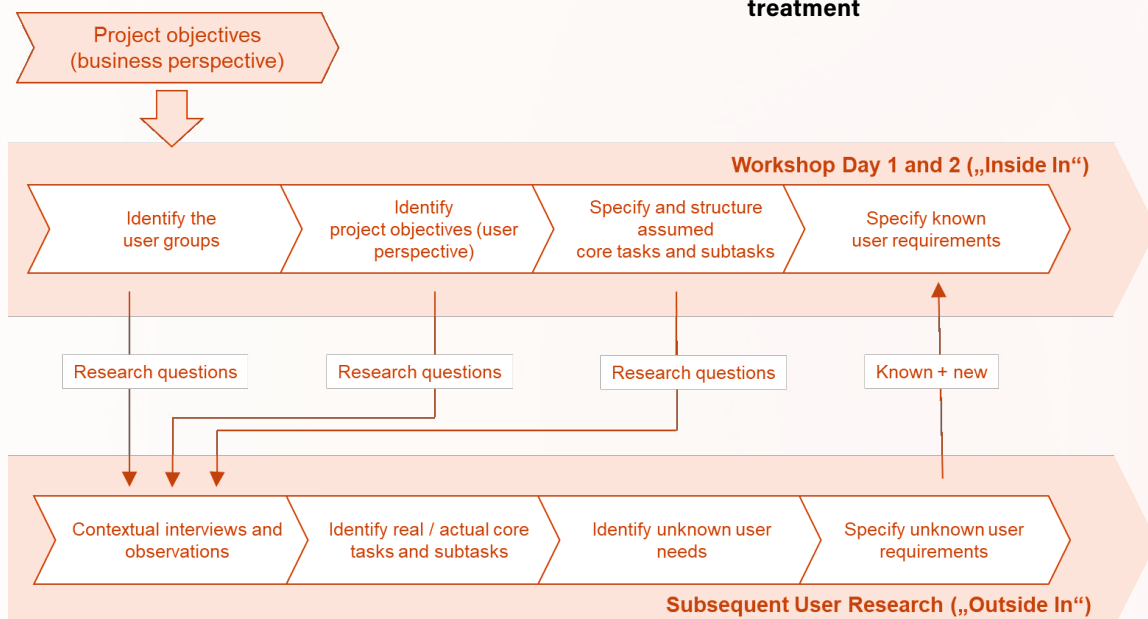- **electronically staying informed about the progress of a treatment**

Project objectives (business perspective)

Workshop Day 1 and 2 („Inside In")

| Identify the user groups | Identify project objectives (user perspective) | Specify and structure assumed core tasks and subtasks | Specify known user requirements |

Research questions | Research questions | Research questions | Known + new

| Contextual interviews and observations | Identify real / actual core tasks and subtasks | Identify unknown user needs | Specify unknown user requirements |

Subsequent User Research („Outside In")

Figure 2: User Requirements Sprint

Once user groups and project objectives from the perspective of the users are agreed upon, the tasks to be supported by the new/updated system have to structured. Here it is important to look at the tasks independent form functionality first. What are the „real world tasks" to be supported and their subtasks? This part of the user requirements sprint might well take half of the sprint, since it requires "letting loose" from functionality and deep dive into the context of use. An example of such a „task model" for the task "Shifting a scheduled appointment" is

- **Inform the practise that a scheduled appointment must be shifted**
- **Communicate the date of the scheduled appointment**
- **Conjointly identify appropriate alternative dates and times**
- **Agree on one date and time**
- **Record the date and time of the re-scheduled appointment**

The above task model stimulates a discussion about how to best support this task. Here, the job of the facilitator is to record the discussion in terms of

- **user requirements that are clear already and**
- **research questions for potential user requirements that are not yet clear and have to be answered by contextual interviews with the future users after the user requirements sprint**

An example of a user requirement would be "With the system, the user shall be able to overview alternative dates and times for each of their scheduled appointments" and "With the system, the user shall be able to select an alternative date and time for a scheduled appointment". A research question to the receptionist would be "How do you typically decide on alternative dates for appointments that must be shifted?" The output of a user requirements sprint is typically

- **a list of user requirements clearly structured by user tasks and subtasks to be supported by the system**
- **a list of research questions where the project team agrees that these have to clarified with real users**
- **a plan for the necessary user research to follow the user requirements sprint**

Having clearly stated and structured user requirements helps the project team to focus on efficient and satisfactory task support rather then on a flat list of features. Right from the beginning of the project, the focus of the development is set on the suitability for the users' tasks and stakeholders are motivated to stay on this mode of working.

How to continue once user requirements sprint and user research have been completed?

Ideally user requirements sprint, and user research are followed up by a "conceptual design sprint". This is another workshop where the functionality of the system is modelled based on the user requirements. Here the so-called „task objects" and "executable functions" for each supported user task are the deliverable that form the basis for efficient user interface prototyping.

Conceptual modelling is a trend in UUX Engineering that focuses on structuring functionality to match the users' mental models. The certification scheme "Certified Professional for designing solutions" (CPUX-DS) of the UXQB (www.uxqb.org) is a helpful entry qualification for everybody who wants to perform conceptual design sprints in their own organization.

Conclusion

Establishing HCD in an organization needs step-by-step efforts to smoothly engage all stakeholders in the overall process. This requires having qualified UUX staff and enable them to use and facilitate agile approaches for both, the solution space (design sprints) and the problem space (user re-quirements sprints). Sprints are ideally followed up by focus-sed user research. In the problem space, these are contextual interviews and observations, in the solution space, these are evaluations with users (ideally cognitive walkthroughs and usability tests). This way the necessary information from the perspective of the users can be produced for the project in an efficient and engaging manner.
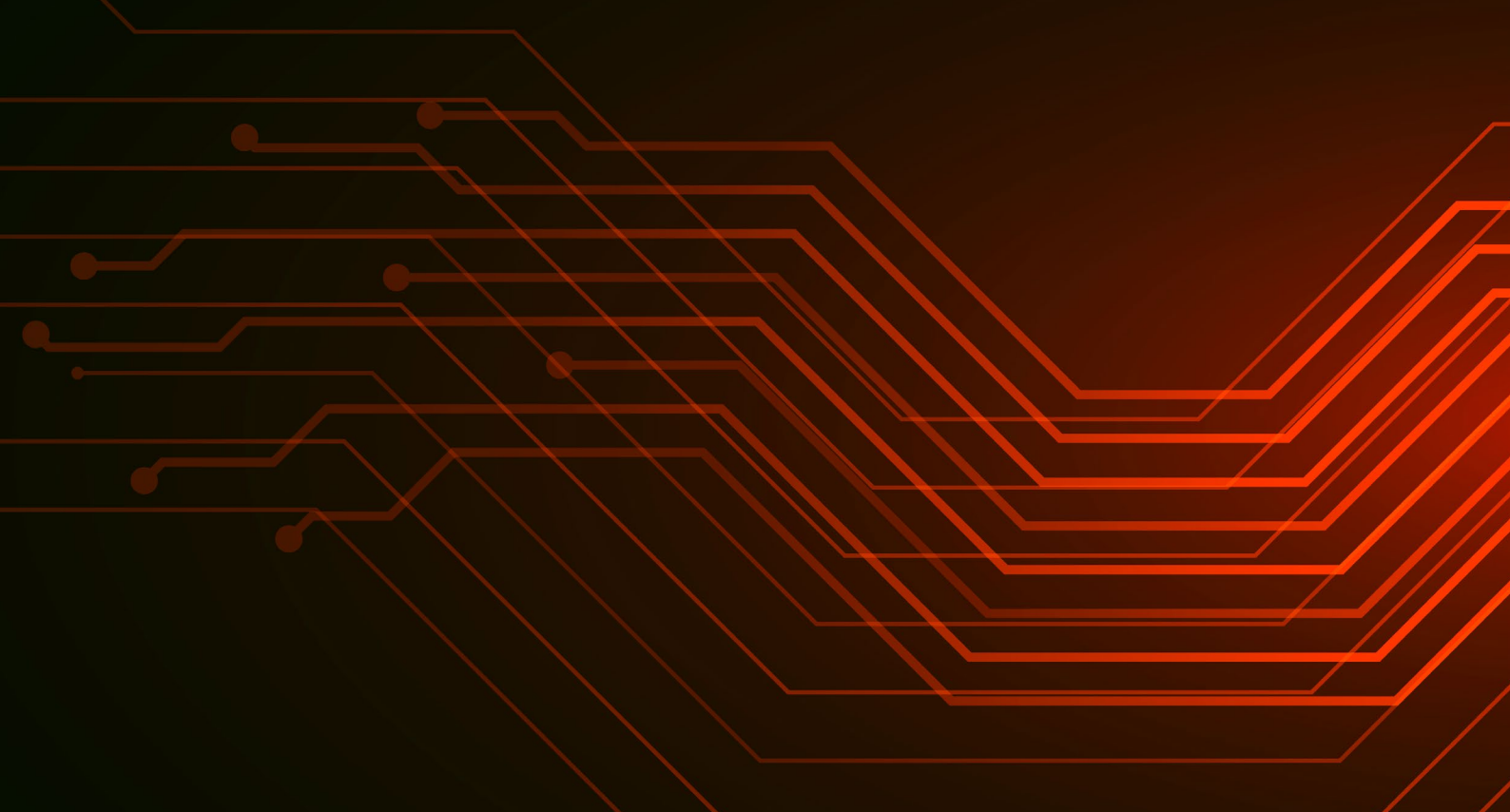
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KEY EXPERIENCE INDICATORS

FOCUSING ON QUALITY IN USER EXPERIENCE

With user experience, the challenge is that there is no single, absolute perfection. Each person's experience is subjective and influenced by their own expectations, skills and previous experience. To make matters worse we are pre-configured with another confounding factor – Opinions - which can make it even harder to determine a common view of the overall experience quality.
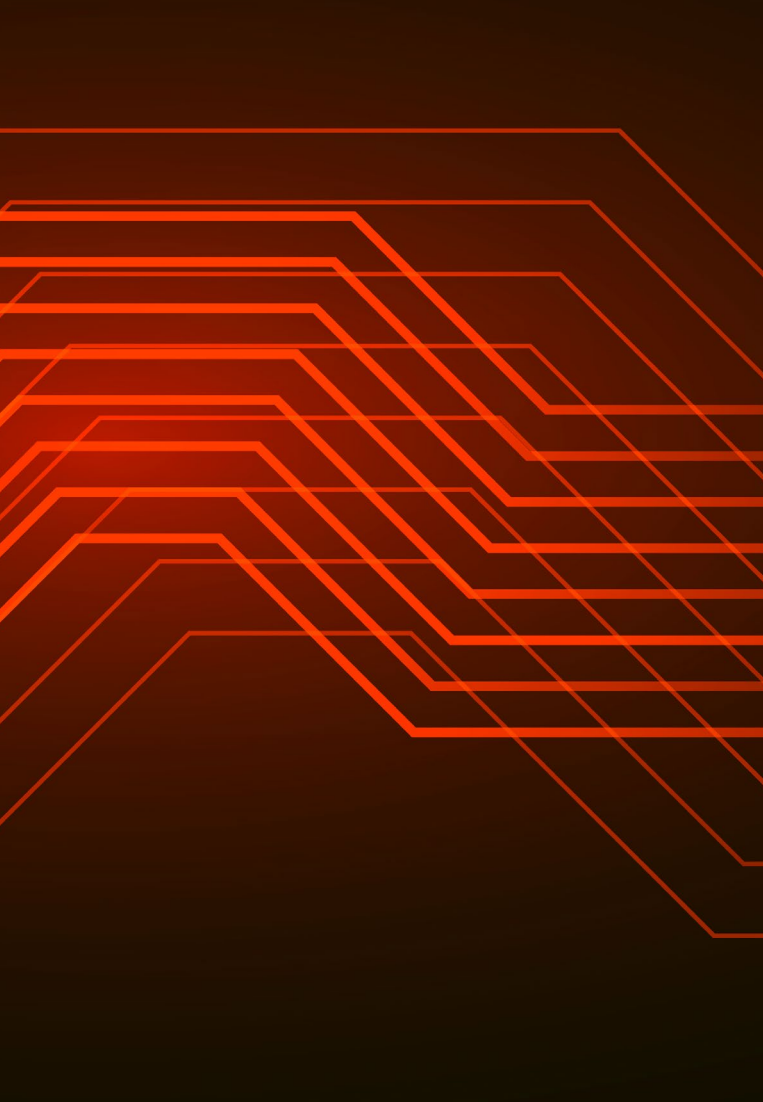
Even our own experiences with the same task change over time. Think of the first time you used a supermarket self-checkout kiosk. You had to think carefully and perhaps made errors such as putting items in the wrong area after scanning, struggling with pricing loose vegetables, or figuring out how to get your store loyalty points. After doing it a few times you've built a mental model and can quickly check out. Same person, same task but two different experiences. Measuring the user experience quality is less exact than measuring the quality of software or hardware, but it can be done by looking at the right metrics.

Key Experience Indicators

Fortunately, we can gather data that gives us a more balanced and objective view of the collective user experience. These key experience indicators are proxy measures for the actual experience for an individual user.

Key Experience Indicators (KEIs) provide a quantitative score of a specific, important, and actionable phenomenon related to using a product or service. They have been developed from projects and products aiming to have reliable, repeatable measures of the user experience. It's tempting to equate them to Key Performance Indicators (KPIs) which can be applied to anything from mechanical strength to a person's performance on a job. KPIs like a material strength or a vehicle's speed can often be directly measured. KEIs however differ because they typically require some indirect, proxy measures which serve as indicators of an assumed individual's experience. Several user experience professionals have applied the concept of KEIs, and there are useful predecessors such as Google's HEART Framework. KEIs were pioneered by Tomer Sharon, a user researcher with Goldman Sachs who proposes several benefits to establishing clear, measurable KEIS, including:

1. **Providing experience information to decision makers**

2. **Identifying strengths and weaknesses of a product**

3. **Improving the product/market fit**

4. **Providing a baseline to improve from**

can capture and whether you are evaluating a software system, a product or an end to end journey. The more relevant a KEI is to your business, the more likely it is to be welcomed and adopted as part of your core business metrics. You may have different KEIs in addition to those proposed above. So how do you decide the right KEIs for your organisation? The process of actually deciding the KEIs is a valuable exercise in itself since it can gather the views of several disparate stakeholders.

We find it useful to consider a framework with three broad categories:

Facility   Engagement   Satisfaction

1. **Facility** – Can people use the product/service/feature?

2. **Engagement** – Do people use the product/service/feature?

3. **Satisfaction** – How do people feel about using the product/service/feature?

Within each of these there should be some measurable KEIs. For instance, task success rate would relate to Facility, while adoption rate is more related to Engagement.

You can also apply a Goals, Signals, and Metrics process, inherited from the HEART framework, to decide what are the measurable metrics that will serve as your best KEIs.

Track your progress

The best use of KEIs is to track them over time. A single snapshot of data is unlikely to be enlightening because it may not directly point to the cause of an apparent issue. Humans, armed with our opinions and vagaries of company politics can attribute perceived issues to the wrong underlying problem. The best approach is to consistently measure the KEIs and be aware of confounding factors that may be affecting the results such as seasonality which may affect the amount or type of traffic website receives. Measuring KEIs over time as you make certain changes, such as to a website's content, will be the best way to identify what is moving the needle in either a better or worse direction. Once you have a hint of where the issue may be, it's usually a good idea to perform qualitative user experience research such as usability testing or digital diary study research to fully understand the behaviour and attitudes that are driving the indicators.

Through his research Sharon has established 16 KEIs useful measures of the user experience which he outlines in an article. The KEIs include:

- **Time on task – how long someone takes to complete something**
- **Lostness – which measures the efficiency of using a product, based on the optimal and the actual number of steps a user takes to complete a task.**
- **Adoption rate**
- **Retention rate - the percentage of retained users over time**
- **Satisfaction score**

Interestingly, one that is not included is the Net Promoter Score, a metric used in many commercial enterprises. NPS has a questionable feature of asking people to predict their future behaviour, specifically whether they would recommend a certain company or service. Although the NPS is a well-established and widely-reported metric, it is based on a strange calculation and relies on each person predicting their future, something we don't have a great track record of doing.

Deciding the KEIs for your organisation

Some KEIs will be more relevant to your organisation than others so choose them carefully based on what data you

3. METRICS

How do you effectively measure the signals?

Should be something that is *measurable*, that you can *track over time*, and you can *take action* as a result of.

2. SIGNALS

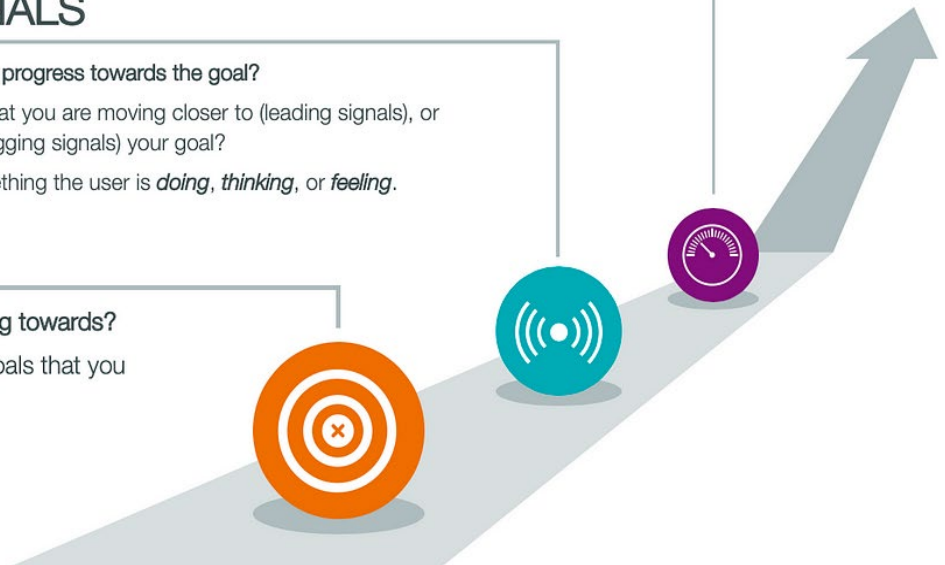What indicates progress towards the goal?

What shows that you are moving closer to (leading signals), or further from (lagging signals) your goal?

Could be something the user is *doing*, *thinking*, or *feeling*.

1. GOALS

What is the outcome that you are aiming towards?

What are the product/service/feature goals that you want to ensure you are achieving?

Just do it

If you're new to the world of KEIs it may be daunting to determine the right KEIs that fit in the sweet spot of being measurable and relevant to the company goals. Don't be discouraged if they are not immediately apparent. Depending on your position and company, it may be best to start small and low profile, select 2 or 3 and do them well. Once the system is in place, you have confidence in the underlying measures and you've been tracking the KEIs for long enough, share your findings to relevant stakeholders, broaden the conversation and see if other KEIs could be brought onstream. Just as there is no set of KEIs that works for all companies, there is no universal way to introduce them to an established organisation. You'll learn lessons along the way as you perfect your KEI set, and you can be confident you are continuously learning more about your audience throughout the process.

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Chris is founder and CEO of User Vision, one of the UKs leading independent UX and service design consultancies. He has led many user research projects and applied that to improve interaction design and end-to-end user experience for clients worldwide and across finance, government, travel and many other sectors. He has provided training in UX and user centred design and

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PREVIEW

What´s in the next issue of SQ mag?

Audit and Assessment and their role in the Test Improvement process.

Guest feature by Ramella Basenko

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