

A GUIDE TO UPDATING YOUR LEGACY MEDICAL OR LIFE SCIENCE DIGITAL SOLUTION



Every software application reaches maturity. If you're like most companies, when this happens you'll probably avoid investing in a major update. Yet doing nothing also poses risks, like lost revenue, lowered productivity, and increased security risks.

This is particularly true in healthcare. According to Kaspersky's 2021 Healthcare report, only 22% of global healthcare organizations confirmed that all medical equipment they utilize runs up to date software, with 73% saying that they continue to use legacy operating systems (OS). And, according to Cision, healthcare is one of the most vulnerable industries to cyberattacks.

There's no better time than the current to revamp your legacy applications. If you're concerned about the costs of updating your solutions, keep in mind that the potential ROI for a UX/UI project is huge. Organizations that routinely focus on improving UX/UI typically earn \$10 to \$100 for every dollar they invest.

But where do you start? The following pages will cover the approach and steps you need to update your legacy systems. If you feel you need help, contact us at: business@catalystux.com.



The Application Modernization Approach



Steps to Updating Your Medical or Life Science Software

There are four phases to the application modernization approach: discovery, strategy, UX design, and production and development. In this guide we layout the steps you should take during each phase.



Discovery

STEP 01

Complete a Heuristic Evaluation

The starting point is understanding how well your current software stacks up. We like to use a heuristic evaluation. This step involves gathering a small group of evaluators to examine your software's interface and judge its compliance with recognized usability principles ("heuristics"). This type of quick evaluation provides valuable feedback for identifying usability issues—often at a relatively low cost.

Review Your Presentation Layer Technology and Code

The presentation layer contains the components that implement and display the user interface (UI). It also manages user interaction. During this step, programmers find and eliminate mistakes before any new UX development is undertaken. Doing a code review is also good practice during this stage. Streamlining the backend ensures your project, as well as any future projects, will be accelerated.

STEP 02

STEP

03

Create a Catalog of Views

An application is a set of interfaces that users interact with. Each interface has a different value and usage. They all work together to meet a central goal. Before you can update a legacy application, you first need to understand all of these interfaces. Cataloging all the views in the current application essentially means building a master list that will help UX designers focus and understand what the core interface of the new product is. Be certain to clearly understand what portions of your software will require regulatory submission or recertification. Isolating these portions will enable you to change other parts of the software with fewer regulatory concerns.

Conduct User Interviews and Establish a User Advisory Group

Every UX project needs to understand end users. This is typically accomplished with interviews or surveys. Ask users exactly how they use the current software. Dive deep into how well the software meets their needs, performs specific functions, any workarounds, and the time they spend on important tasks. You want to know how the software fits within their requirements, as well as where it is falling short. At the same time, make sure to reach out to IT teams that maintain the software.

STEP 04



2

UX Strategy

STEP 05

Develop and Organize User Stories

Identifying the user stories for your UX project is an important part of the design process. Stories enable designers to empathize with users and generate ideas that fit into their lives. Ask questions like: Who is the user? What is the user's goal when using your product? Why is a feature important to them? How will its functionality help them achieve their goal? After developing these stories, organize them into key work areas, user scenarios, and required tasks.

Define UX Architecture

Good UX architecture creates an experience that allows users to focus on their tasks, not on finding their way around. To make this happen, you'll need to define optimal flows and journeys based on user stories. User interactions should be so well-designed and intuitive that they are effortless.

STEP 06

STEP 07

Define Guiding UX Strategies

When it comes to UX strategy, guiding principles provide you with a framework for overcoming challenges and solving problems. For example, they can include a particular sequence of activities, like "mobile first." As you're defining your project's UX strategies, strive to be as specific as possible.

Identify Points of Innovation

Now that you have your UX strategies, user stories, and UX architecture, you're ready to identify the most promising points of innovation. A point of innovation might be a new way of solving a problem or making a process better. It could also be a new type of user interaction. For example, perhaps there's new technology that streamlines the way users can interact with your software. Once you've identified the point of innovation, you'll want to develop rough concepts to validate this approach with target users.

STEP 08

STEP
09

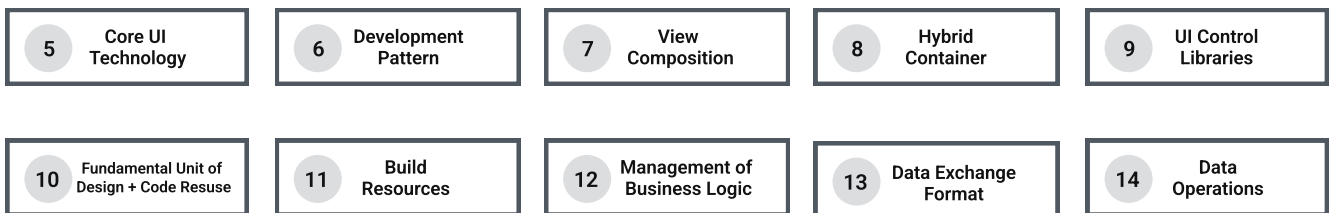
Define Your Updated UI Technology Strategy

Shaping an application's user experience requires discipline. In this phase, you'll define your UI technology strategy, which should address a mixture of user needs, business vision, and technical capabilities. At Catalyst UX, we work with clients to define the optimal UI technology strategy using a 14-point model (see below).

Points of Presence



Presence Tier



3

UX DESIGN

STEP
10

Define The Users' Core Experience

The core experience is the foundational journey that your users value. Understanding the core experience helps you to generate ideas for an ideal user experience for your redesigned application. It also allows you to map the ways various experiences relate to one another. Using this key insight, a UX team can easily know the context for even the smallest interactions they create.

Create a Visual Design Concept

A design concept is the big picture idea that makes decision-making easier. A visual design concept includes the overall design intent as well as every other design aspect—from the early schematic designs all the way through construction. It provides direction for everyone on the project team. During this step, you will generate multiple concepts and refine them into a final concept.

STEP

11

STEP

12

Design Core Reusable Views

A design system is composed of numerous reusable views and components. These views are modular and can be repeatedly reused to build any number of applications. In a typical application, there are anywhere between eight and 16 views. In this step, you'll design and develop the reusable views that make up your application's core experience.

Create a Visual Design Concept

After you have designed the core reusable views, you'll want to develop them. As we said before, UI code is based on reusable UI panels, and is modular and reusable. This phase often includes an end-to-end fully working model based on reusable views.

STEP

13

STEP

14

Develop a Fully Functional End-to-End Slice

Think of your application as a multi-layer cake. Typically, developers want to work on only one layer at a time to get each layer right. But this approach doesn't allow users to experience an entire user story from start to finish. In this step, you'll develop a fully working end-to-end slice. This slice will be based on the updated UX design and will leverage the chosen technology architecture. This will result in a fully implemented version of a small number of working views.

Hold User Validation Sessions

At the end of each sprint, we recommend soliciting regular and ongoing user input and validation. For regulated products, such as those in medical and life science or those requiring FDA approval, you'll want to design and conduct formative and summative studies as well.

STEP

15



4

PRODUCTION UI DEVELOPMENT

STEP
16

Specify and Design Remaining Production Views

Before the production release, you'll want to create the specifications for the remaining views. Catalyst UX does this based on a unified UX design system.

Develop Remaining Production Views

Based on user-validated UX designs, the team will code the remaining production views within the chosen technology.

STEP
17

STEP
18

Integrate UI with Backend Services

Next you'll complete integration of UI to backend services. This may require refactoring of services for optimal performance.

We're Here To Help!

If you need help getting started, contact us for a free 30-minute consultation to review how to apply strategies discussed in this guide to your digital solution. Email us at business@catalystux.com.