Resolute

THE PRODUCT MANAGER'S GUIDE TO MODERNIZING UX/UI IN HEALTHCARE

USER PAIN POINTS
BUSINESS OBJECTIVES
REAL-LIFE EXAMPLES

Introduction

A good UX/UI design is a must for any healthcare application, because it increases user adoption, enhances user experience and minimizes churn. In this guide we will talk about maximizing customer lifetime value by highlighting important design principles and drawing on specific examples from implementation of multiple different healthcare solutions we have delivered.

Modern healthcare is inseparable from technology - as one develops, so does the other. From the far reaches of high-tech medical procedures that require finely-tuned instruments to simpler aspects such as electronic health records (EHRs) or telehealth services, technology permeates all.

The impact of UX/UI design extends from how things look to how things work. Product owners know that good design improves understanding, and creates product stickiness by following the real user workflows. As a result, a well-designed application improves customer satisfaction and customer lifetime value (CLTV). For a product to be successful, its design must be center stage.

This guide is informed by the main challenges that we have encountered when working with our clients amongst which are some major companies in the field of healthcare system manufacturing. Our aim is to highlight the typical pain points of healthcare software system's users and to provide concrete ideas on how to implement changes in the UX/UI design in order to improve adoption and customer satisfaction.

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Main Objectives of UX/UI Design in Healthcare Application Development

UX and UI design in the context of healthcare has a set of objectives that need to be met in order to ensure that end-users like medical personnel on different levels and with varying input will make the best use of the system. The main trait of design in this field would be a human-centered approach.

Human-centered design is based on the premise that end-users of a system or application will have different understanding and skills than the people who designed it. Therefore, the design should be done in a way that creates a balance between the goals of the application/system and the capabilities/understanding of its end-users.

One of the goals of this whitepaper is to share the below key objectives that need to be considered when designing a healthcare software system. Failing to address them might lead to low adoption rates, disturbing medical procedures, lowering treatment quality which will be costing lives and increasing expenses for healthcare organizations:

 # Cross-platform and cross-device interoperability

 # Easy collaboration between end-users

 # Error-free and simplified experience

 # Design for different IT aptitude

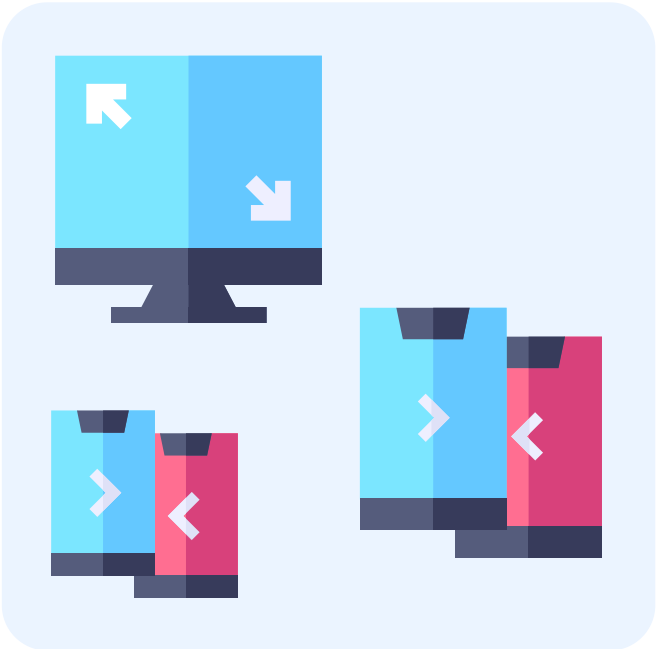
 # Adequate contextual help

Cross-platform and cross-device interoperability

With healthcare applications, it is likely that end-users will have different means of access in terms of platforms and devices. Interoperability or the ability of computer systems or software to exchange and make use of information is a major value proposition for design in healthcare systems, as it:

- Increases the chances of greater user adoption and usefulness.
- Keeps the important and private data safe no matter the differences between systems.
- Reduces the risks of failure by having a unified response across platforms and devices.
- Reduces the potential stress among clinicians when working with the systems.
- Minimizes the high costs for health systems.

The interoperability standards might be complex and their implementation might be time-consuming, however ensuring that your system offers both syntactic as well as semantic interoperability across platforms and devices, guarantees that users will be able to complete their tasks efficiently and easily.



Easy collaboration between end-users

Timely exchange of information and collaboration are vital in healthcare. Not being able to provide these critical objectives easily, systems are likely to fall short of meeting the minimum viable product (MVP) requirements of clients and end-users alike. Instances of collaboration as a standard, yet crucial user workflow in a healthcare application, may include:

- The option to request feedback from a colleague on a certain case or to share a patient's EHR between doctors who are caring for that person.
- The possibility to share raw exam data between patients and doctors for diagnostic purposes.

Error-free and simplified experience

In the context of healthcare, in order to avoid any potential serious consequences, errors on both the development side and on the end-user one, due to misunderstanding or UI complexity must be accounted for and eliminated.

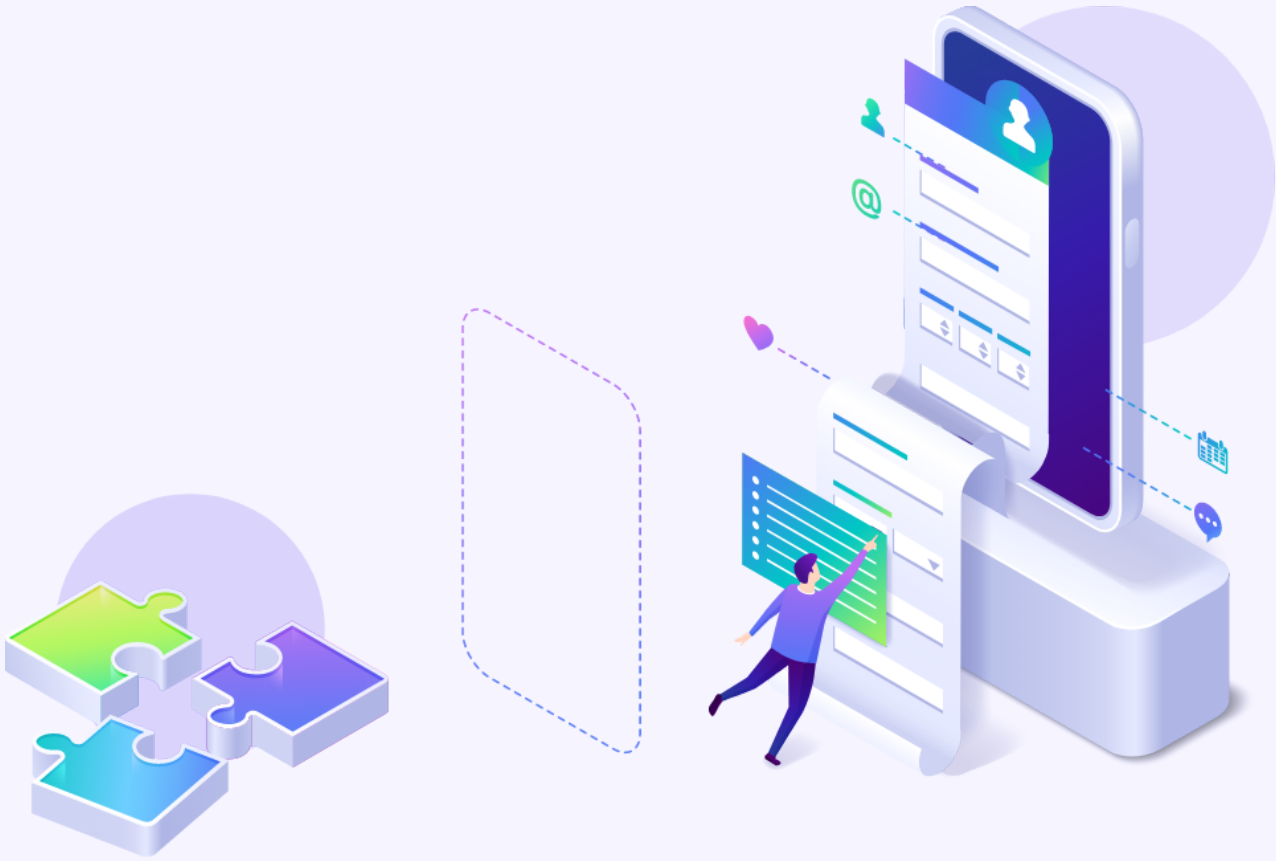
Offering a simplified experience not only reduces the chances of errors and misuse, but it also aligns with the concept of human-centered design. Therefore, the emphasis during the application's design phase should be on:

- Easy-to-use navigation
- Comprehensive and intuitive UIs that aid user flows
- Fast and easy access to information and materials

Similarly, technical terms that may confuse non-expert users are best to be reduced, so as to avoid unnecessary confusion or stress.

An example from our practice

HOW WE CREATED A
MOBILE APP WITH GLOBAL IMPORTANCE



In our own experience with a major healthcare organization, we were faced with the task of redesigning several applications that provided important health-related information to thousands of users globally at the time of a major public health crisis. We had to turn three outdated applications into one with easier-to-use navigation, better UIs in order for the end-user to be able to get instant access to information wherever they are.

The results we achieved were more than satisfactory, the app was available on major platforms, in several languages, and significantly helped the organization to put out important information to the public. At the time of writing, the app has been downloaded over 500,000 times.

Learn more about this project and how we removed the unnecessary complexity of the previous apps and provided simplified user experience with the new app.

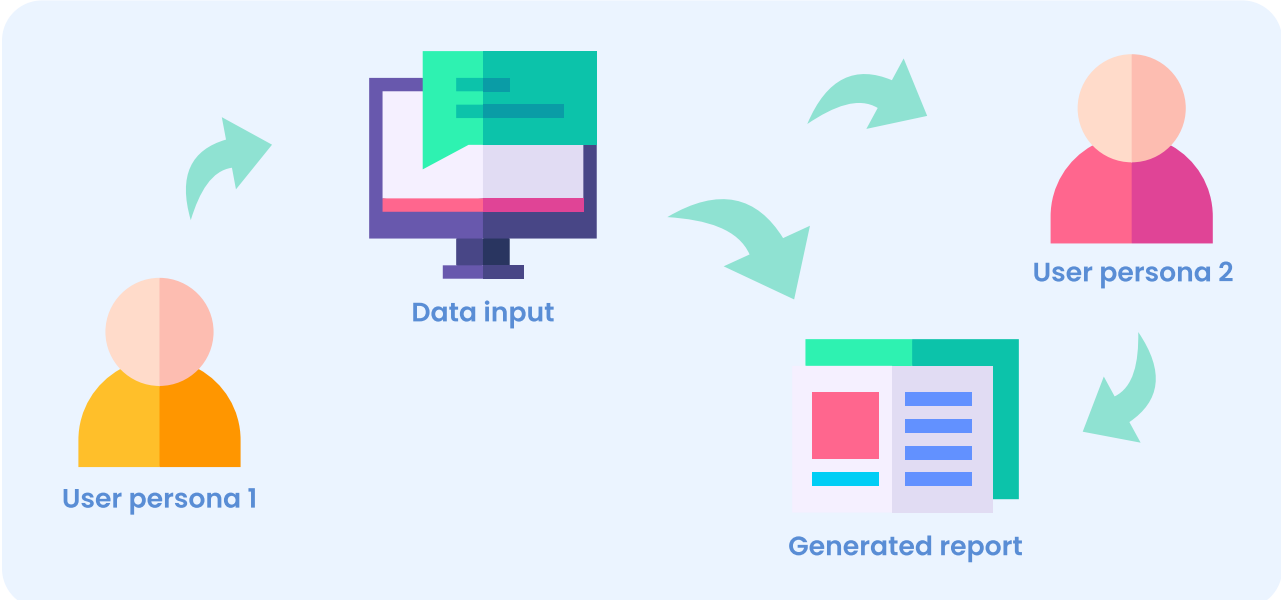
Design for different IT aptitude

Designing an application for healthcare requires a very well-thought out process on how systems within the application will accommodate different user skill set levels and needs, at all times throughout the customer lifetime.
While users of non-healthcare-related applications can typically be expected to develop their skills once they spend more time using the product, the same expectation should not guide the UX/UI design process in healthcare. That's because some users will require more complex workflows at times, while others will always need very simple workflows that will not develop through time.

The UX/UI design team's priority should be on understanding the different needs and capabilities and creating a design that will ideally enable all of the practitioners to interact with the system with ease, regardless of their specific occupation or workflow.

A typical healthcare system user flow:

For example, a physician's input into a system may be as simple as uploading the data after an examination and noting their findings. Their tasks which may be executed within one and the same user interface will be not as complex as the tasks of someone operating within the ER or a diagnostics center, as they will have more tasks and more complex ones to fulfill by interacting with the system through various screens and menus.

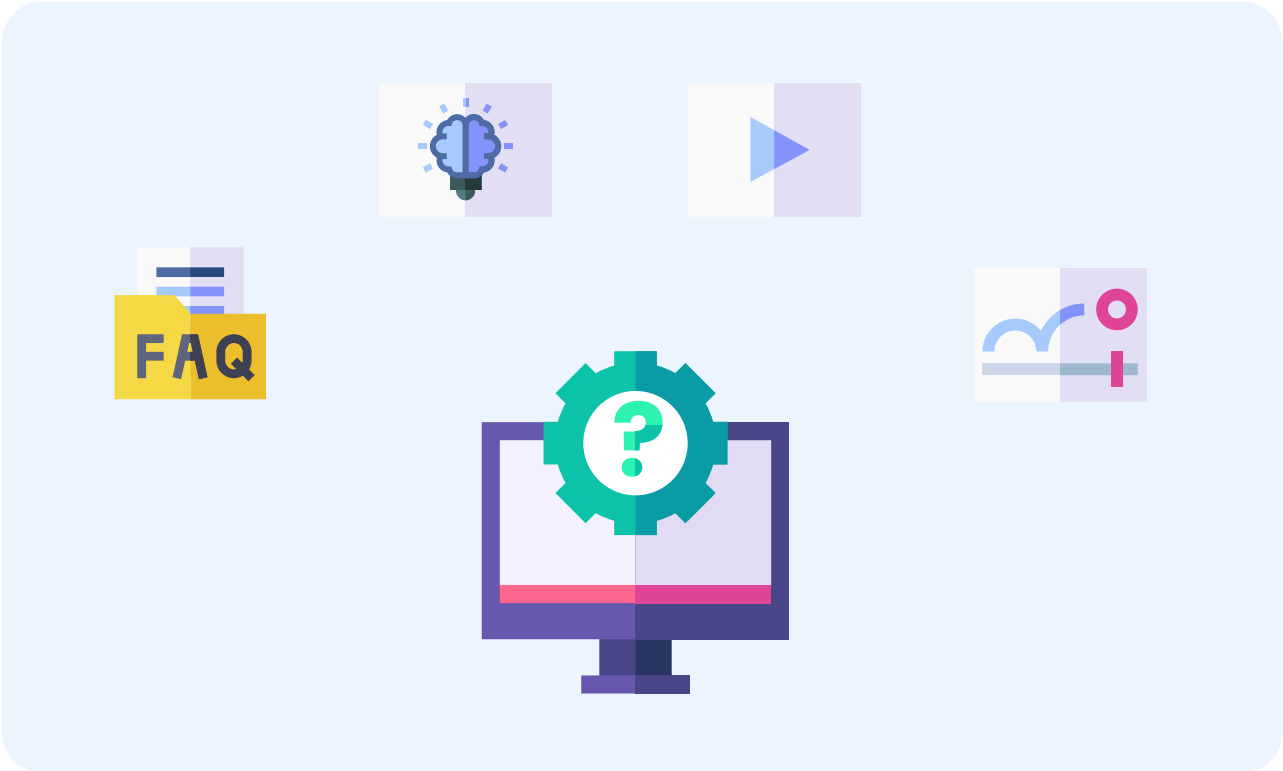


Adequate contextual help

As mentioned above, the needs and IT aptitude of users may differ quite a lot, so for a healthcare application to be useful and successful, those differences should be taken into account and contextual help within the system should be provided. The emphasis must be on providing less obtrusive and more efficient ways for end-users to solve their immediate struggles with the system and the input of an UX/UI design team may be of vital importance. Such help may come in the form of:

- Help and FAQ sections
- Knowledge base with articles that provide how-to's and step-by-step guidance
- Video guides and tutorials
- Dynamic cues such as animations or sounds that lead the user

All of the above will not only help improve product adoption and stickiness rates, but will also help alleviate the burden on the IT help desk, and reduce their workload.



Healthcare software users' pain points and how to solve them

The well-equipped UX and UI experts should have a cross-functional view of the development process that spans the whole product lifecycle, so they can spot potential issues early on and provide solutions. In the course of our work with providers of healthcare systems, we have identified a number of UX and UI-related pain points that end-users frequently experience when it comes to:

- **# Sharing and accessing data from different locations and through different devices (cross-device access)**
- **# Maintaining data security while providing interoperability**
- **# Responsive UX and UI that accommodates different use cases**
- **# Collaboration features**
- **# UI design and information architecture**
- **# Onboarding**
- **# Healthcare organization's IT workload**

We will dive deeper into the topic to examine what stands behind these pain points, and will provide ideas on how to solve them along with examples from from our experience.

Sharing and accessing data from different locations and through different devices

Until recently, healthcare systems were primarily designed as offline desktop versions due to the requirements of security protocols and market regulations. As a result, users were limited to specific devices and locations, could not freely and in real-time share and access data that is located elsewhere and all this had a strong deterring effect on end-user efficiency and productivity.

Over the past several years, legal changes both in the US and EU have lifted some of the heavy regulatory and administrative burdens for telemedicine, common EHR, and other systems. The development of responsive mobile and web platform versions of healthcare systems is not that restricted anymore, so new standards, innovations and solutions are allowed to emerge.

Building systems that rely on healthcare compliant cloud services allow for global access and variety in the preferences on device usage. Having the chance to access the important and needed information from any location at any time of the hour is extremely crucial to all the medical professionals especially if their practice is spread between several hospitals and even different cities. Enabling access from various locations and devices in a safe manner reduces friction and allows for more seamless interaction with the system.

By all means, technology is here to help us advance in providing better and better solutions to problems that matter.

> **From a UX point of view, a system should mimic end-users' offline work patterns as closely as possible and recreate their workflows while helping them gain productivity and efficiency.**

Maintaining data security while providing interoperability

Any system in the cloud must protect its data and handling individuals' health information must be done in compliance with GDPR, HIPAA, HITECH, PHIPA, and other applicable regulations.

For companies, it is often a challenge to comply with such data security standards while at the same time creating a system that works in compliance with syntactic and semantic interoperability standards. Even though these two sets of requirements are not necessarily at odds with each other, a balance must be struck so that data security does not impede information flow and vice versa.

Some general aspects of protected health information (PHI) security include:

- Using a secure sockets layer (SSL) that creates a safe connection between the user and the server and encrypts information
- Setting up reliable backup and recovery systems for PHI
- Ensuring access only by authorized and authenticated users
- Implementing protocols for the disposal of any PHI that is no longer relevant or required
- Using cloud providers that are in compliance with security standards

Providing security that is aligned with current standards creates trust in the system and drives adoption. It also sets the foundation required for the system to be future-proof and adapt with ease to new requirements and standards.

Responsive UX and UI that accommodates different use cases

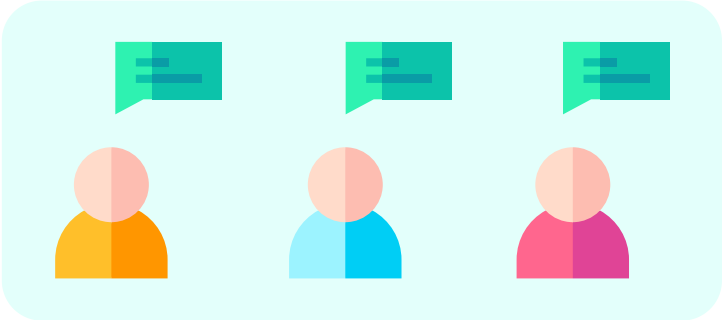
The end-users of a healthcare application will have to deal daily with a large number of documents, images, measurements, diagnostic and research data, and in order for the process to be smooth and not interrupted at some stage, all of the real use cases have to be taken into account.

Whereas most B2B software development is based on the presumption of a specific setup and environment within which such software will be used, architecting a healthcare system for a stereotypical desktop environment only can lead to significant difficulties for end-users.

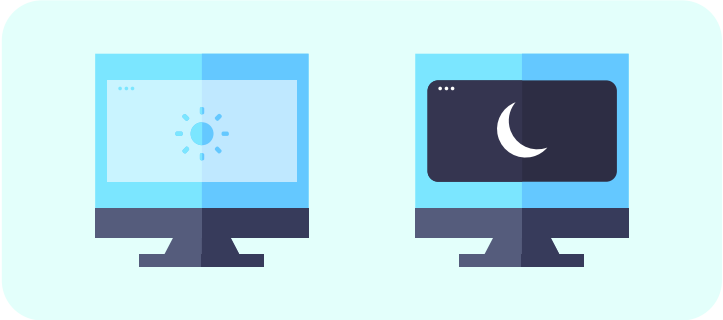
There are a host of UX and UI features that can enable the system to shift in accordance with different workflows and use cases:

- Responsive UI

- Different personas workflow



- Light and Dark mode

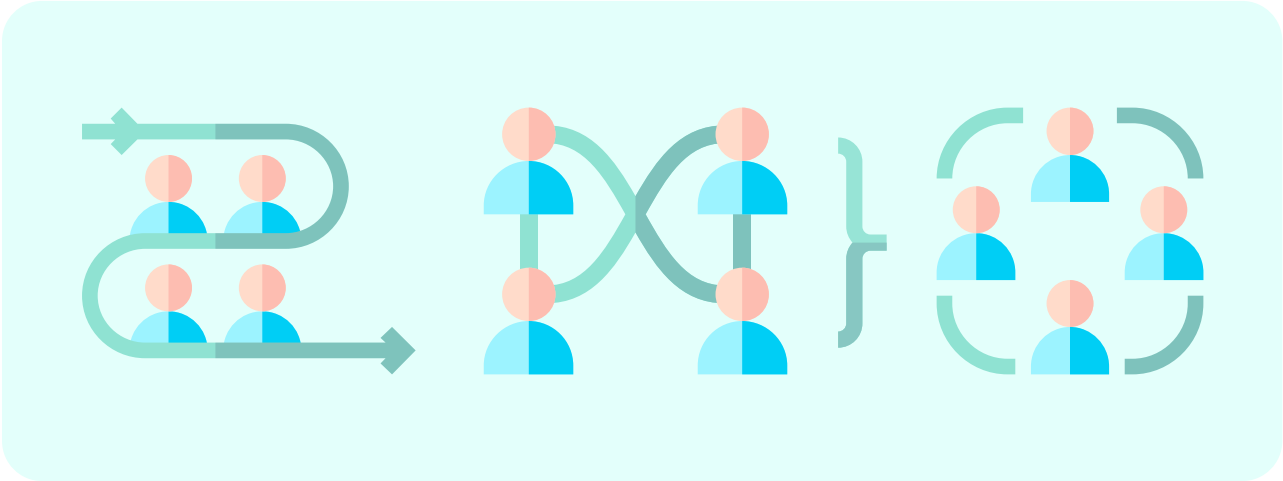


- Split screen

Collaboration features

Typically, healthcare software systems require the input of a number of experts that participate in the diagnostic process. This process includes taking a history of a patient's symptoms, conducting an examination, generating a provisional diagnosis, testing, reaching a final diagnosis, consultation and suggesting treatment, and more.

A frequent pain point of users of healthcare systems is that such systems limit or complicate collaboration between the different participants. Sometimes this creates the need for personnel to find workarounds if they are stuck with the system.



Ultimately, a lack of collaboration features turns the system into a series of disjointed interactions rather than a smoothly flowing process.

An example from our practice

FROM A UX/UI ASSESSMENT TO A
SUCCESSFUL REDESIGN OF AN APPLICATION

Working with a major provider of healthcare software systems, we were tasked with reimagining an application that assisted the process of diagnosis of development of a specific condition with women. The application was a stand-alone solution. It required the input of at least two users - one, conducting a specialized examination and creating a report, and another one - a doctor, who would process the report, and finalize the examination. Nevertheless, we had to take into consideration the needs of a few more personas to make the UX fit for every use. These were specialists who could provide a second opinion within the hospital, specialists outside of the hospital at private practices, and also IT people, able to support the application internally.

The initial system was difficult to use. Random dialog boxes would pop up and confuse users, and altogether make it difficult for information to be passed on from one professional to the next. Screens were cluttered with information with no clear path the user could take.

At the same time, we were limited in what we were allowed to change within the system as a number of the steps and screens that users were shown needed to remain untouched.

Given the limitations that we were faced with, we proceeded with suggesting that the system be redesigned as a web-based application. In addition to this, our UI/UX design experts suggested a significant reduction of any dialog boxes or screens that were not an essential part of the process and could be made less visible. We also suggested changes to the navigation and layout that would free up the perceptual field of users.

As a result of our initial UX and UI assessment, and suggestions for improvement, the organization decided to move ahead with a redesign of the application. This project will create a unified experience for users and enhance collaboration. It will also provide faster and easier access to information, and enhance the overall diagnostic process.

Click here, if you want to learn more about this success story.

UI design and information architecture

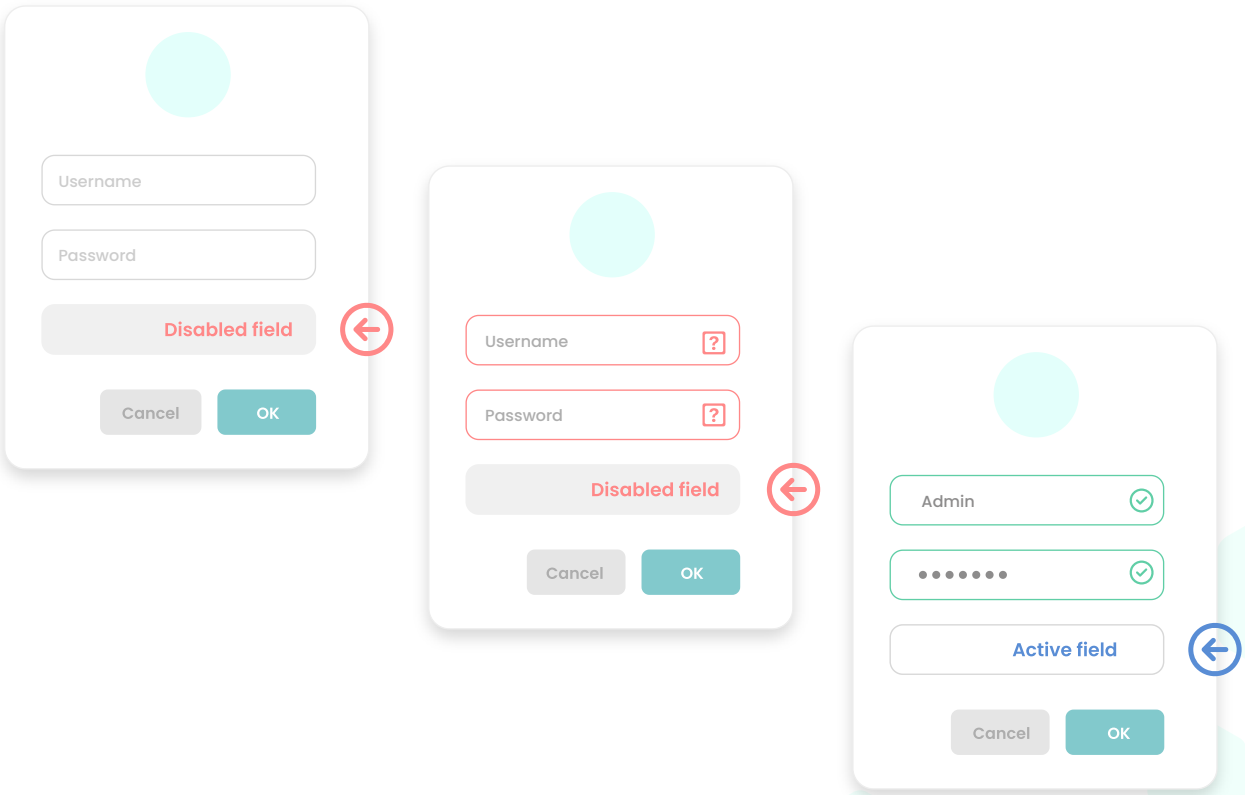
For most doctors, who have little time during the day, seeing cluttered screens, having to follow a rigid set of rules, using systems that are frequently overloaded with boxes or alerts that need to be ticked, creates an additional burden.

Instead, what's needed are solutions that are structured in a step-by-step decision-making process, quick access to patient data, and the option to enhance and enable examinations, providing the most essential information in a paced way.

Interface and design aspects to consider when creating a software system for healthcare include:

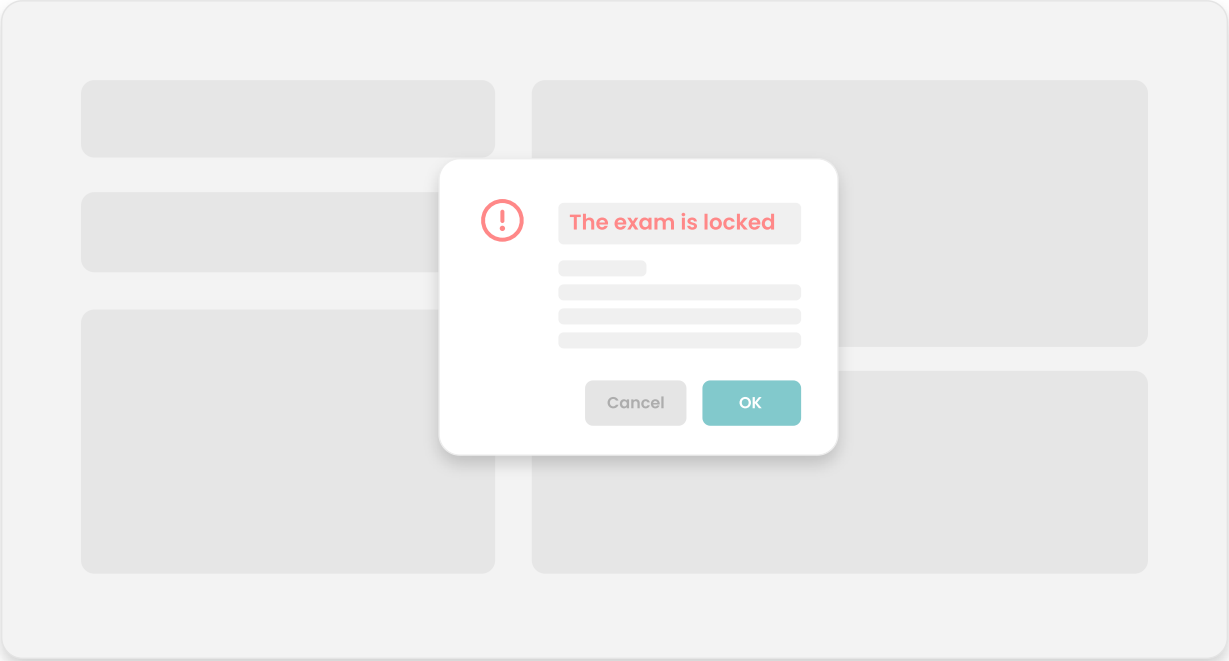
- **Fast and hassle-free login/start experience**

  The screen should only contain functionally relevant components and enable the user with an easy and straight-forward entry into the system.



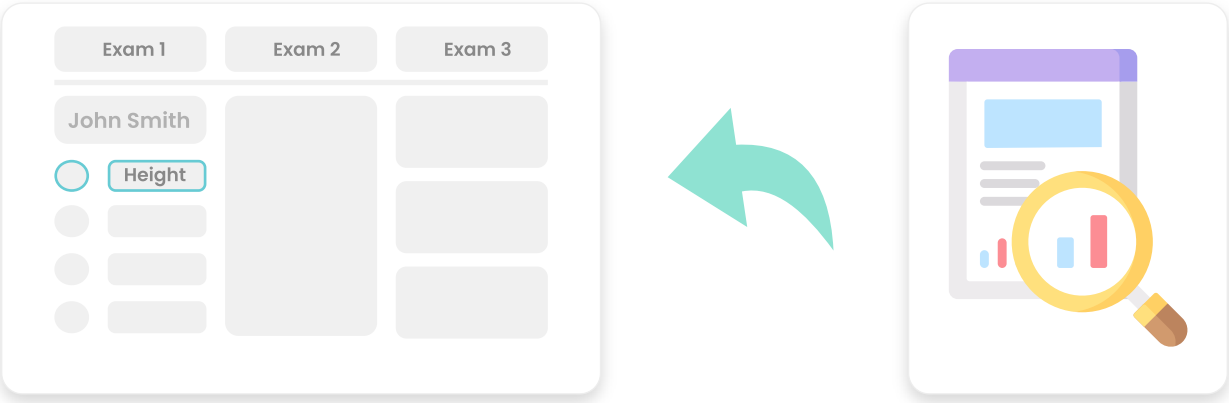
Unified dialog boxes and alerts

Modal dialogs help to minimize the risk of the user missing an important message, and to keep the user focused on the screen they are currently on. The dialogue box sits on top of the application's main window.



Simple navigation in new exam or report creation

A new exam screen/report creation should be easy to make with only one click. All the needed information that a doctor/med personnel needs to fill in should be easily reachable via the screen and all historical data should be pre-populated.



Layout that enables users to easily find patients' details

- **Convenient attachment options**

  Users should be able to attach all types of documentation related to the examination in any size and format - images/video/text, etc.

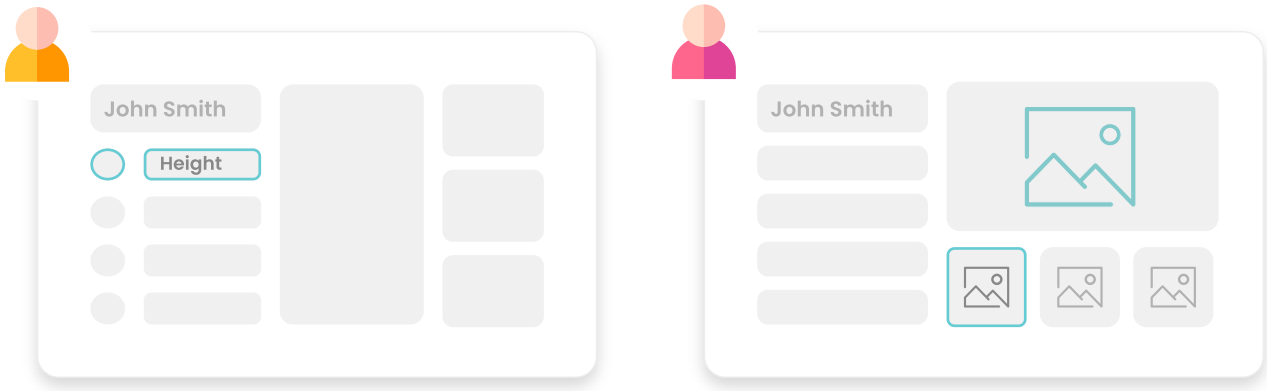
- **Simplifying workflows**

  For example, the process of starting a new exam, attaching scans, sharing the report with a colleague, etc. Those should be facilitated via easy-to-access icons in the menu.

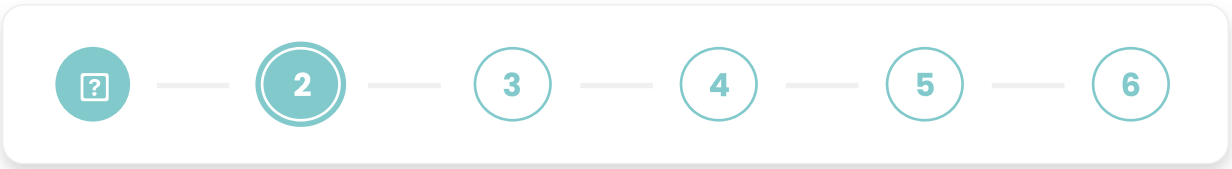
- **Streamlined navigation and decluttered layout adaptable for the different personas that use them**

  In order for the interface of the product to be more intuitive, there should be a clear division of the layout of the Main Working Screen into its main navigation areas, organized according to their functionality. It should be decided where sub-toolbars are needed to provide component-specific functionality, so the user can navigate without feeling confusion because of the constant change of icons.

  Different layouts, based on the persona needs:

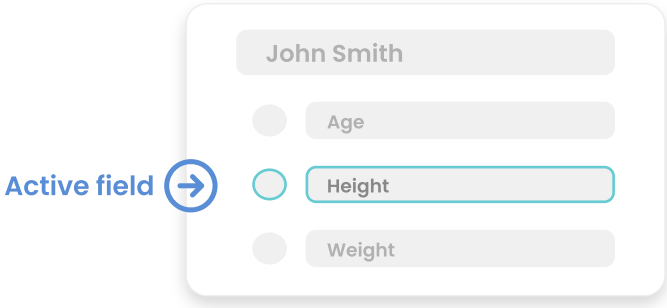


- **Easy progress tracking of an exam - step by step approach**



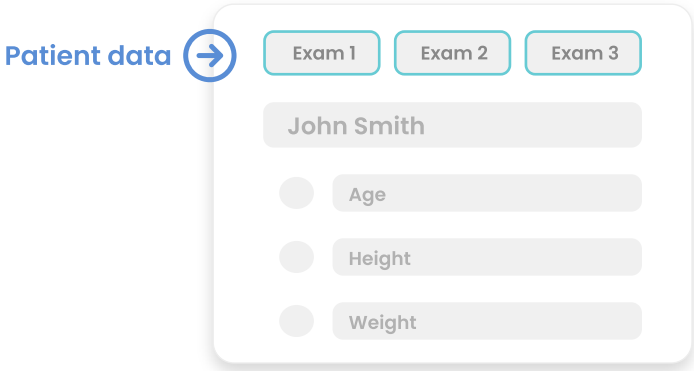
Highlighting important information

If there is an active field, it should be highlighted appropriately.



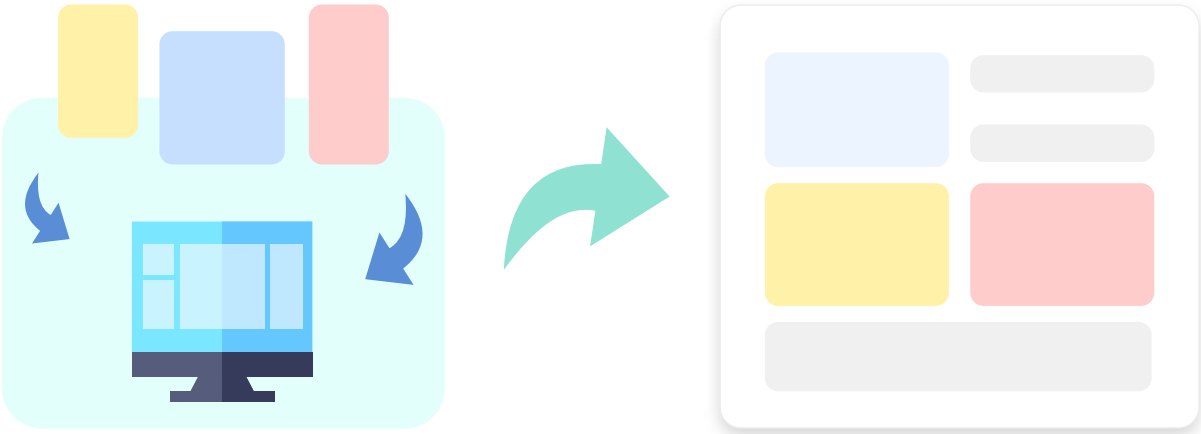
Easily accessible patient details

Patient's details and their exam should be easily visible, so the user can get quick access to this information throughout the examination process.



Editing and printing options

Users should be able to easily add additional data to the reports, highlight texts, add images and/or videos that can be easily seen in print preview to make sure that the final report, if printed, will look good.



Onboarding users

User onboarding is a crucial step and needs to be considered well in the design process in order to avoid any major users' struggles later that can make adoption and stickiness harder.

Some ways to approach/prevent the potential challenges are:

- Understand the users/personas of the system: Using opportunities to interact with medical professionals and exploring their day-to-day environment, workload, and tasks. Observations help to understand the specific needs of users and how to offer solutions to such needs through a system
- Designing the system while considering potential errors and ensuring actions are undoable
- Providing ample amounts of training materials, videos, tutorials, and even a sandbox mode within the software
- Offering software training courses to organizations

Healthcare organizations' IT workload

A rigid and complicated application translates into a greater burden for the client's IT team as it stretches its resources and incurs additional costs. It may result in an increase in support tickets, and in slowing down the IT department's ability to react and assist the system's end-users in a timely manner.

One of the ways in which this pain point can be avoided is through helping users get onboarded thoroughly and ensuring that they understand how to use workflows and feature sets.

Such onboarding can take the form of introducing:

- **Coach marks and overlays with cues, tips, and guided tours within the system** - It will allow the onboarding process to be easily scalable and does not create additional work for the organization's IT department.
- **Adequate self-help options** - such as video resources and contextual explanations are also of great importance.
- **Product analytics, surveys, focus groups, and interviews with end-users** - will allow you to adjust onboarding pace according to the real needs of end-users in the organization.

The business goal in addressing this particular pain point is to help end-users and decision-making stakeholders (the IT lead) to improve their department's productivity and free up resources.

Executive summary

At its essence, UX/UI design is intended to help users fulfill their needs as easily as possible and solve problems in an intuitive and frictionless way. These aspects are of particular importance in healthcare due to the significant consequences and costs that may occur when productivity and performance are impeded.

Due to the cross-functional view that design experts possess, their input must inform the work of other teams. This guarantees that the objectives of a human-centered approach to application development will be met.

Meeting these objectives translates into better product adoption, greater customer satisfaction, increased customer lifetime value, and stickiness. It reduces churn and helps build a future-proof system that can adapt to changing circumstances.

Six ways to win when designing a healthcare application

Specifically, when building healthcare software solutions, organizations must ensure that systems offer:

- A high degree of cross-platform and cross-device interoperability aligned with standards in the field
- Data accessing, sharing, and collaboration within a secure environment that safeguards patient records, according to data safety regulations
- An error-free, simplified and responsive experience that accommodates different IT skill levels and different use cases
- Adequate contextual help in the form of a knowledge base, step-by-step guidance, video guides, or dynamic cues, as well as a sandbox
- An interface design that follows and recreates users' day-to-day workflows, while increasing their productivity and efficiency
- Reduced burden on client IT teams as well as end-users

Research Matrix

- **Foresee Medical:**
  The Future of Clinical Interoperability in Healthcare

- **Himss:**
  Interoperability in Healthcare

- **HealthcareIT News:**
  Data interoperability, knowledge interoperability and the learning health system

- **Calyptix Security:**
  Top 5 Cyber Security Frameworks in Healthcare

- **HealthIT.gov:**
  Strategy on Reducing Regulatory and Administrative Burden Relating to the Use of Health IT and EHRs

- **UX Booth:**
  Designing for Generations – A Look at UX in Healthcare

- **Mindsea:**
  Healthcare UX: How Better UX Is Improving The Patient Experience

- **UX Collective:**
  - Collaborating with healthcare professionals
  - Design standards to save lives — UX in healthcare
  - Healthcare UX: a journey just begun

How Resolute Software can help you address your UX and UI design needs

We have worked with major providers of healthcare software in designing web, mobile and desktop applications and systems that offer a frictionless and efficient experience to users, and achieved central business goals such as increased customer loyalty and productivity.

Conducting a UX/UI design assessment is the first stage in identifying existing architecture and usability issues, and determining the steps forward toward an improved customer experience. **Get in touch** with us to find out more about our services and how we can help you overcome usability issues and achieve greater customer satisfaction!

Our solutions are backed by hard data and analysis and are made with the intent to be future-proof and customer-centric.

Resolute

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Let's talk about your technology requirements.

Get in touch

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