

synergy
codes

Low-code your data & processes

Finding visual solutions for uncommon challenges

Hello!

We're Synergy Codes, a European technological business partner specializing in building custom and interactive low-code tools to visualize data and processes. Our results-driven Agile teams use unique code to boost projects for fast-growing startups and enterprise-level companies, including the Fortune 500 list.

Synergy Codes builds above-average tools for multiple industries: energy, automotive, and infrastructure, to name a few.

You're going to experience a showcase of our selected real-life projects to deep dive into the specific low-code tools - including flow designer, digital factory, IT infrastructure, engineering system, remote collaboration, knowledge management, and front-end IT solutions.

Enjoy the show, and let yourself be inspired!

Synergy Codes Team







Front-end IoT solutions

Real-time passenger flow monitoring system for international airport

Process flow management tool for smart manufacturing companies

Client: International Airport

Digitised passenger flow for airport infrastructure

Smartphones shape airports' future, helping customers navigate terminals, check-in, and even display boarding passes, so knowing that, we designed an app to accelerate passenger throughput.

The solution integrates data from IoT sensors, illustrates information, and interprets those in real-time to add value to day-to-day operations.

Challenge: airport passenger flow simulation

Solution: IoT sensors diagram, interactive dashboard

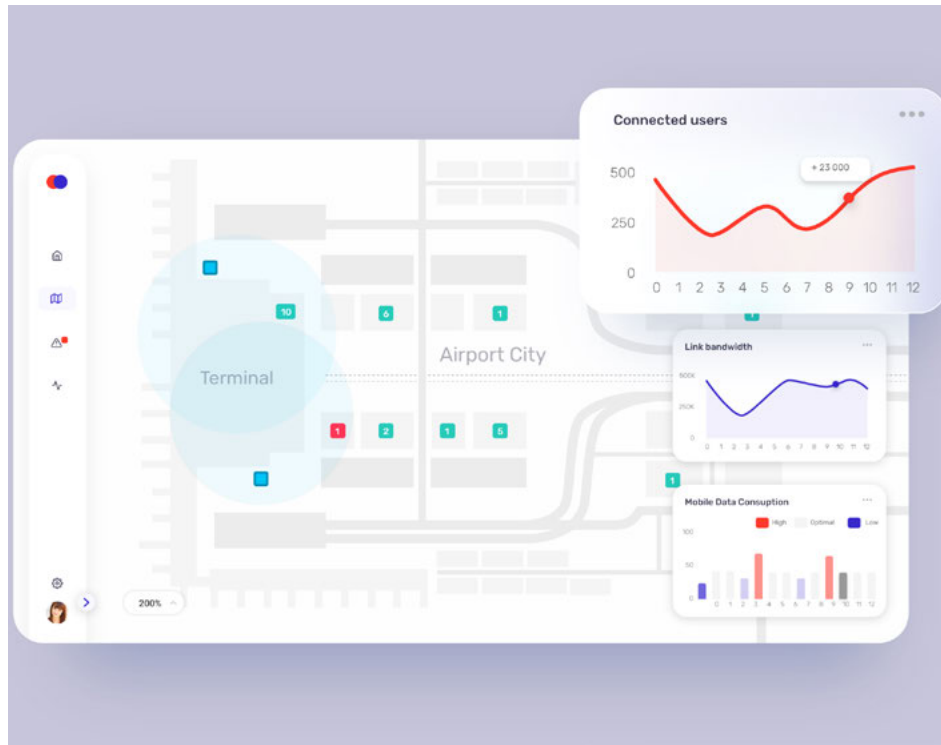
Scope: design, UI/UX, interactive mockups



Features:

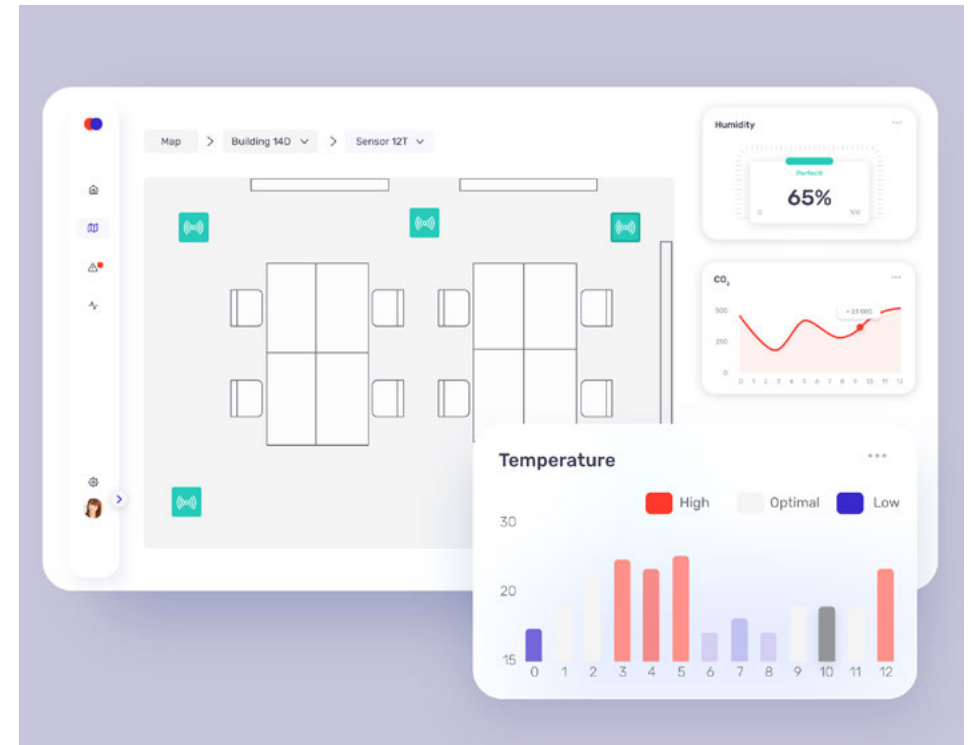
- providing IoT sensors data insights
- improving customer service and passengers flow
- reducing the cost of accommodating passenger growth

Digitised passenger flow for airport infrastructure



Real-time people flow

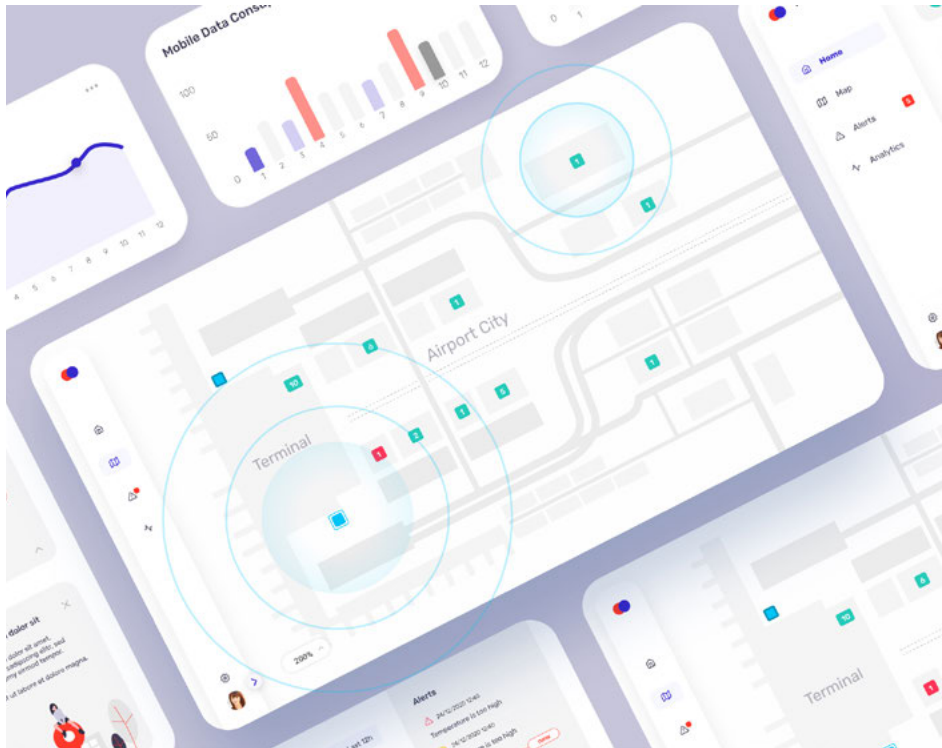
The solution enables tracking human clusters in real-time by reading data from IoT sensors. The collected information helps to prevent overcrowding in the given area.



Multilevel view mode

The system allows for a high-level view of the entire facility or halls and observing individual rooms.

Digitised passenger flow for airport infrastructure



IoT sensors live preview

The presented dashboard views allow observation of various parameters such as temperature, CO2 concentration, and humidity level in the halls or rooms. The dispatcher (admin) can read the number of people in a given area thanks to the LTE/4G/5G GSM receivers' numbers logged into the network at that particular moment.



Administration dashboard

The administrator has at his disposal an easy-to-read dashboard that visually shows the actual state of the determined parameters. They include the number of LTE receivers, temperature, and CO2 concentration in the air.

Client: Manufacturing companies with IoT support

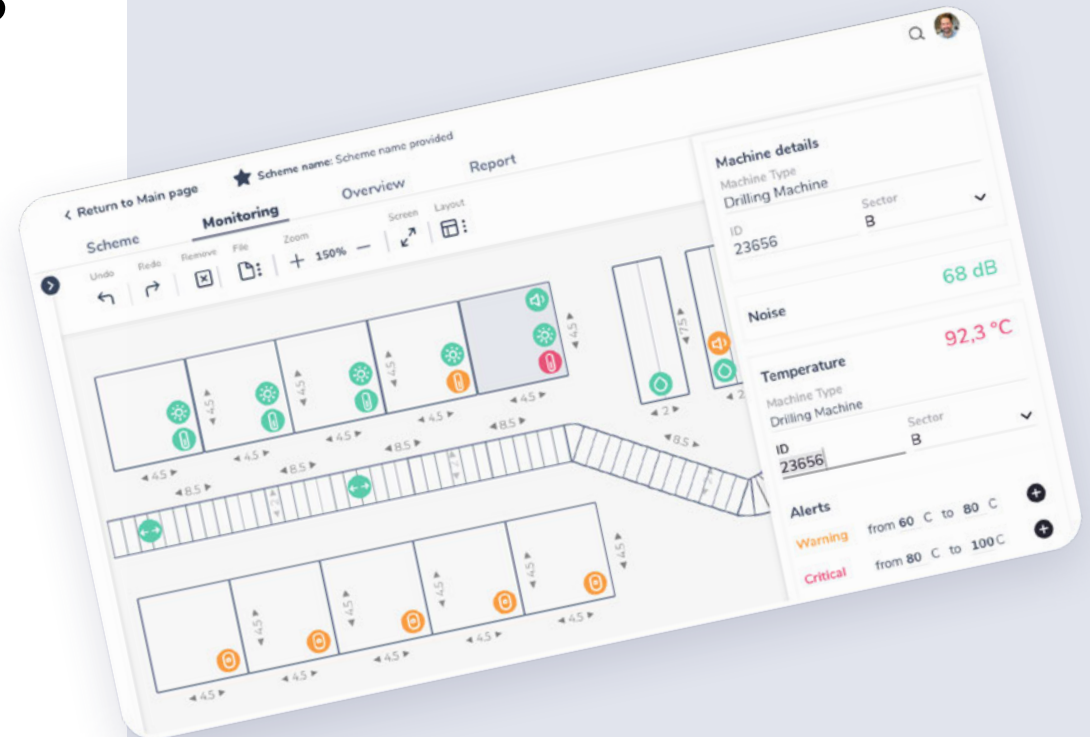
Front-end IoT solutions to enable smart manufacturing

Industry 4.0 envisages a good deal of modernization in today's production companies and imposes new roles on managers. It is not only about estimating production costs and time, but also about improving IoT-supported processes. The presented tool is designed to support the building up of the production line, collecting live data from IoT sensors, which are then used to estimate the quality improvements of the entire line.

Challenge: real-time IoT solution for manufacturing

Solution: process management tool, real-time notifications, data monitoring

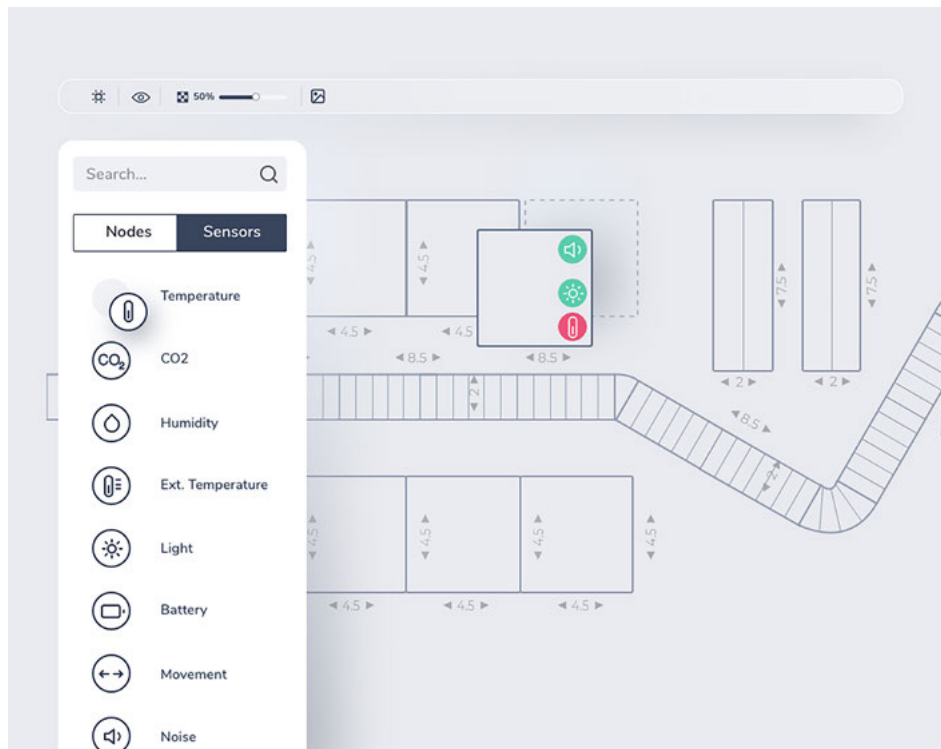
Scope: concept, design, UI/UX, interactive mockups



Features:

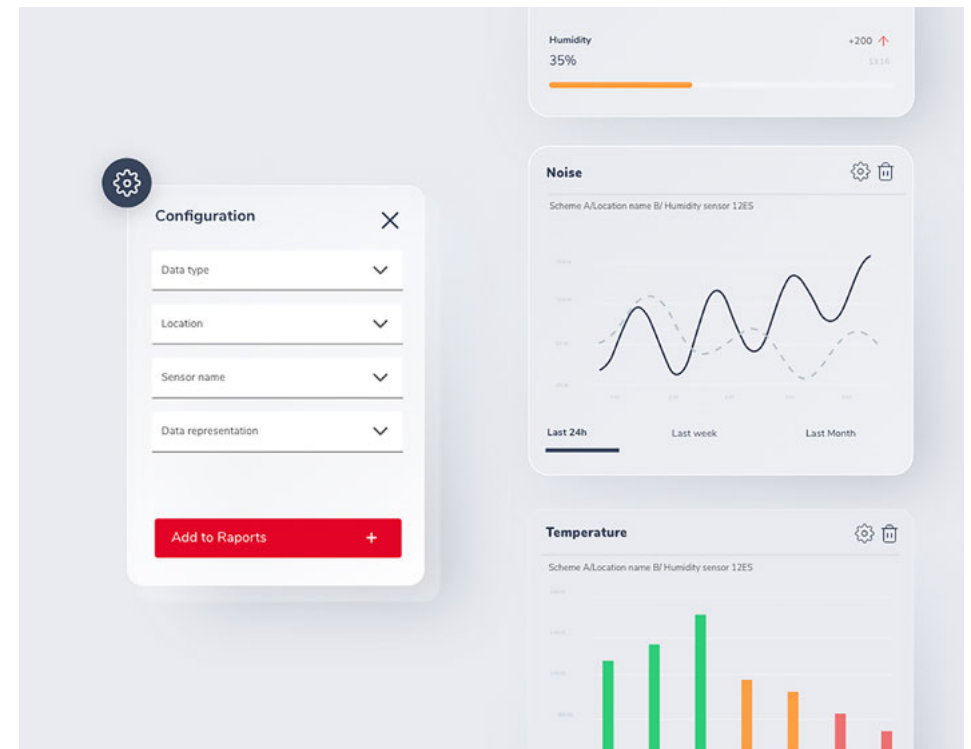
- intuitive process flow management tool
- visual modeling of processes
- IoT integrations

Client: Manufacturing companies with IoT support



Customized plant builder

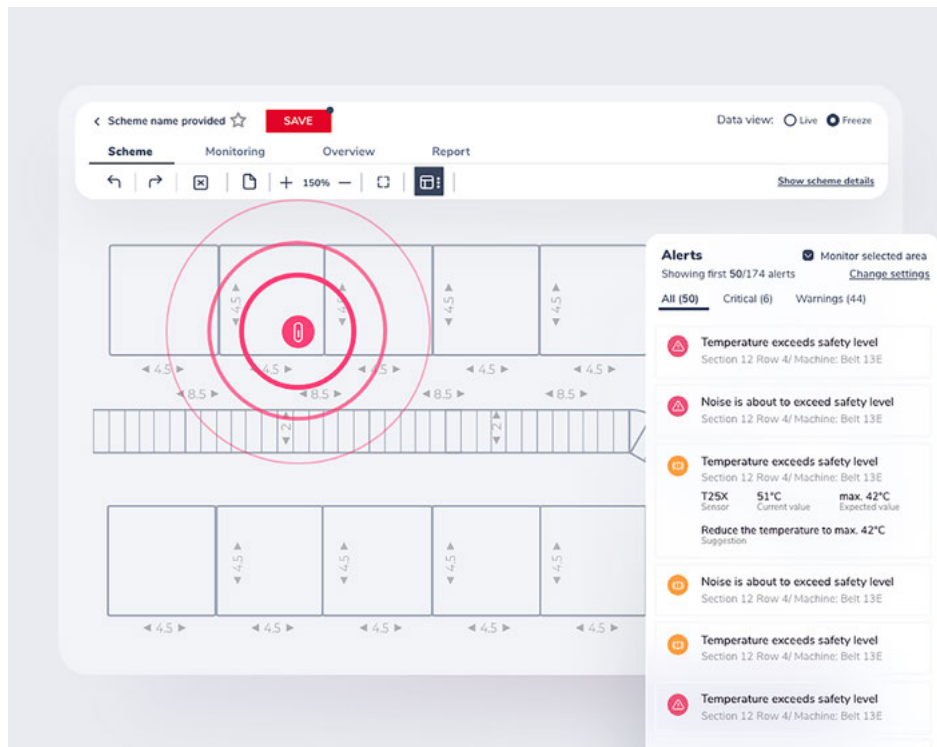
The main dashboard showcases the interactive palette of IoT sensors and nodes that are placed on the production line. Using the drag-and-drop option, the user places the objects on the line to check the production status in real-time. Sensors placed on machines collect data that are then used to create reports.



Customizing widgets and dashboards

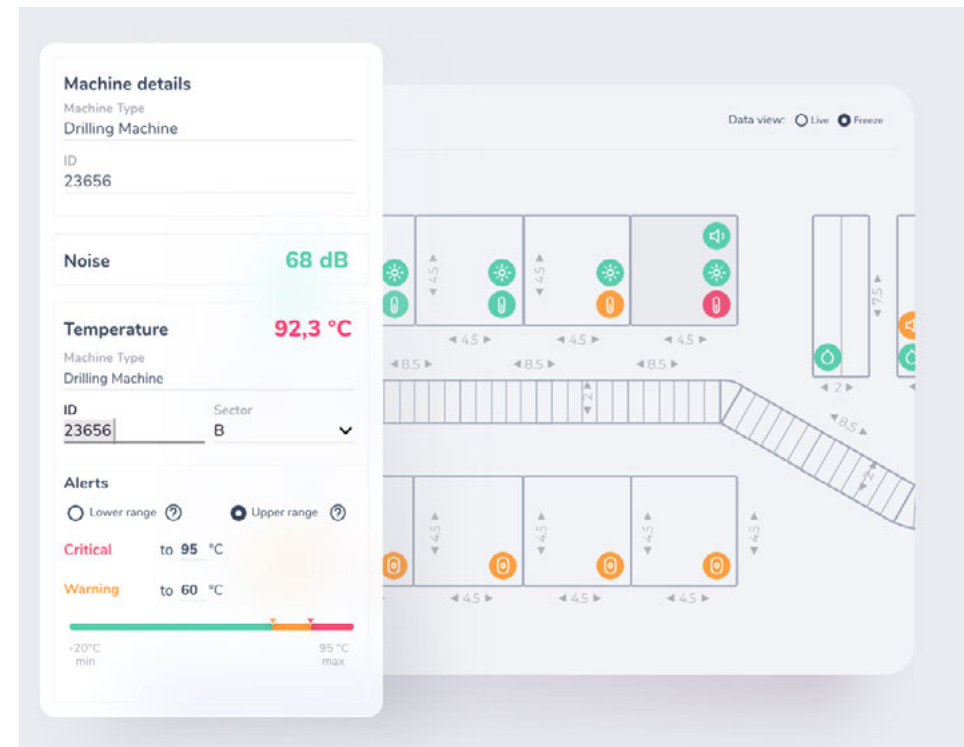
The user decides on the tool's look and resources. The tool's welcome panel allows configuring various parameters such as location, sensor range, data type, or data representation. The user also gets familiar with types of diagrams for presenting the transferred data via sensors.

Client: Manufacturing companies with IoT support



Alerting and predictions in process management

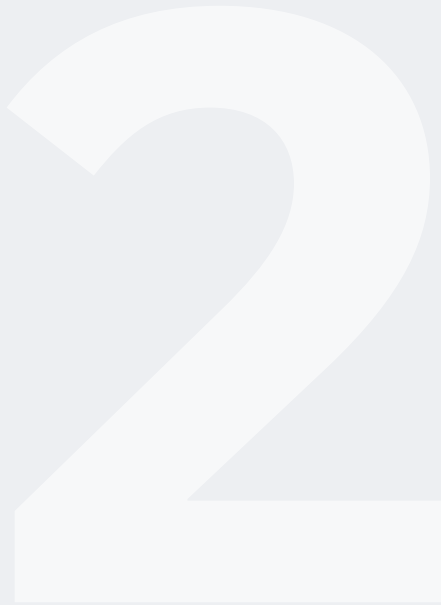
The existing hardware or IoT sensors deliver the data. The app's interactive dashboard informs about any alerts and notifications in real-time, so they can be addressed quickly and prevent further issues. The user can predict any potential faults and optimize asset usage to prepare production output.



Real-time data monitoring

The functionality supports real-time data monitoring when using back-end IoT solutions. All gathered data is presented in the form of interactive diagrams. The user is immediately alerted on occurring issues, so it is possible to take ad hoc preventive actions.





Digital Factory

Interactive product configurator for building processes in an Automotive company

Flow builder for manual digitalization in a production company

Client: Garden tools producer

Transforming paperwork into interactive assembly manuals

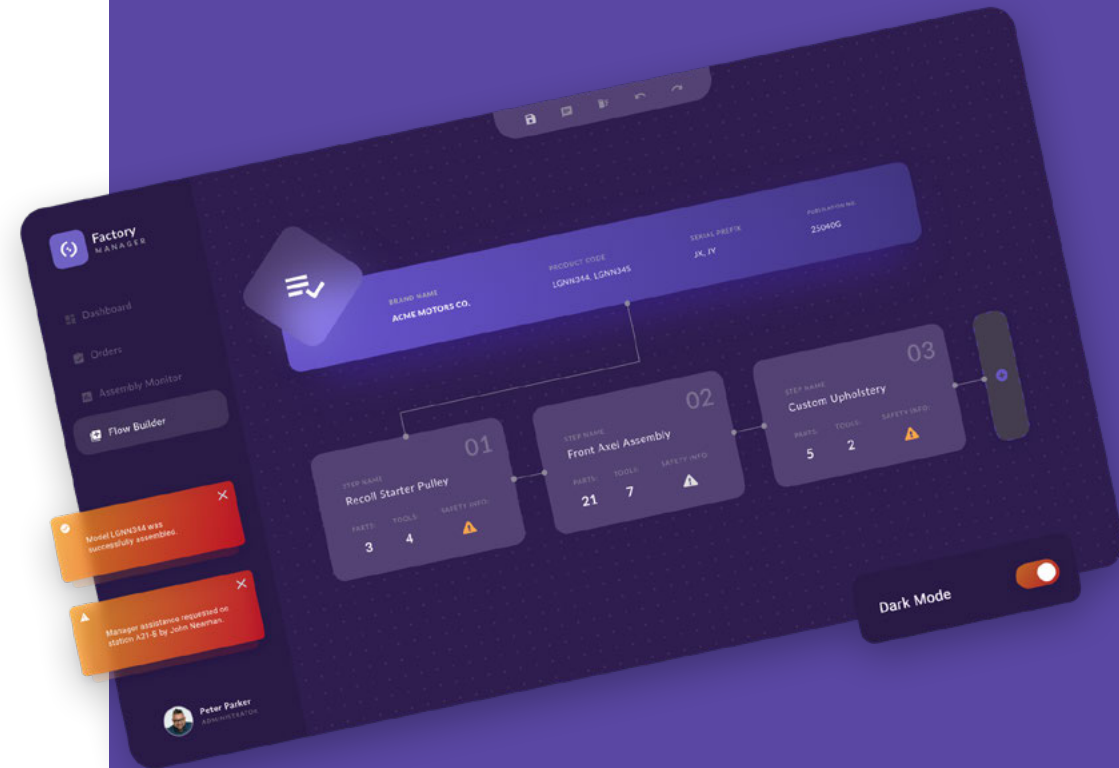
Automation and digitization of processes in a production company intend to induce faster and more effective operations while eliminating errors during the production process. As part of introducing such activities, both operators and production managers fully understand the tasks' progress and issue monitoring.

This tool supports the production process, allowing for quick and effective maintenance and adaptation of requirements to new products.

Challenge: assembly automation tool

Solution: admin and user flow builder and assembly monitoring

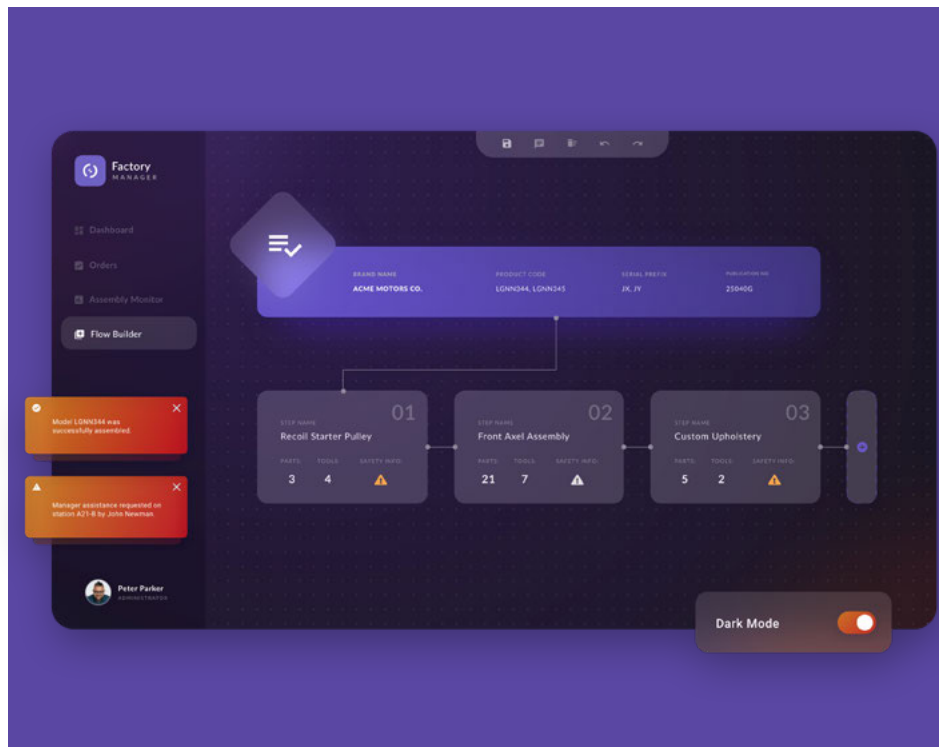
Scope: concept, design, UI/UX, interactive mockups



Benefits:

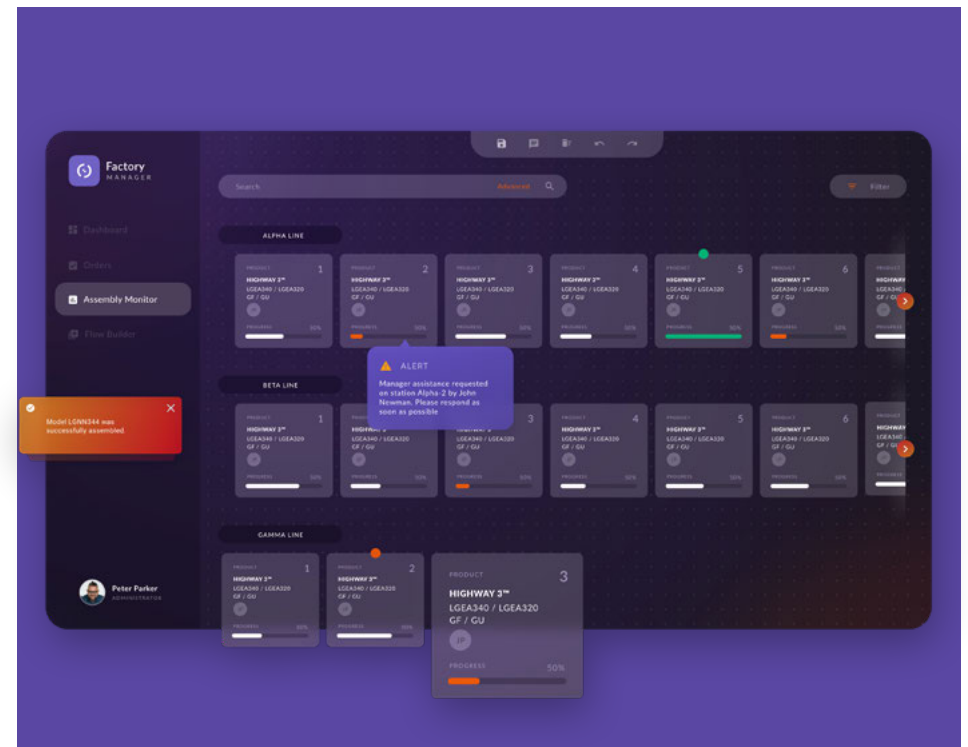
- intuitive flow builder module
- visual modeling of processes
- automated assembly

Automated manufacturing



Manual Flow Builder Module

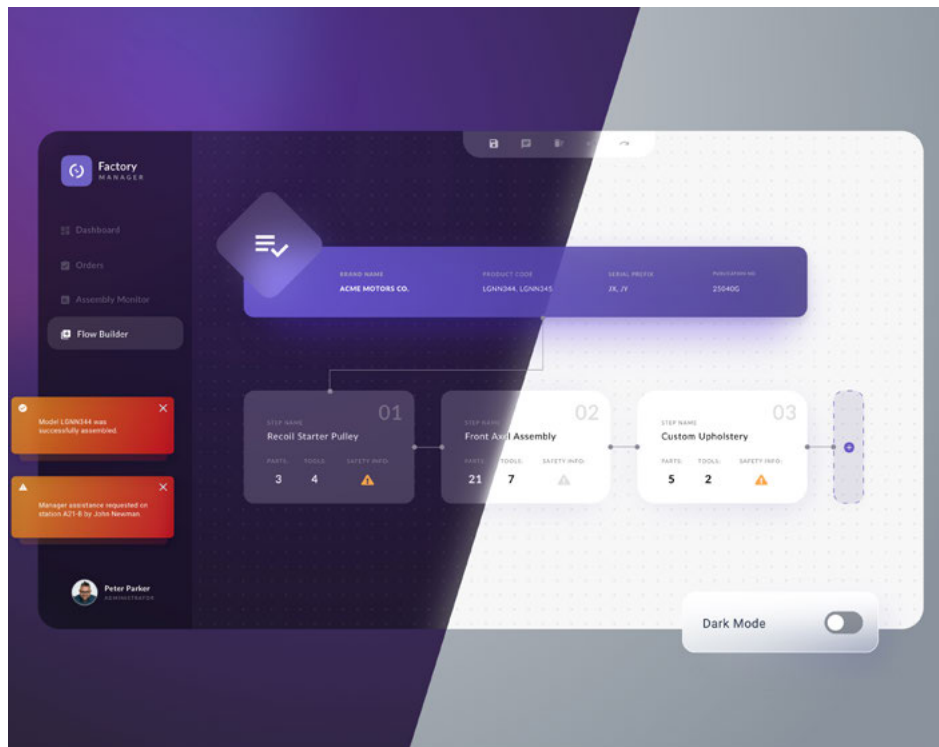
An interactive dashboard equipped with custom functionalities to create and reuse the process supports proper flow management and tasks automation. It transfers selected actions to the production line employees, turning them into the process co-creators.



Check and Plan Module

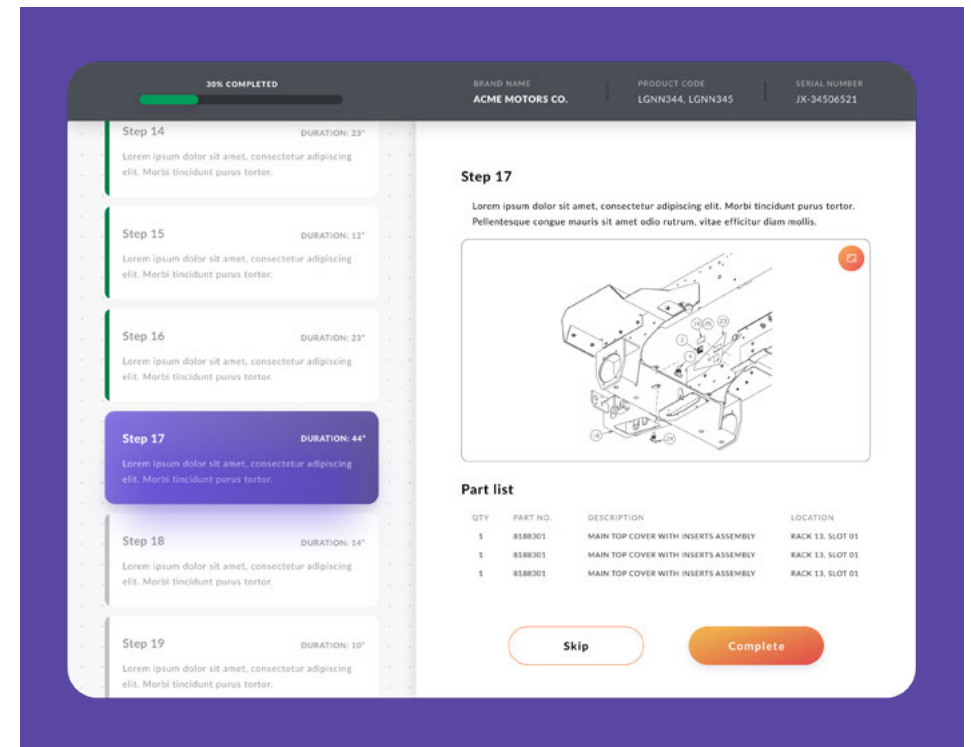
The production planning and validation module allow the user to monitor the process' progress. The admin observes the task's progression, assigns roles and tasks, dives into subtasks and projects, and plans future work.

Automated manufacturing



Dark and Light Mode for Flow Builder

As part of the UX and UI design works, there are two modes of content displaying. Dark and light modes intend to meet the individual user's needs.



Interactive Manual Module

The tool has a built-in module for creating interactive assembly manuals to eliminate errors. Divided into steps, it makes it possible to preview activities, check and visualize the available parts, and monitor progress. It is possible to skip this step. After approval by the admin, the user moves on to the next step.

Client: The World's Largest Automotive Safety Supplier

Helping in the process of Building Automotive Products

With thousands of engineers on board, large automotive companies are looking for solutions that can support teams in their work performance, preventing errors quicker, and thus lowering costs.

Synergy Codes crafted a visual solution to support existing PLM management in defining the product configuration to speed up decision-making. The bulletproof solution facilitates and simplifies the workflow. It supports better compliance verification.

Our solution is part of an integrated and complex client's PLM system that supports the decision-making processes. The tool enables better communication and makes error detection much more accessible.

Benefits: complex product configurator for multiple users

Challenge: lowering costs and improving parts' completion process

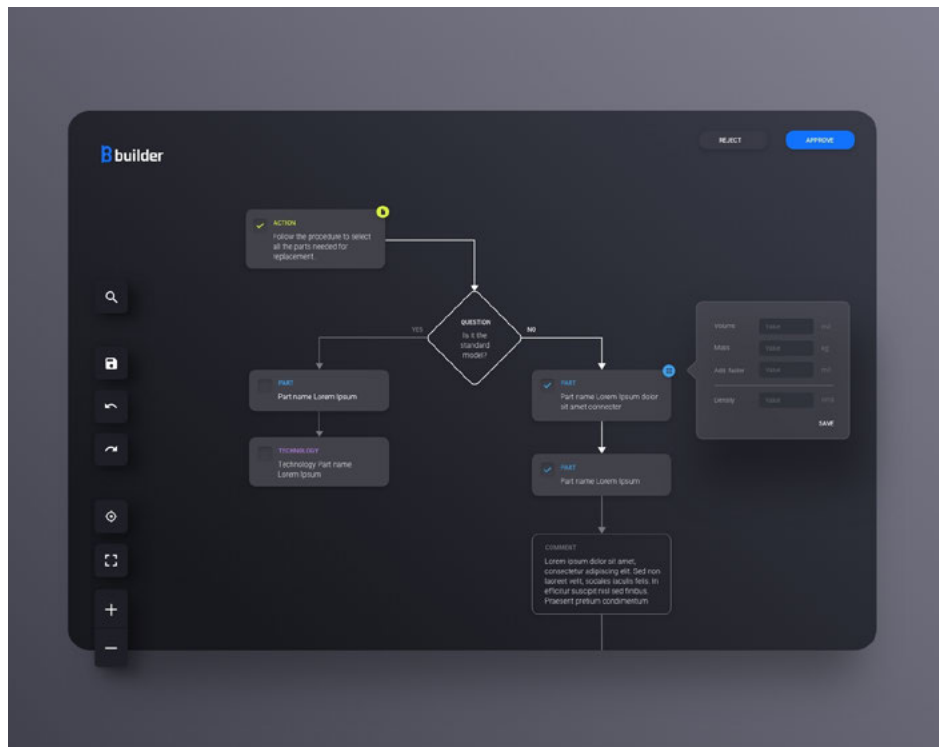
Solution: product configurator with flow diagrams

Scope: interactive decision flow diagrams, admin & user modes, bill of materials



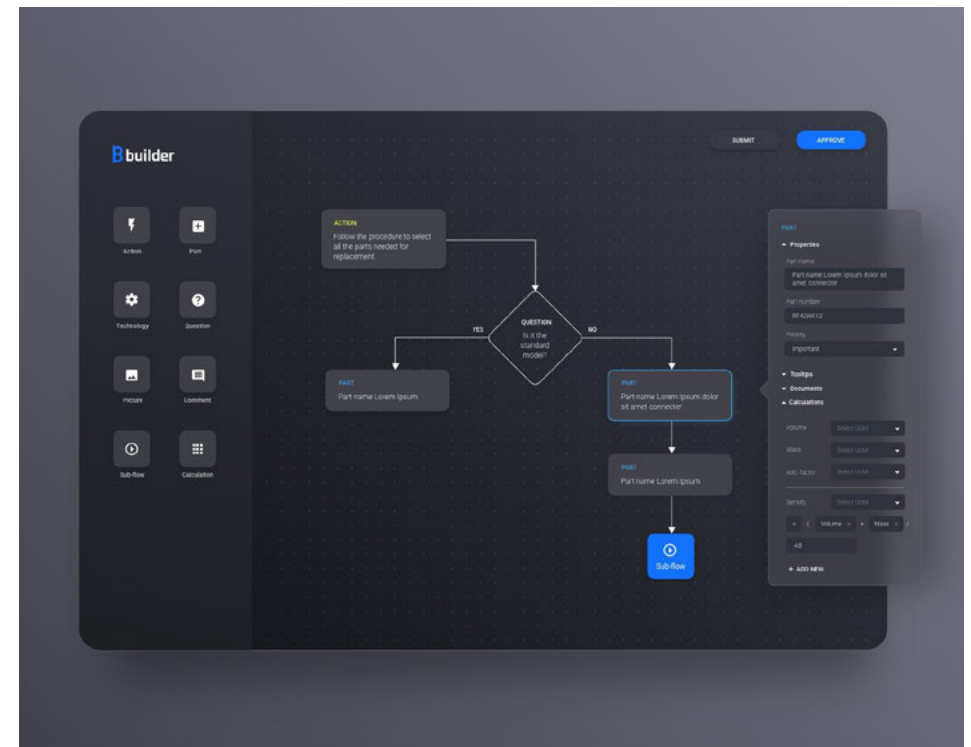
Features:

- admin mode with an action list
- user mode with decision and process diagrams
- bill of materials



Decision flow diagrams

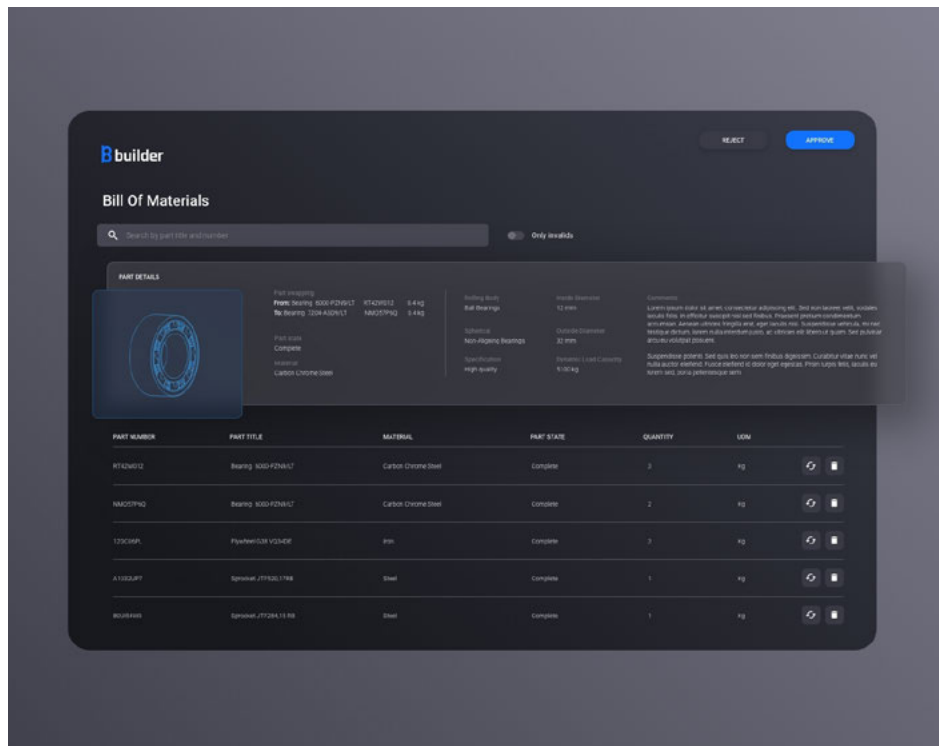
The tool enables precise information exchange via comprehensive report creators. The Action List facilitates adding topics to clarify before they end up in Quality Assurance. The app doesn't define products. However, it helps build paths that will allow you to craft any product. You can handle several hundred to several thousand nodes containing data on mounting elements and specifications.



Action lists / administrator mode

The precise information exchange is being performed via comprehensive report creators, and the Action List enables adding topics to clarify before they end up in Quality Assurance. All that boosts the tool to a new level of excellence.

Automotive manufacturing company



Bill of materials

Decision diagrams make it possible to break down the components. They fulfill the essential task of transferring business and sales knowledge to engineers who, in turn, know product details. A fully interactive flow diagram facilitates reading the decision order thanks to selections, colors, and action locks.





IT Infrastructure

Graph visualization tool for database integration in a healthcare organization
Network security architecture diagram for a cybersecurity company

Client: Public sector organizations consultancy agency

Healthcare patient's records visually aggregated

Multiple databases lead to severe problems with duplicates, coupling between the applications, or security. That's why we designed an app to combine visual data residing in different sources and providing users with a unified view of them.

The solution aggregates information from multiple data warehouses and shares a current version of it across an organization so all shared information will flow.

Challenge: database integration visual tool

Solution: database quality diagram, interactive data viz dashboard

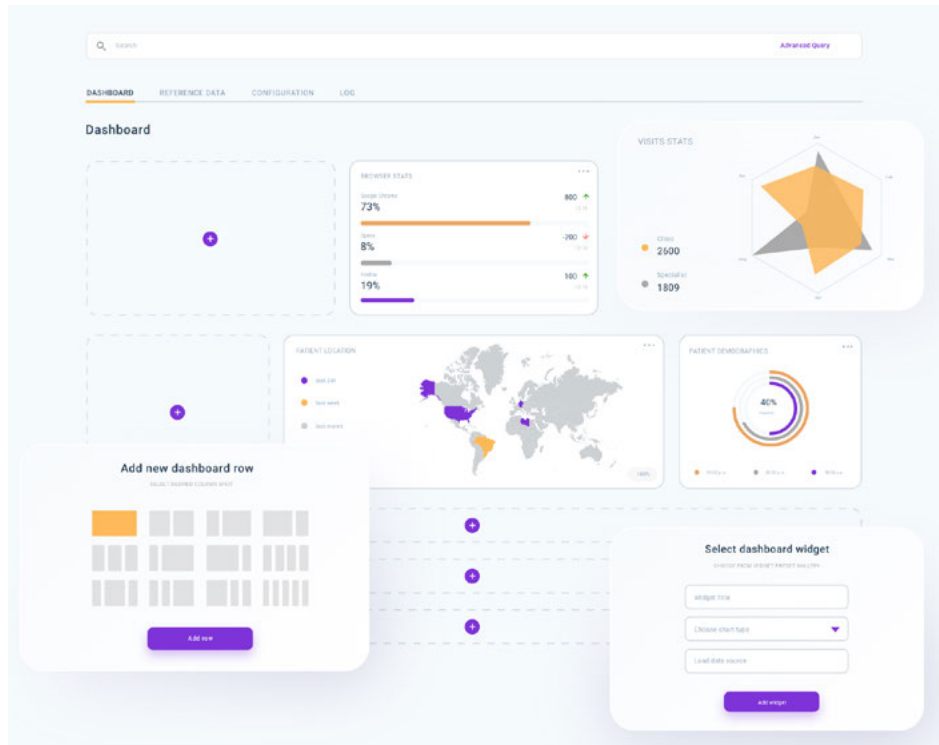
Scope: design, UI/UX, interactive mockups, front end



Features:

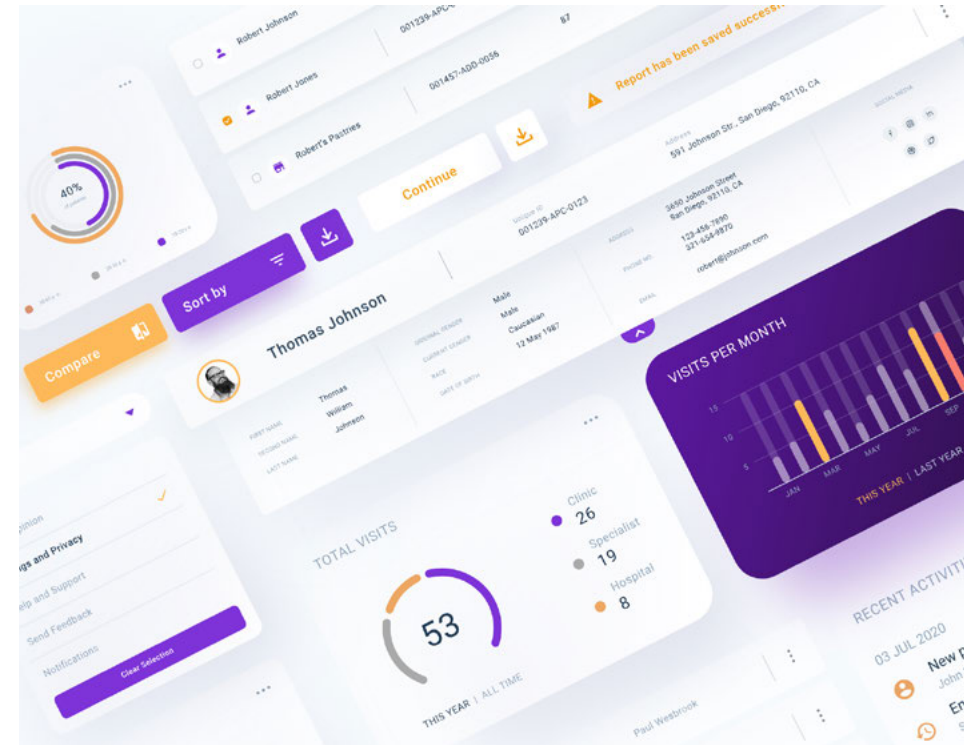
- enriching patient's data records and analytics
- database quality scoring
- supporting business intelligence

Database integration visual tool



Database health dashboard

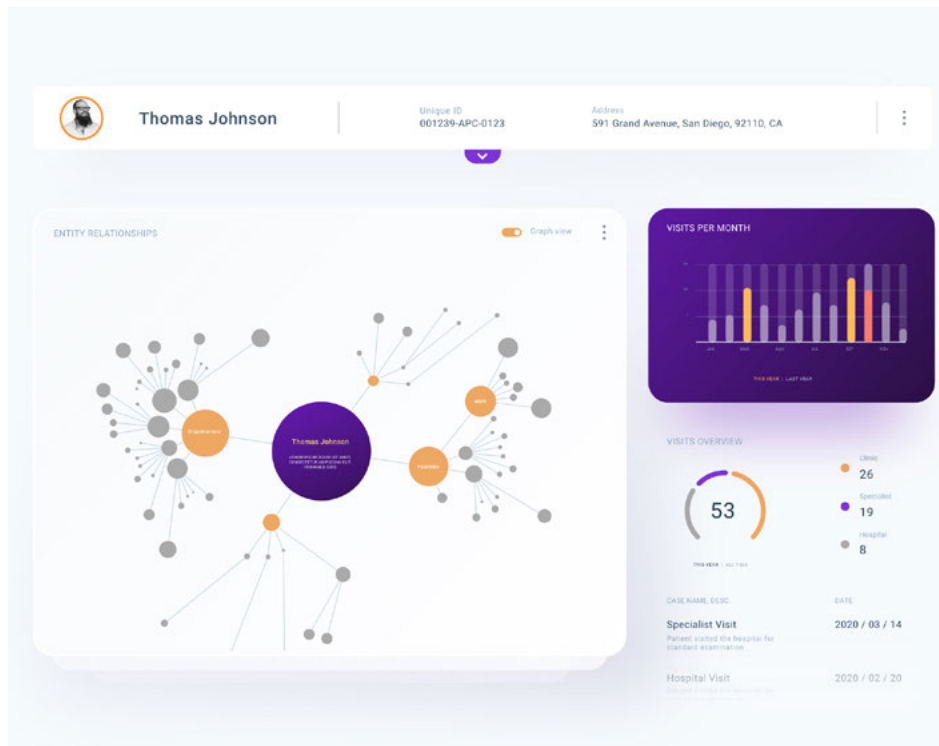
The system provides a visual representation of parameters that testify to the condition of the database. Fully customizable widgets and numerous parameters allow for good quality assessment. It is worth paying attention to the spider chart, which compares databases with selected parameters.



Single-record view

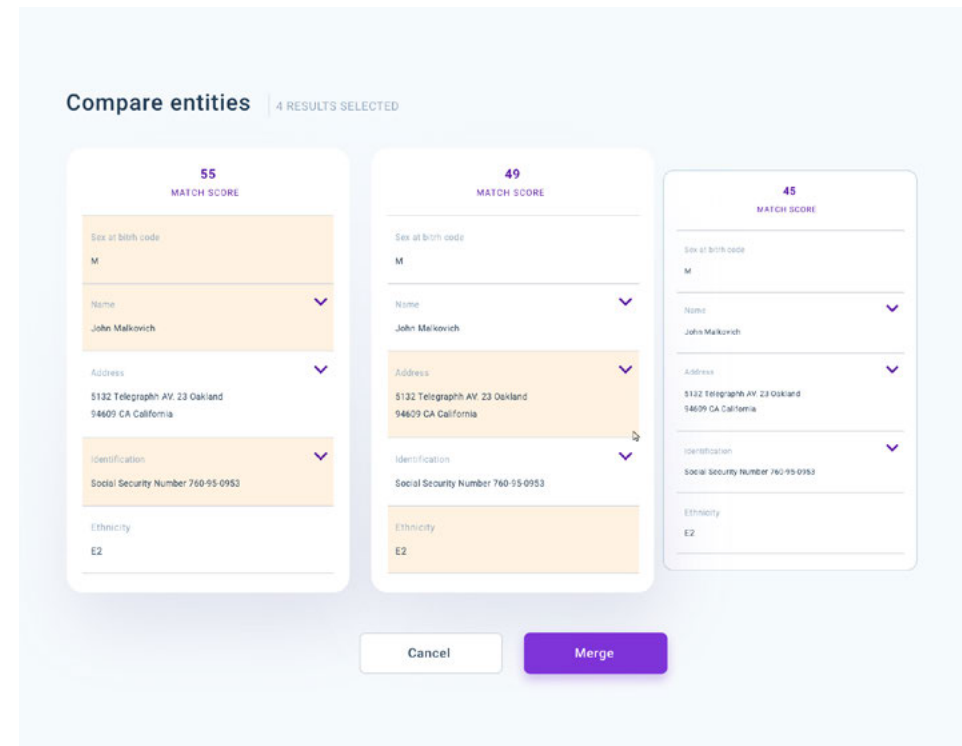
This view focuses on a specific record to show details, such as time, personal and identification data, and aggregated statistics. The user can configure any parameters and save the patients' cards on a hard drive or in a cloud.

Database integration visual tool



Database connections

The presented dashboard views allow observation of various parameters such as temperature, CO2 concentration, and humidity level in the halls or rooms. The dispatcher (admin) can read the number of people in a given area thanks to the LTE/4G/5G GSM receivers' numbers logged into the network at that particular moment.



Duplicate records AI

In case of databases overlapping, the system presents duplicated data allowing the user freedom of action. If some tiny differences appear in records, with the use of artificial intelligence, the automatic connection is on.

Client: Cybersecurity company

Securing network infrastructure with flow simulation

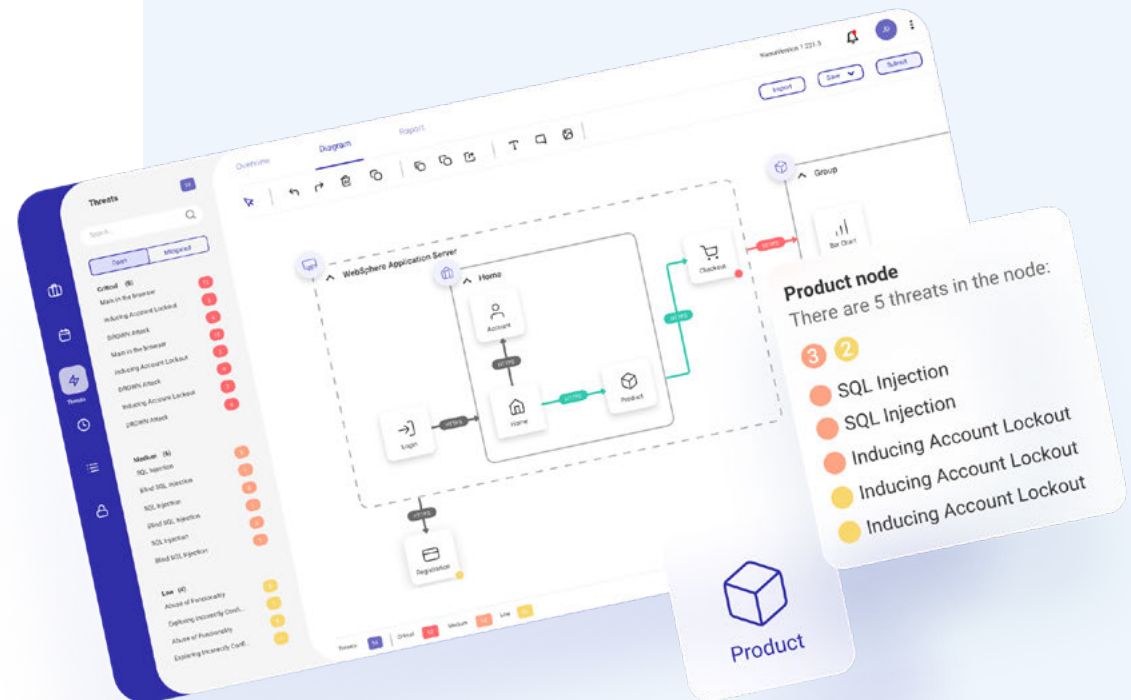
Having solid architecture is a foundational need for any security organization's success. Together with our client, we developed an infrastructure design tool to secure and scale the enterprise software development life cycle.

The solution visually reflects the network's structure and all actions undertaken to protect network security from cyber attacks.

Challenge: network security architecture diagram

Solution: website architecture diagram, user journey flow diagram

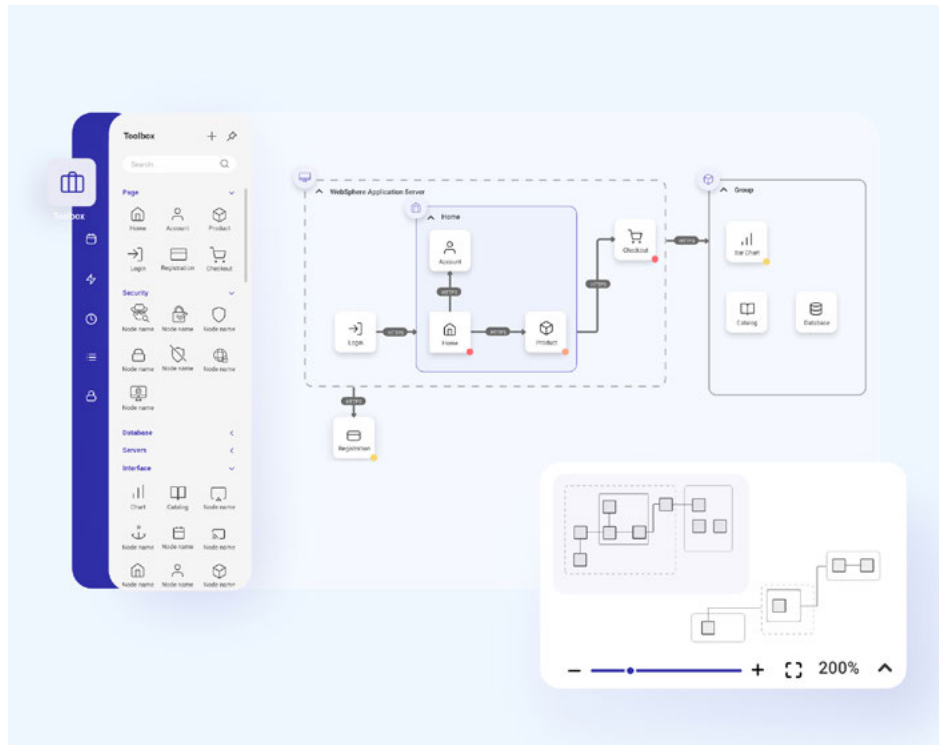
Scope: design, UI/UX, interactive mockups



Features:

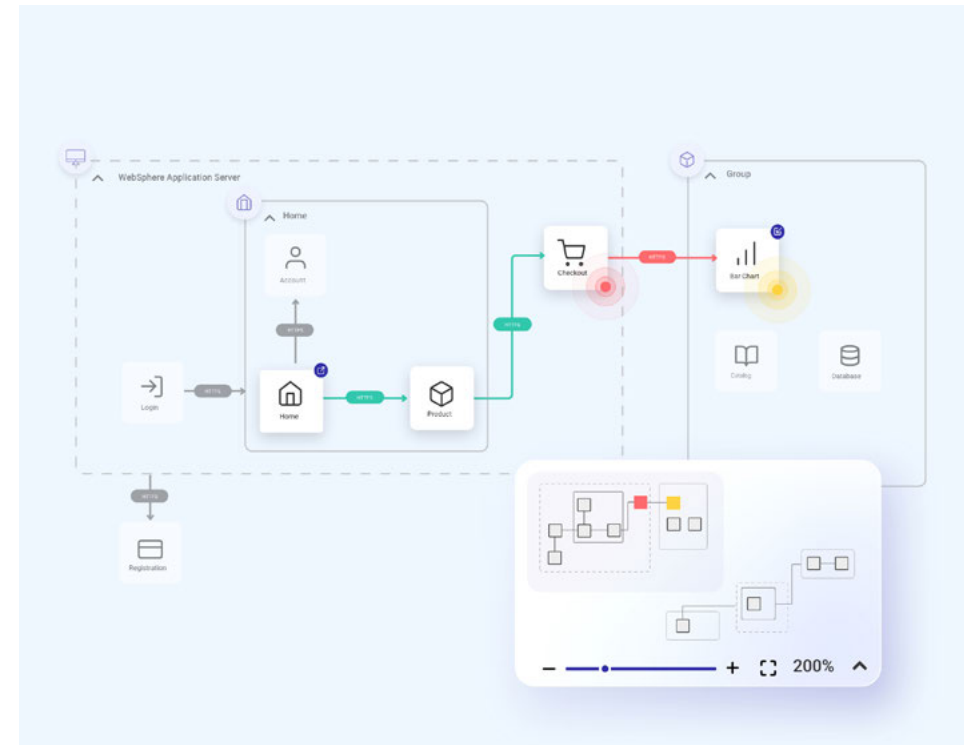
- easy-to-use drag-and-drop system
- intuitive user interface
- ready to design the architecture of large IT systems

Network security architecture diagram



Mini map with user route

The view includes a minimized map that allows for smoother navigation through the website's architecture. Connections between nodes can take different colors depending on the user's journey.



Threats modeler

When selecting the beginning and end element, the tool colors the connections and informs about the occurring threats. For large systems, it is helpful to zoom out and focus on the most endangered path.



4

Engineering system

P&ID and simulation tool for refinery company

Process diagram for schematic editor in electrical circuits company

Client: Oil and Gas Energy Company

Pipeline & infrastructure diagrams for refinery usage

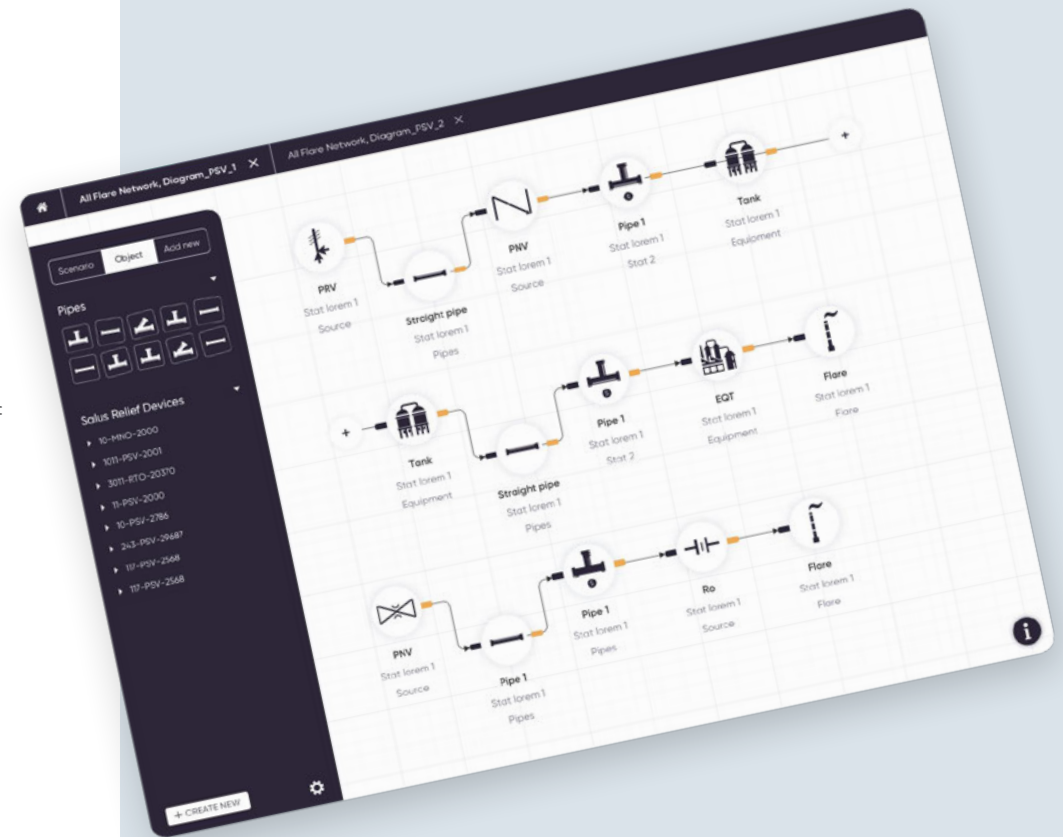
Engineers pay special attention to safe facilities operating in full compliance. To obtain it, they need to use knowledgeable and cost-saving solutions. That's why we've helped deliver a visual part of a tool allowing users to create networks and diagrams depicting the arrangement of pipes and other objects connected to a flare to burn by-products of construction and chemical side.

Benefits: error-free simulation and pipeline tool

Challenge: Optimizing and cost-saving solution for refinery

Solution: simulation and pipeline diagrams for digital twin

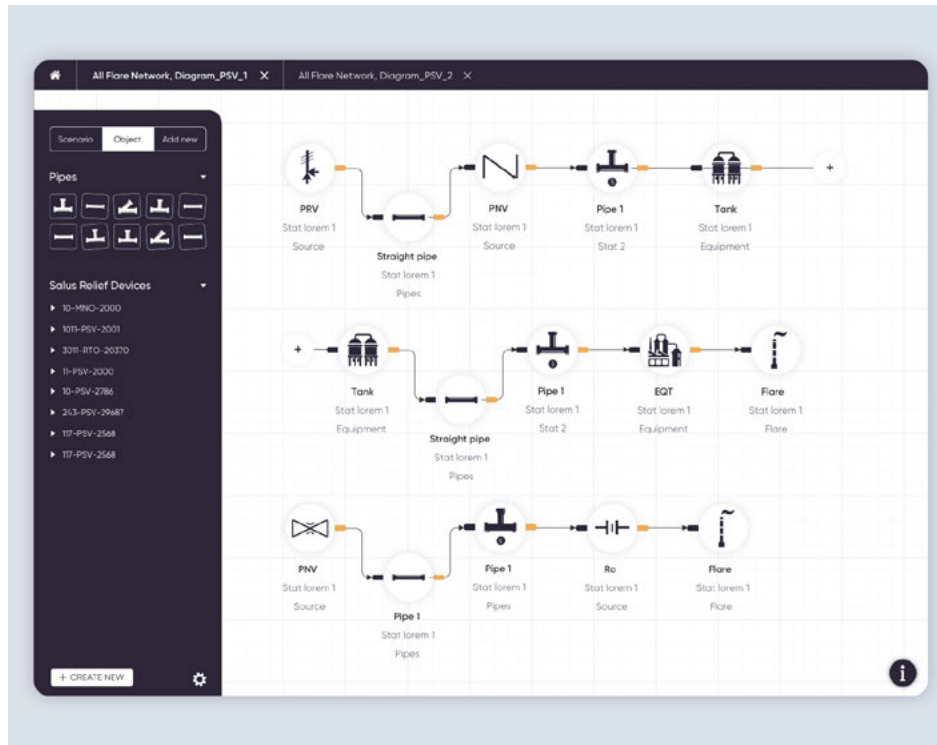
Scope: interactive diagrams



Features:

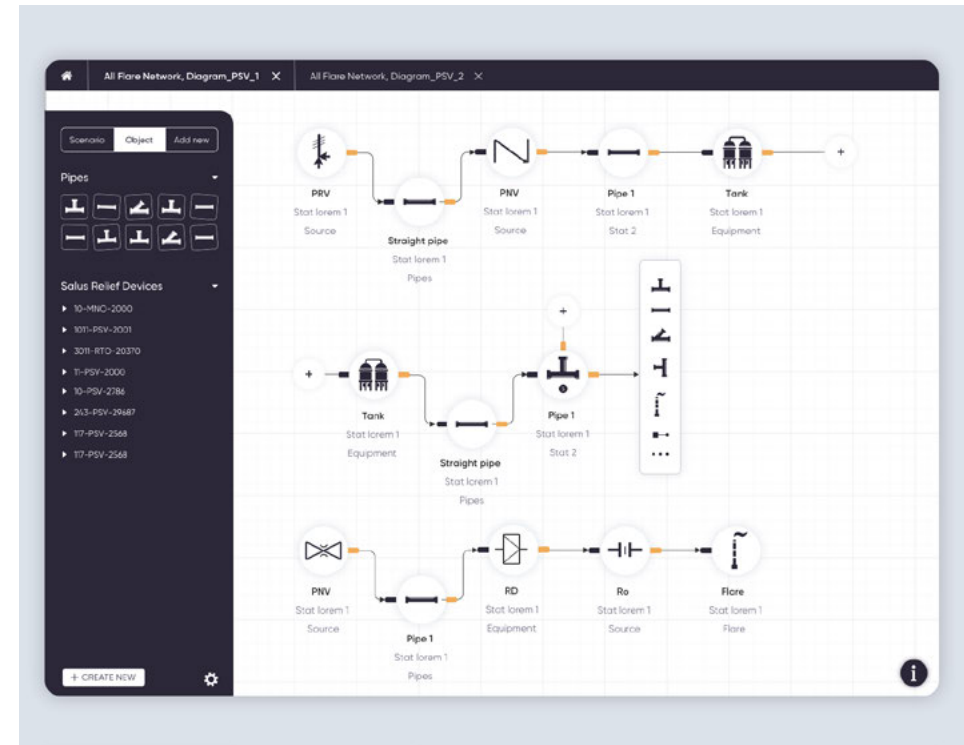
- autocompletion mode
- error detection
- digital twin

P&ID and simulation tool



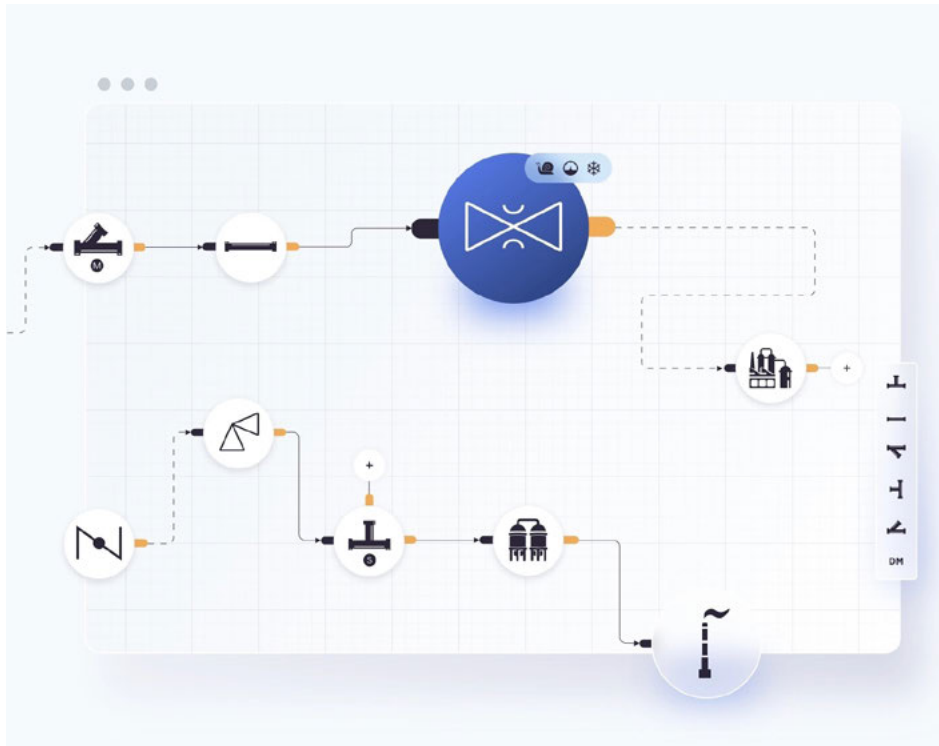
Auto-completion

The solution supports the user in the process of creating network diagrams. The autocomplete function gives tips on what elements to build the network with and how to route the piping. The snap to grid solution ensures the readability of the diagram. In the case of exchanging objects in the network, the system itself recommends the available options.



Mini menu

The canvas presents the entire system with conditioning elements such as inlets and outlets. The available mini-menu makes it easier for users to create a network by quickly accessing the most frequently used objects. Furthermore, only the possible extension options are shown to ensure the proper functioning of the network, while the rest of the possibilities are greyed out.



Warning detection

The visual system allows you to simulate the network to check for serious errors. For this purpose, the interface is equipped with error signaling with three severity levels: concern, warning, error. Thanks to this, it is possible to test failure scenarios and their potential consequences, e.g., disconnection of the network in the event of an uncontrolled fire.



Digital Twin

Flows are an essential element of the simulation. The system presents flows in an animated and static form. It is possible to view the system from a high-level perspective, where vital objects are visible while insignificant ones are grayed out. Nodes with signaling are shown as adornments.

Client: Electrical Circuit Company

Schematic editor for electrical circuits modeling

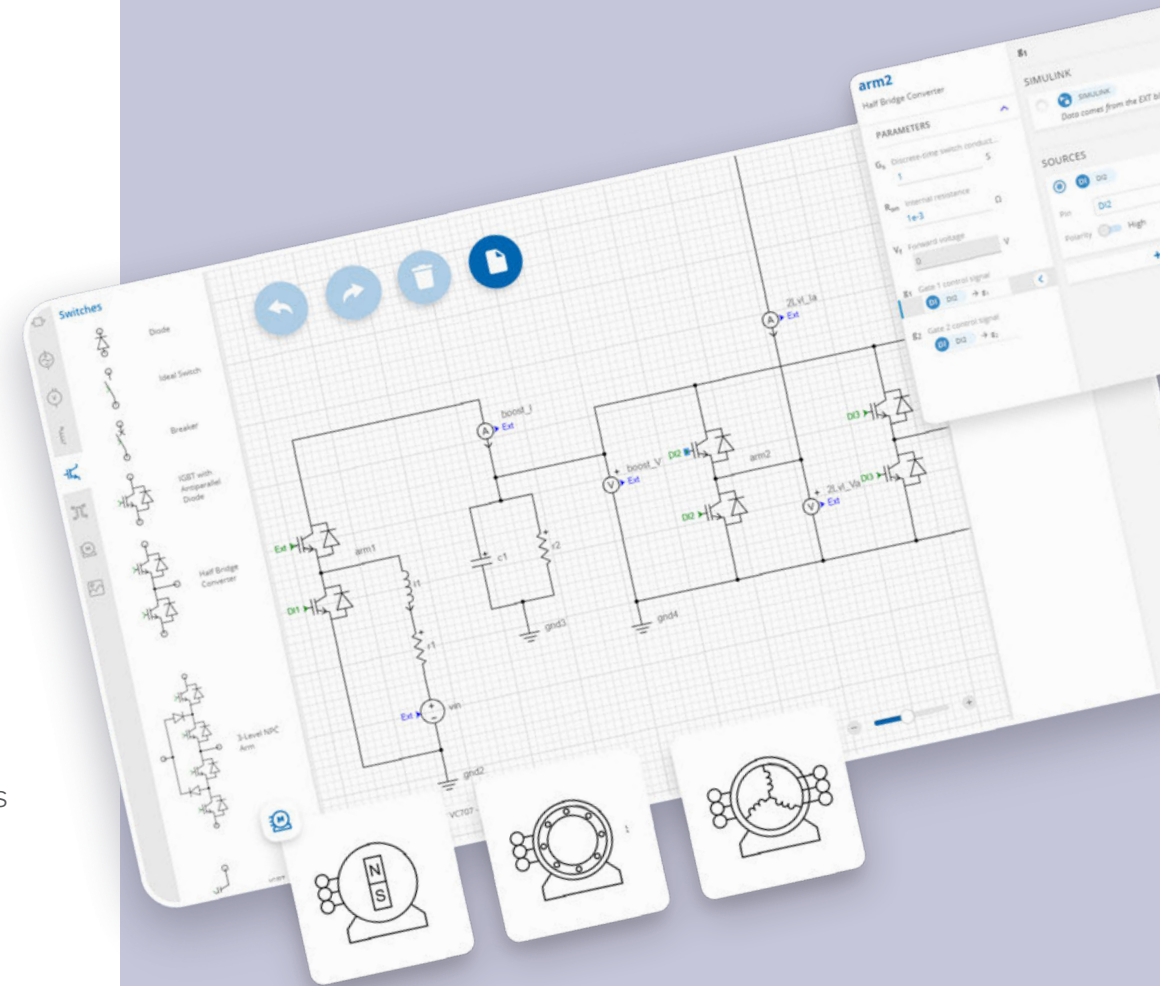
Synergy Codes electrified the client with an app that makes it possible to create electronic circuits. It empowers advanced solutions for automotive, aerospace, power electronics, and power generation industries.

The challenge was to craft a simple and intuitive solution that covered complex processes. Schematic Editor is an application that allows the user to create electric circuits. A large set of defined blocks gives the user the ability to create various models and save them to a database, meaning that these models can later be leveraged by different systems.

Challenge: electric circuit simulation diagram

Solution: GoJS set of blocks to build and manage the diagram and large set data implementation

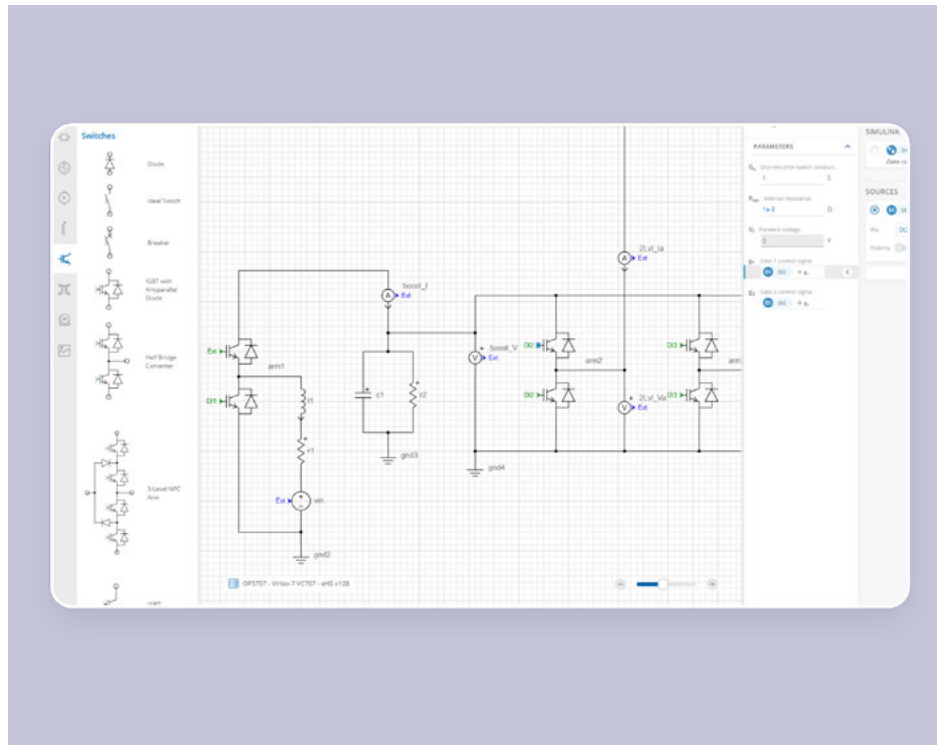
Scope: MVP, mockups, GoJS implementation



Features:

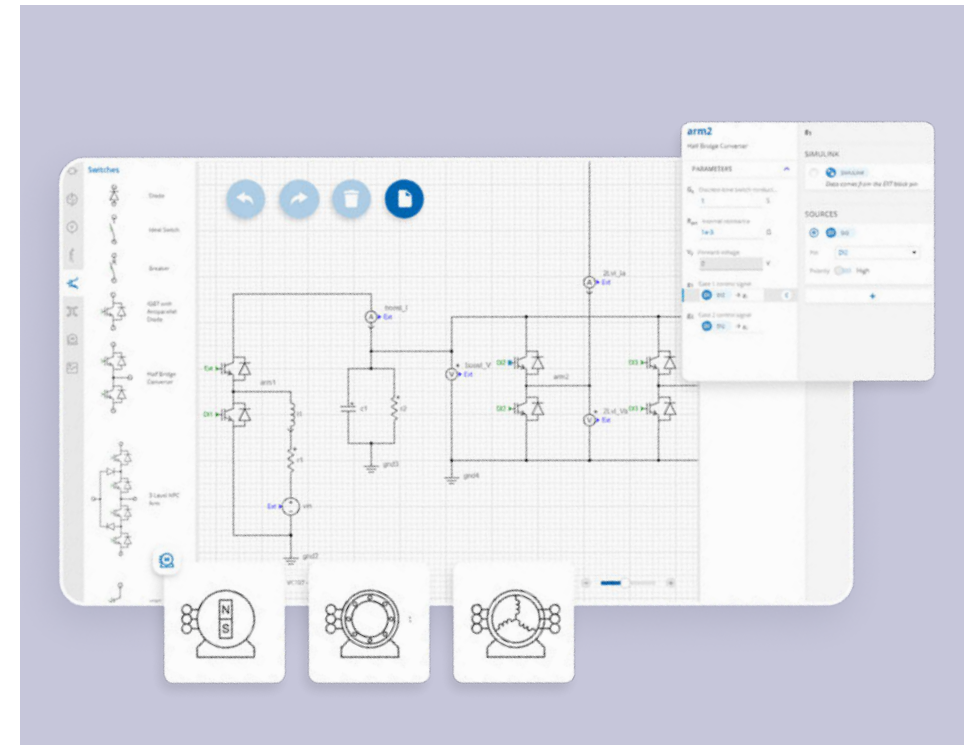
- drag-and-drop nodes
- virtualization
- linking

Electric circuit simulation diagram



Customized Palette

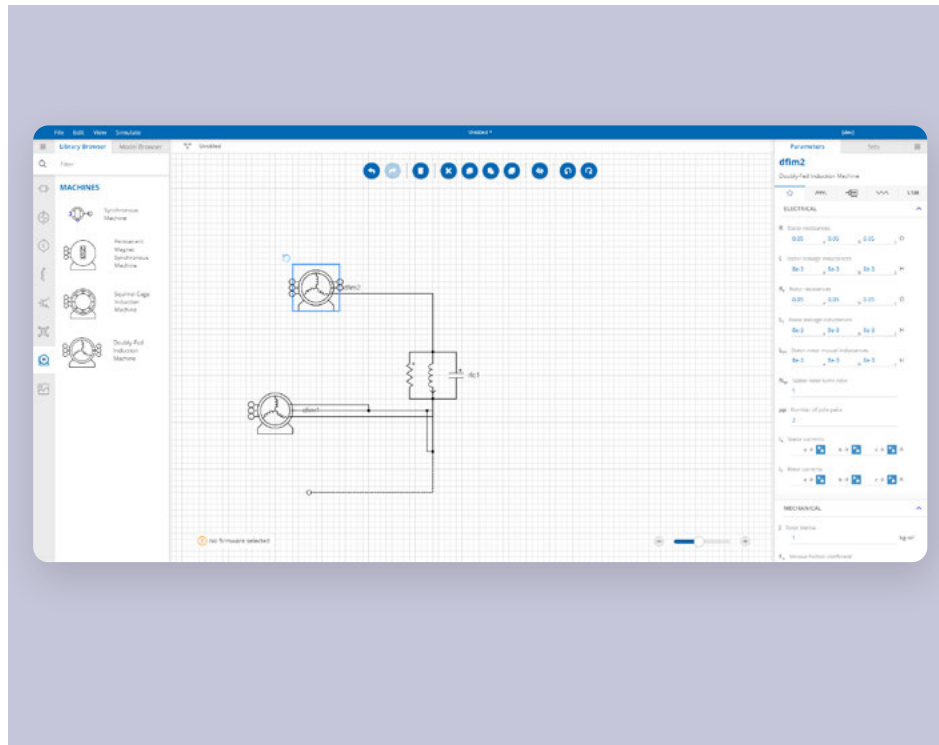
Opal RT Schematic Editor is the tool for creating an electrical network diagram. Therefore, determining the palette's elements, from which the user can easily add nodes that interest him by using the drag-and-drop function, was the most relevant.



Real-time validation

The propagation of the signal along with the links enables the operation's effect in real-time. The presence of electric nodes is crucial for the functionality related to carrying information through signals. Thanks to the rotate functionality, the user can align lines in real-time.

Electric circuit simulation diagram



Custom blocks

The text blocks support placing additional information in specific places in the diagram. Thanks to this, each user can read, add, or revise information when sharing a project. Here flipping helps to mingle the appropriate elements or data clusters across the diagram, enabling view adjustment.



5

Remote collaboration

Flow designer and whiteboard for enterprise company

Design & interactive configurator app for audiovisual installers

Client: Enterprise-grade company

Making collaboration easier with flow designer and whiteboard

Project work requires unique solutions, especially when it involves many people. Here is a tool to build process flow diagrams fully remotely in real-time.

It enables creating a good flow using drag and drop with connecting members, giving roles, and submitting the changes live. With ad-hoc roles' change and the alternations submission with no lags, the user creates interactive diagrams.

Challenge: real-time team collaboration tool

Solution: drag-and-drop interface, flow diagram

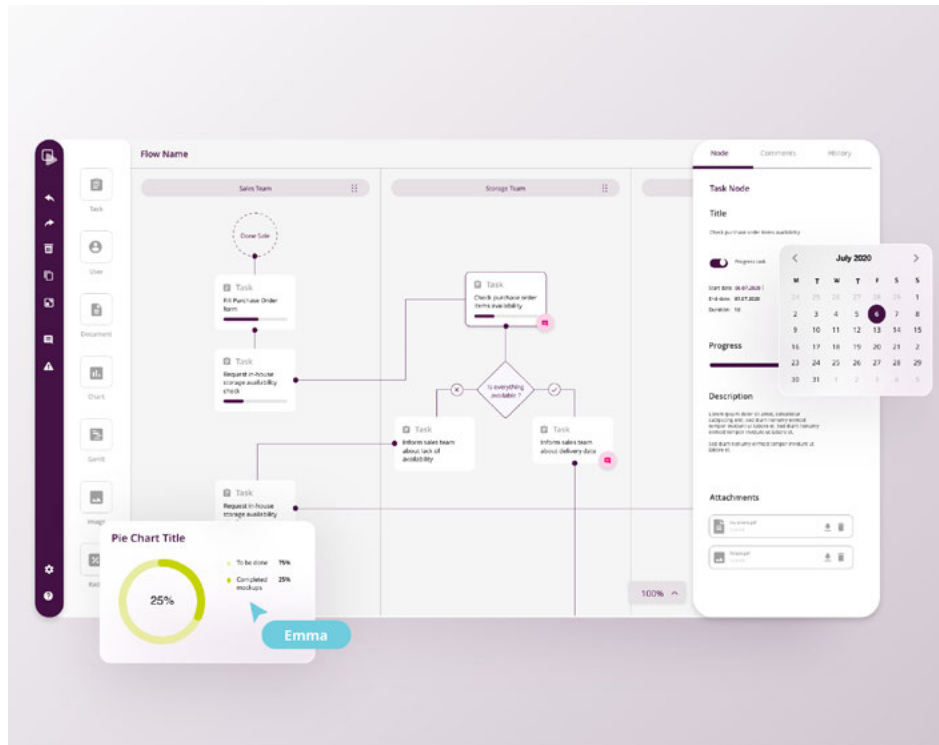
Scope: concept, design, UI/UX, interactive mockups



Features:

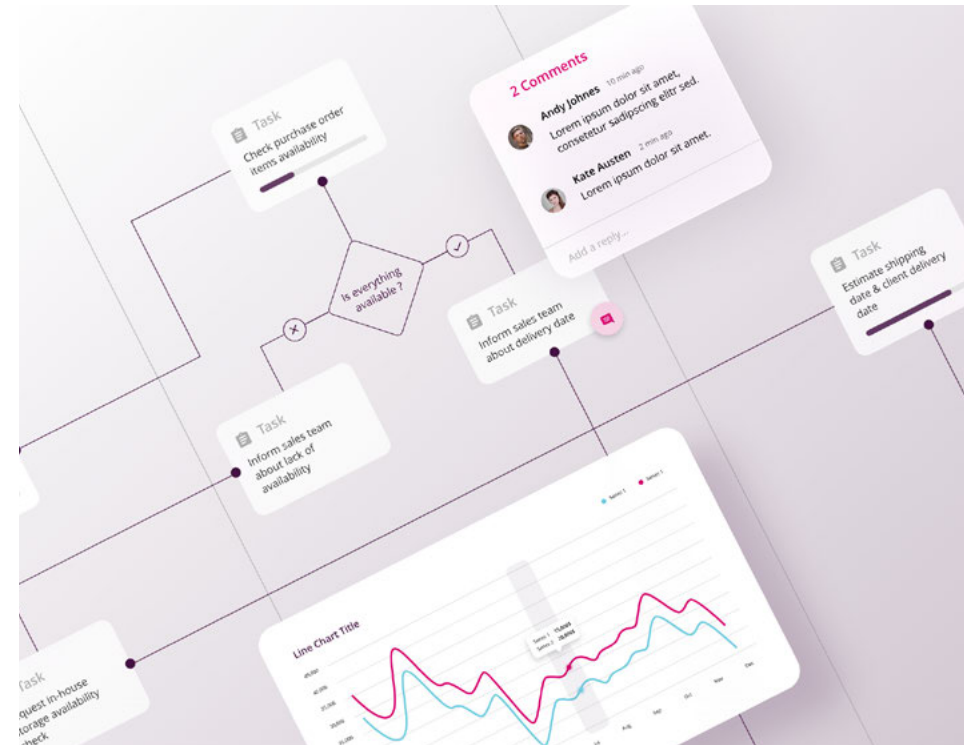
- intuitive flowchart
- visual modeling of processes
- comment & graphics add

Real-time team collaboration tool



Adornments to draw attention

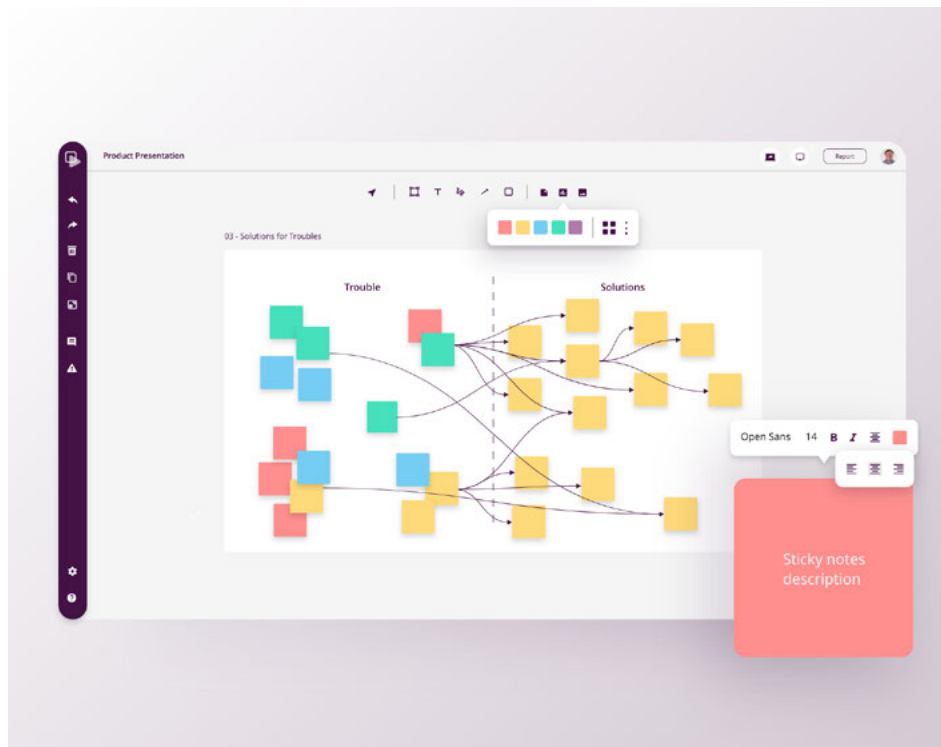
Add project members or teams to the workspace to enable real-time collaboration. The drag-and-drop functionality allows for adornment creation. The user can attach the chart to the object (node), add graphics or rates for full interactivity.



Task progress and comments

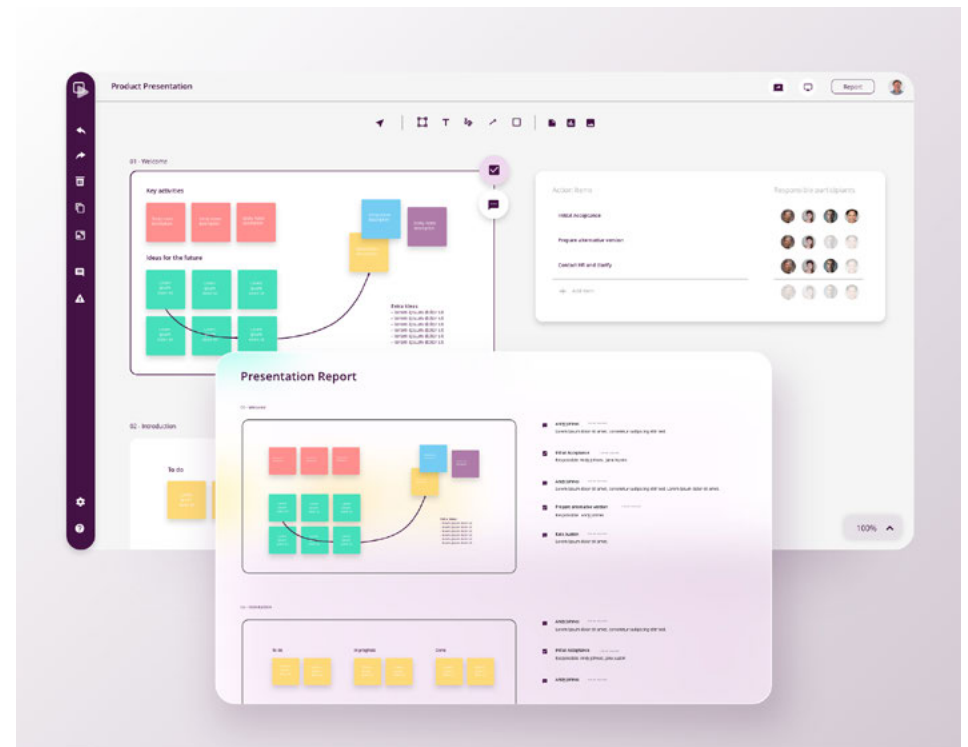
The interactive real-time team collaboration tool supports project work with additional functionalities such as comments added with the comment node. The user and the project manager follow the task's progress via task performance measures. These are useful for project overview and management.

Real-time team collaboration tool



Camera hijack

The project owner, as well as the team members, can use the zoom/focus functionality. It delivers the camera hijack functionality to draw participants' attention to a particular element of the project.



Action points

For better project work, the tool enables using the interactive whiteboard with additional functionalities that support live collaboration. The user can benefit from action points to add comments, action items or assign a project member to a particular task. Additionally, the user can add a task list to the uploaded agenda.

Client: Audiovisual System Integrator and Designer

Uplifting AV system with Visual Design and Drawing app

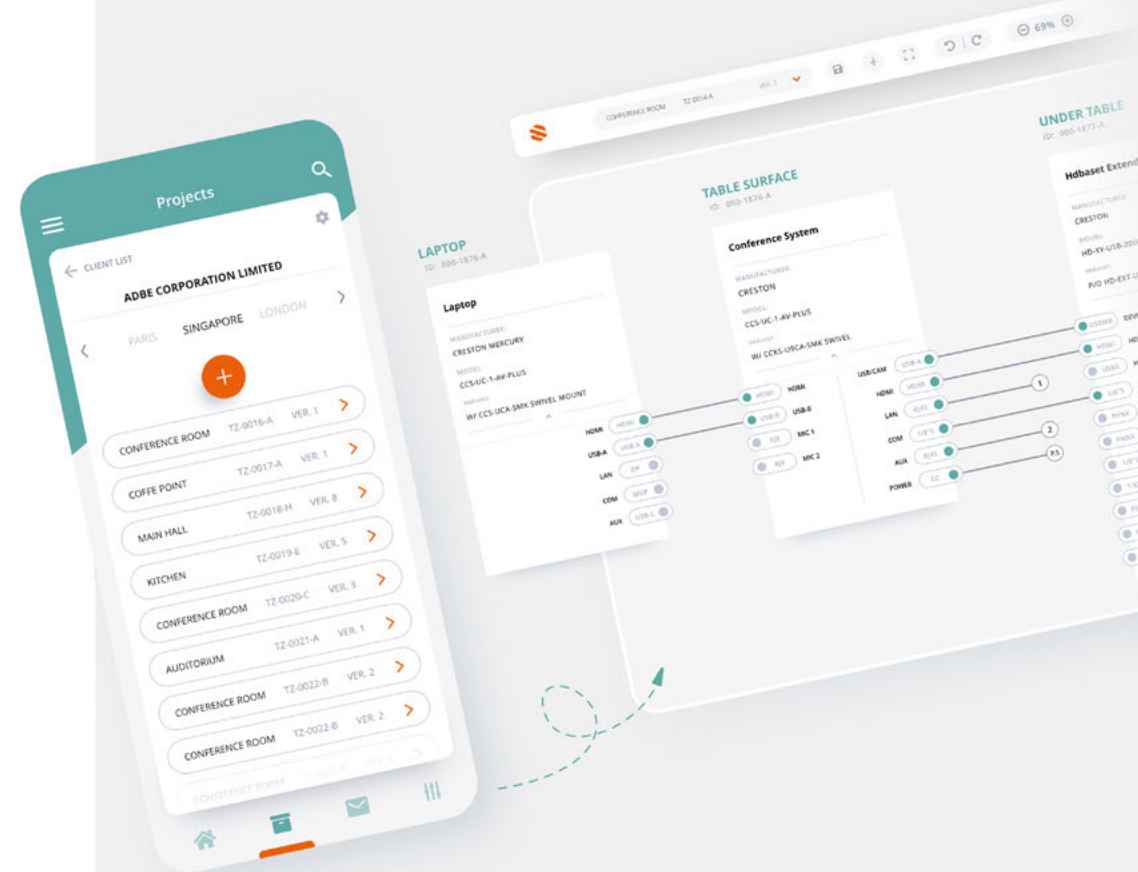
Selling highly configurable AV solutions is a complicated process, where several inaccuracies may occur during multidisciplinary teamwork. To lower the risk and ensure complete control of AV services, we designed a professional audiovisual design & installations app.

The solution aligns the entire process cycle from schematic design (project managers & in-house designers) to maintenance and services through implementation (engineers & programmers).

Challenge: audiovisual design platform

Solution: room planner, block schematics, rack layouts, signal flow diagrams

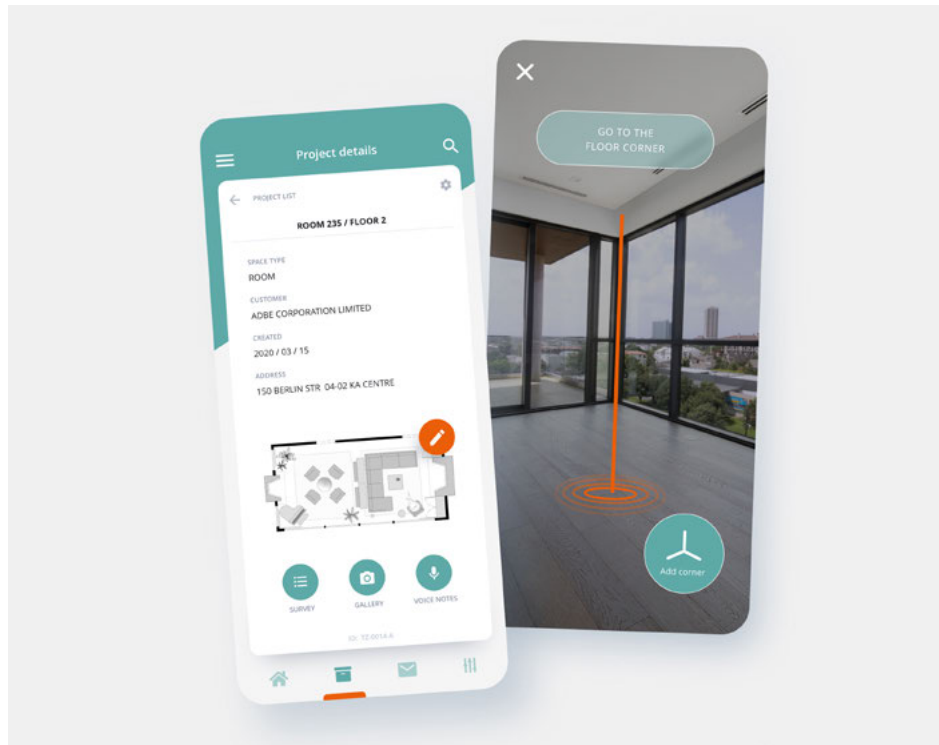
Scope: design, UI/UX, interactive mockups



Features:

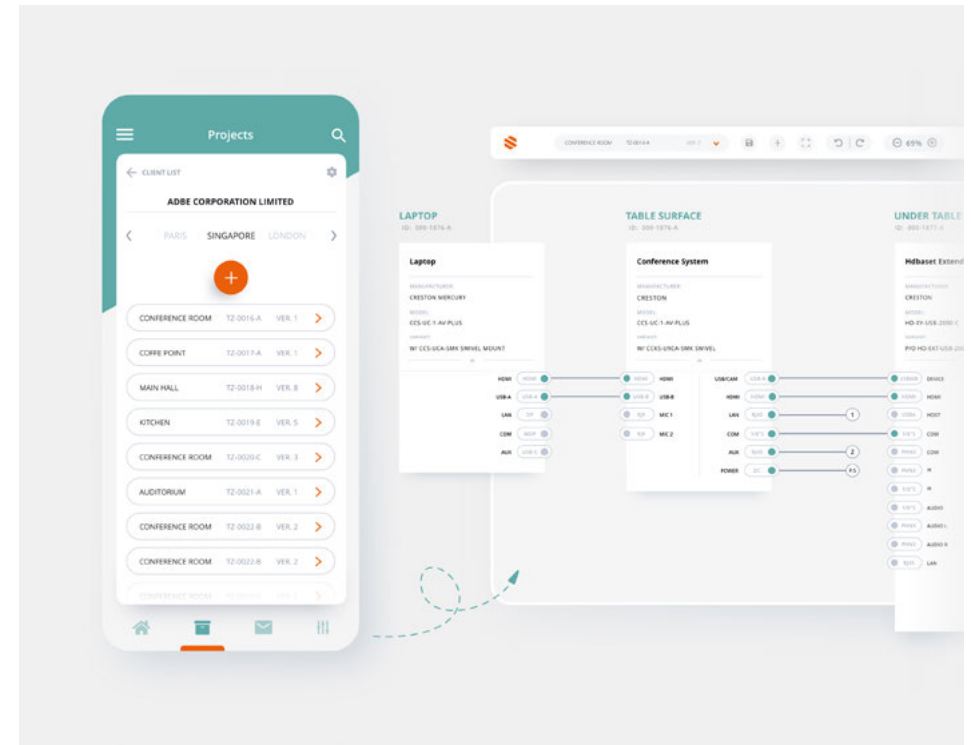
- easy to use drag-and-drop designer
- enhanced internal project collaboration
- bill of materials

Audio visual design platform



Floor planner

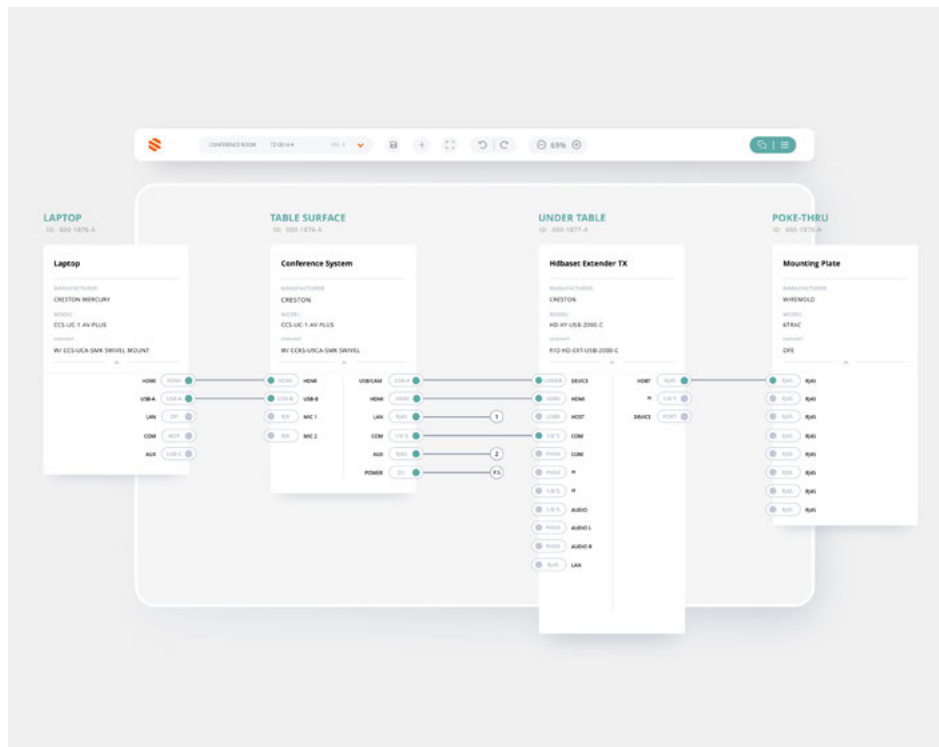
A mobile application helping representatives at the first stage of the sales process. It helps to collect customer requirements. It measures and maps the room creating a 2D view, and allows the user to take photos or voice notes. After selecting setup, it presents it visually using the Augmented Reality feature.



Bill of materials

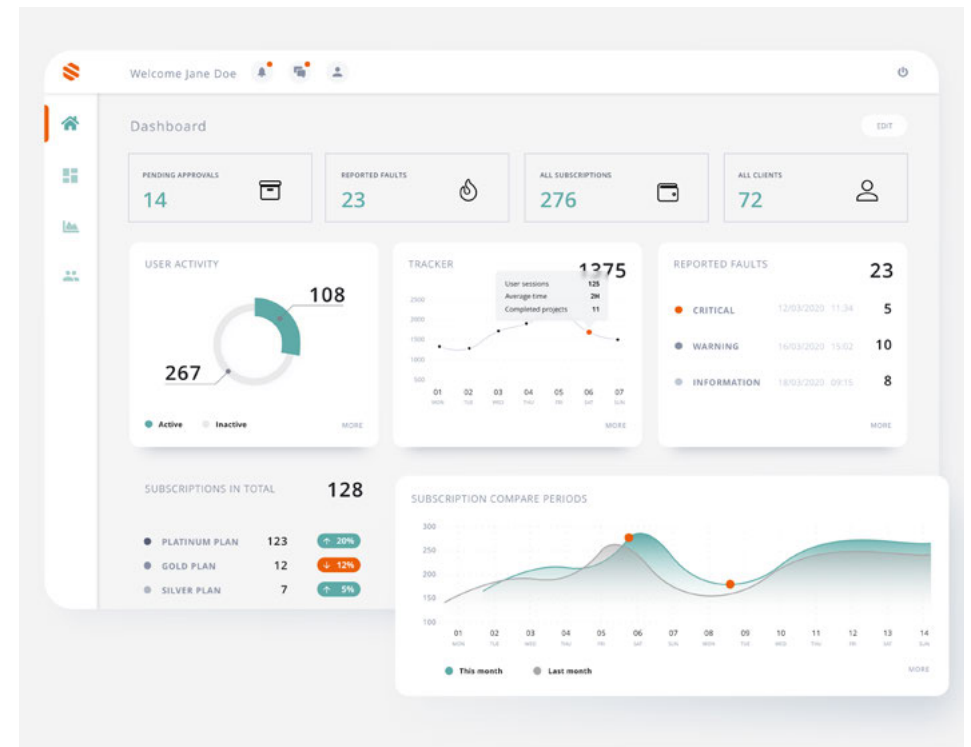
A clear list of the components, parts, and the quantities needed to deliver the setup. Listed by field representative on the mobile app, it helps in-house engineers to prepare the final solution on a desktop device.

Audio visual design platform



Technical plan

An advanced technical planner that illustrates what is supposed to happen technically. It includes inputs and outputs to facilitate hardware configuration. Finally, it exports an engineering project based on which installers implement the project.



Administration panel

Intuitive dashboard showing a large spectrum of elements. From reported faults through clients' subscriptions to user activity. It helps to manage a large number of clients.





Knowledge management

Data governance diagrams for enterprise organizations

Flow diagrams and database integration tool for IT intelligent process and data mining companies

Client: Data Strategy and Big Data Enablement Company

IT dedicated intelligent process and data mining solution

Modern business organizations operate within processes that generate a large amount of valuable data. Data mining, then, is about analyzing, which deals with acquiring insights into the semantics of the actual business process accurately.

The presented visual components support getting maximum value in the shortest possible delivery time by targeting data and process content.

Benefits: data mining for the complex business processes

Challenge: database integrations via flow diagrams

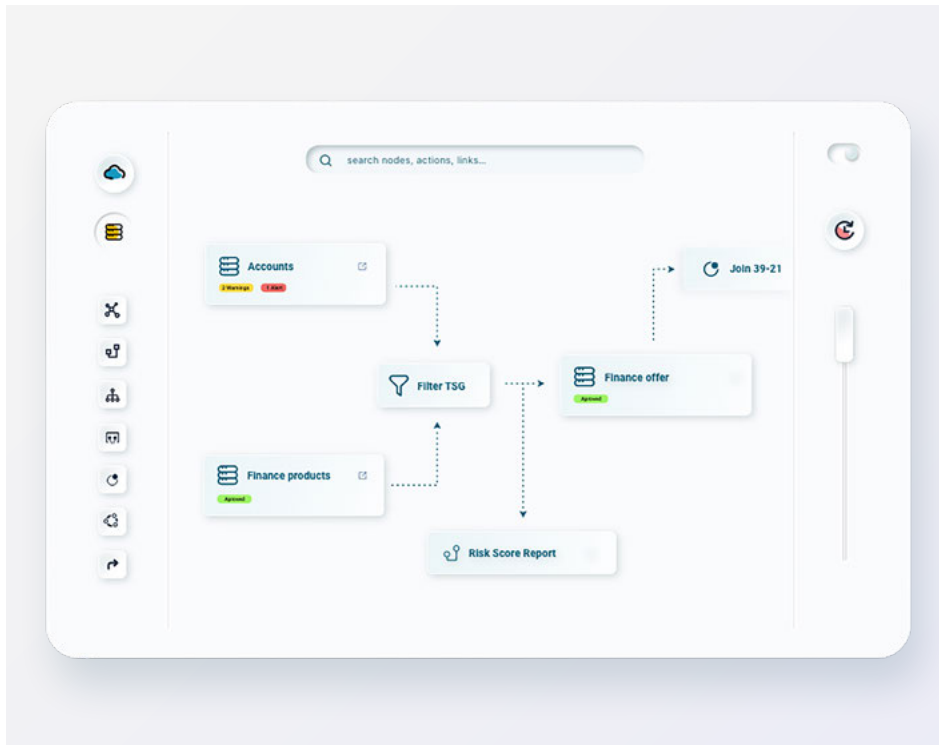
Solution: intelligent process and data mining tool

Scope: flow diagrams, database diagrams, interactive dashboard



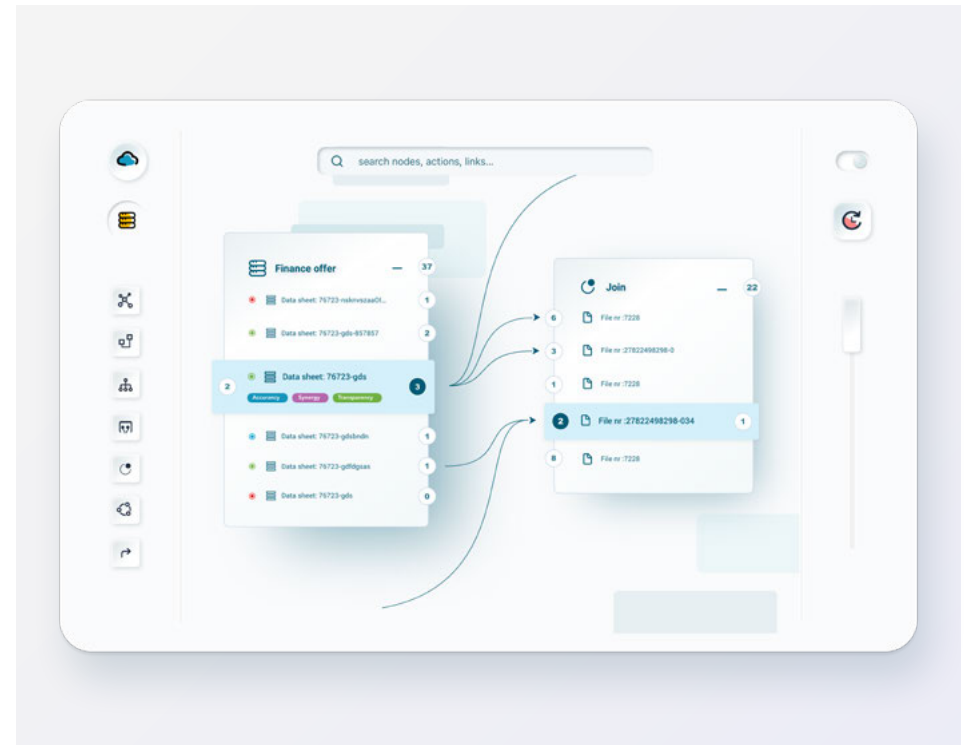
Features:

- database flow diagram
- database correlation diagram
- interactive dashboard



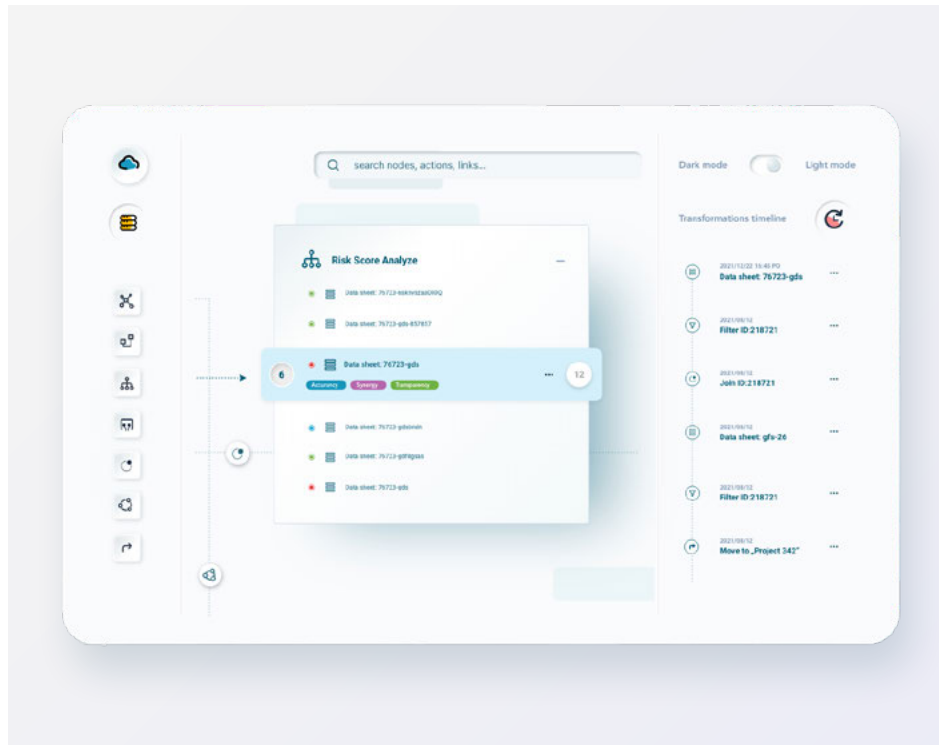
Database flow

The database flow provides a helicopter view of the IT infrastructure. It consists of a central diagram that depicts the databases' correlations. The graph presents the information flow and dependencies between the databases. Each data flow can be followed through the filters to take actions.



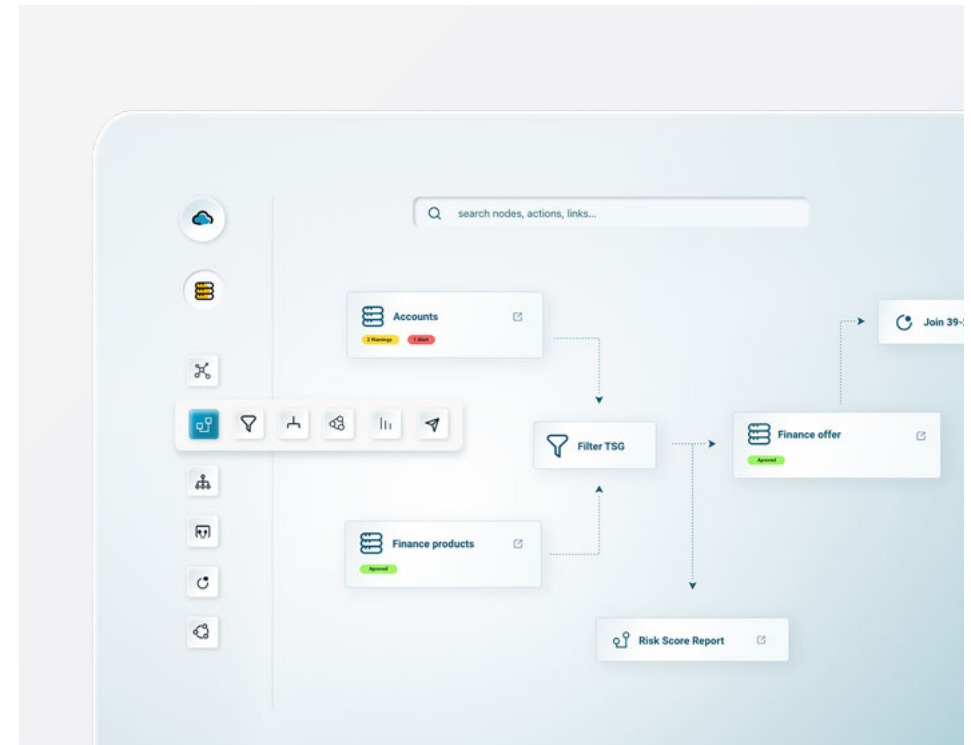
Databases correlations

The user can dive through specific information flow anytime. The expandable nodes showcase the details within them. By clicking the node, the user discovers dependencies between databases, filters, and actions. On the other hand, the highlighted arrows facilitate investigating the input and output correlations along with their origins.



Database timeline

The timeline equips each record to present changes during a specific time. The integrated table component enables the user to look over the particular data sheet within the app.



Extended graphical interface

The two vertical sidebars enrich the graphic user interface. It enables submenu usage with more specific functions. The diagram itself is equipped with intelligent adornments to showcase the alerts within it.

Client: Data Governance Company

Data management diagrams for enterprise organizations

As data-related demands increase within enterprises, the data landscape becomes more complex and distributed, pushing organizations to shift their data management practices from managing data to managing metadata.

For a leading Data Governance Company, we equipped their Data Catalog Software with dependency diagrams, inheritance diagrams, and knowledge graphs, to list just a few.

Benefits: better understanding, easier access and effective communication around data

Challenge: data management tool with dependency diagrams and knowledge graphs

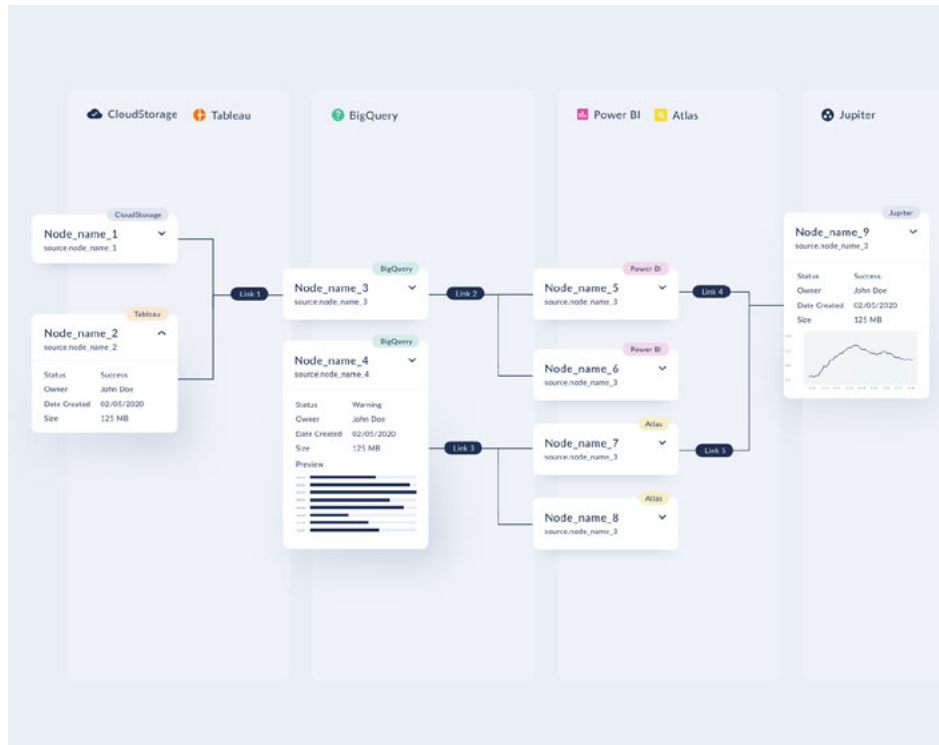
Solution: dependency and inheritance diagrams, knowledge graphs

Scope: interactive UX mockups, UI implementation



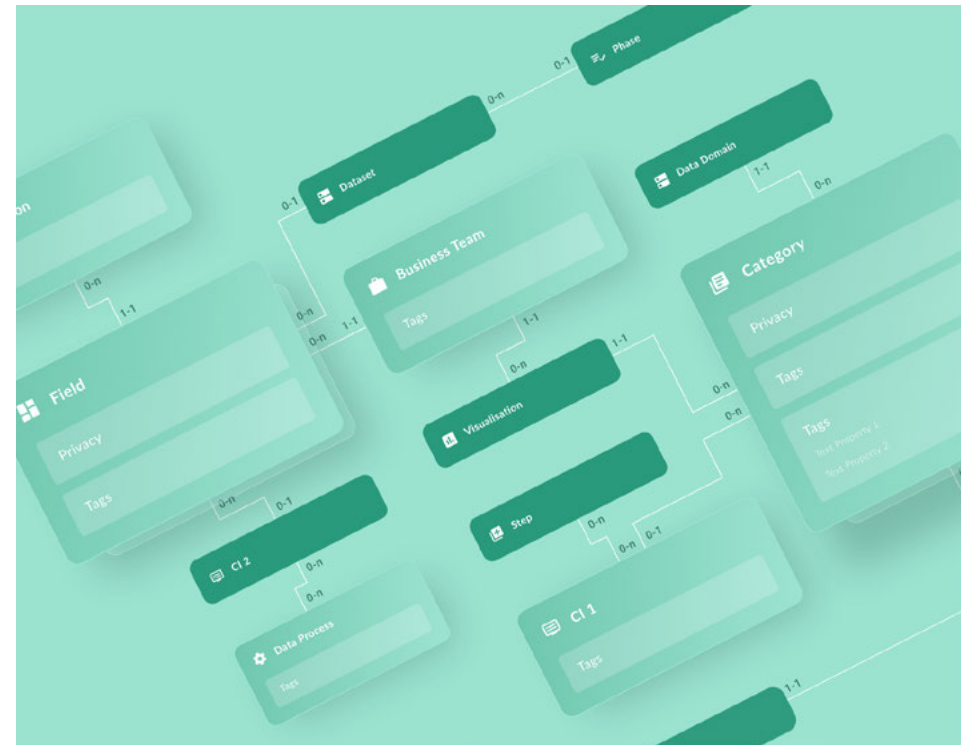
Features:

- interactive dependency diagrams
- inheritance diagrams
- knowledge graphs



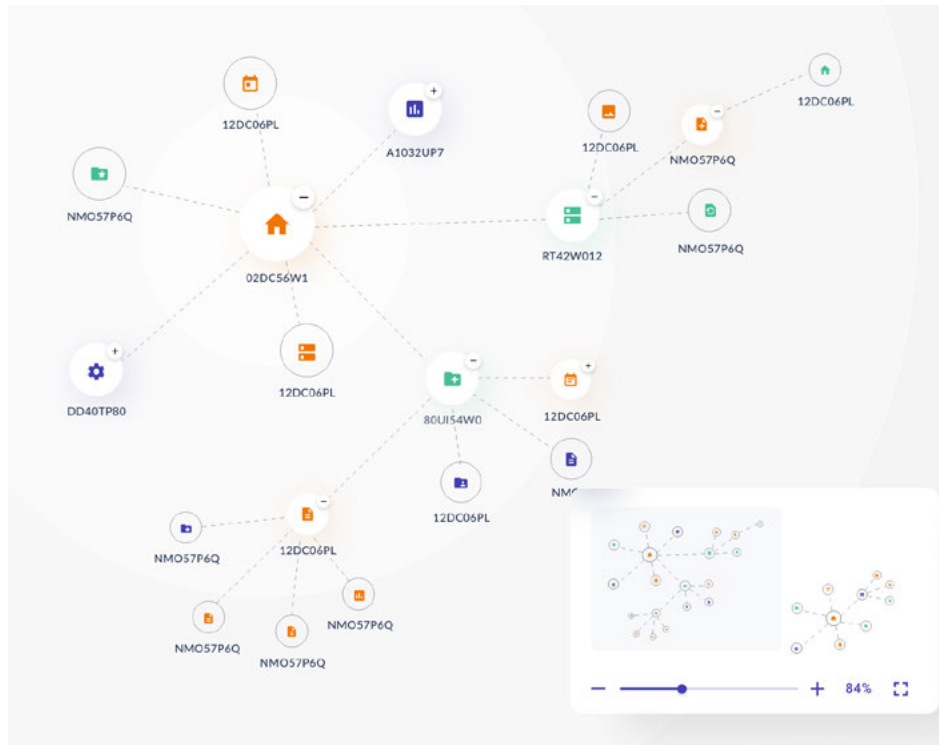
Dependency diagram

Here's a visual presentation of data placed in various databases and data warehouses. Categorized with AI into data sets and presented visually in swimlanes. Each node comes with a collapsible property section. The mechanism is equipped with a detection algorithm to ensure proper re-layout in any view.



Inheritance diagram

The graphic visually represents the data organization and relationships with various databases and data warehouses. Each parent node can lead to many other nodes and vice versa. The advanced layout is based on a custom diagram layout.



Knowledge graph

This view presents an indefinitely expanded diagram built with GraphQL API. Virtualization is activated with several thousand nodes, so there is no need to render everything visible on the screen. An applied minimap facilitates navigation.





Low-code flow designer

Business processes and information flow for Enterprise Software and Services Provider

No-code chatbot design platform for AI-powered chatbot company

Client: Enterprise Software and Services Provider

Turning complex processes into interactive visualization

Enterprise-level companies deal with a large amount of information and processes which need to be planned, managed, and controlled. We put up a challenge to create a tool for a Market Leader in Enterprise Application Software.

The solution captures the details of the tasks and interactions with a process and augments the business process model with the corresponding information flow.

Challenge: business processes and information flow

Solution: information flow diagram (IFD) with interactive dashboard

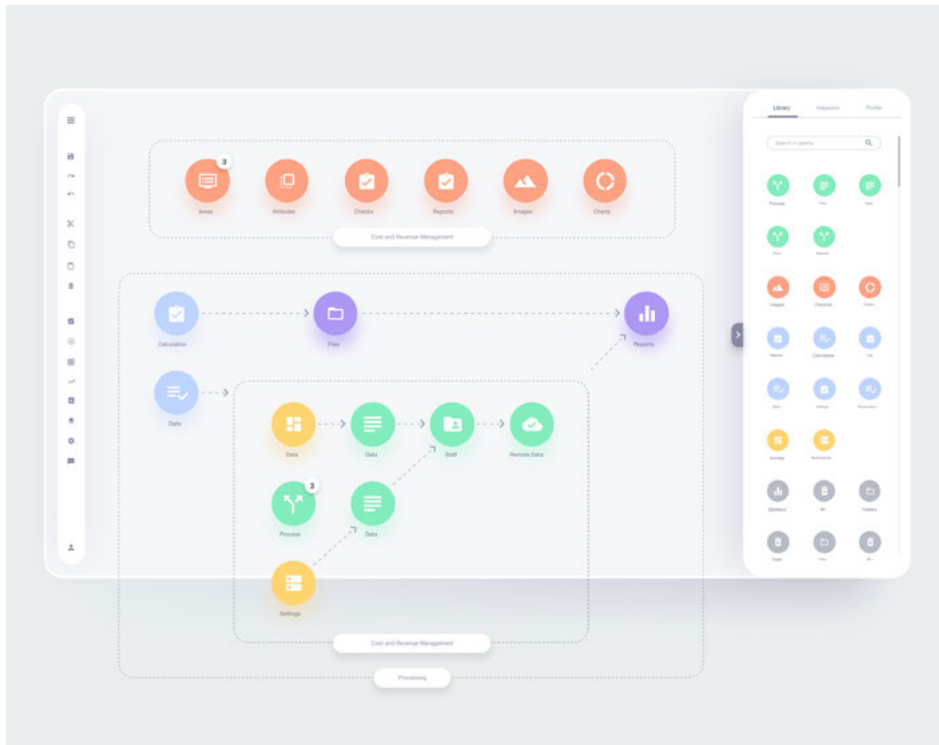
Scope: design, front end, integrations



Features:

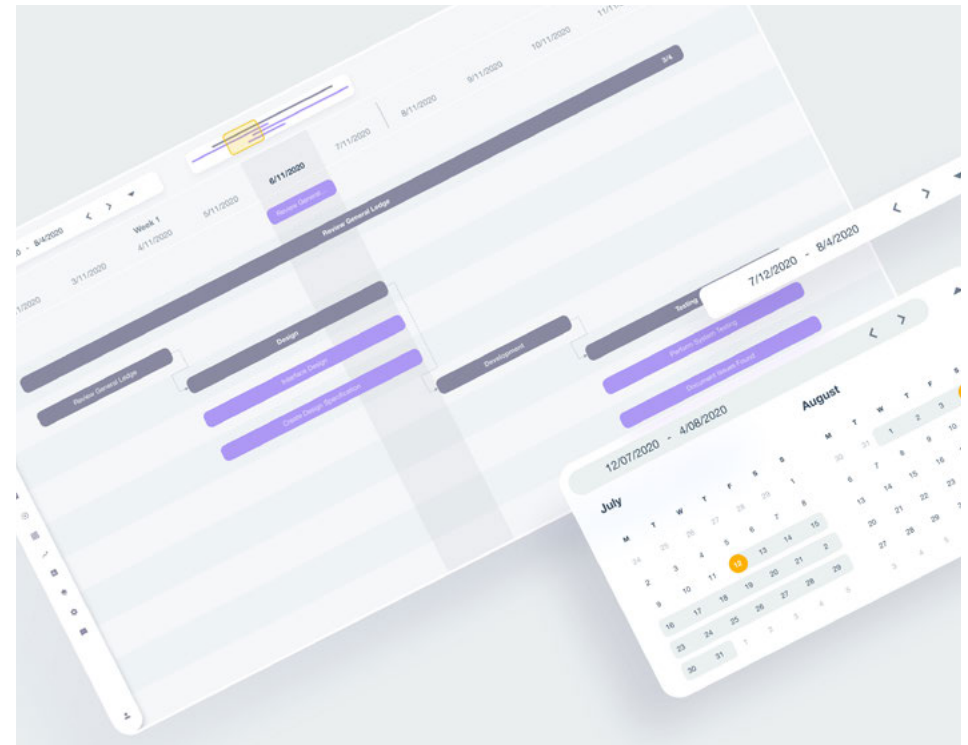
- enabling big picture overview with expandable details
- supporting information flow with documentation
- assisting human resources management

Business processes and information flow



Expandable diagram

A look at the company from a helicopter view. We have implemented multi-level nesting of nodes in our solution, which break into subsequent sections until a visibility of several thousand objects is reached. Moreover, the expanding node disappears, making room to show what lies under the structures.



Gantt chart

To get deeper into the context of a specific project, we have prepared a Gantt chart view, which is used to assign people whose image is displayed on bars to tasks. Additionally, we have implemented a mini-map, which is a helpful preview of the entire chart.

Client: AI-powered Chatbot Platform

Low-code chatbot design platform for process automation

Complex conversational systems may be challenging to build. To help with that, we designed a visual tool to collaborate and create a chatbots ecosystem with minimal to zero knowledge of coding.

Our solution visually processes the bot logic and helps define the general flow of the conversation, both from the user and administration side.

Challenge: no-code chatbot design platform

Solution: data flow editor, dashboard with real-time data presentation

Scope: design, UI/UX, front end, back end



Features:

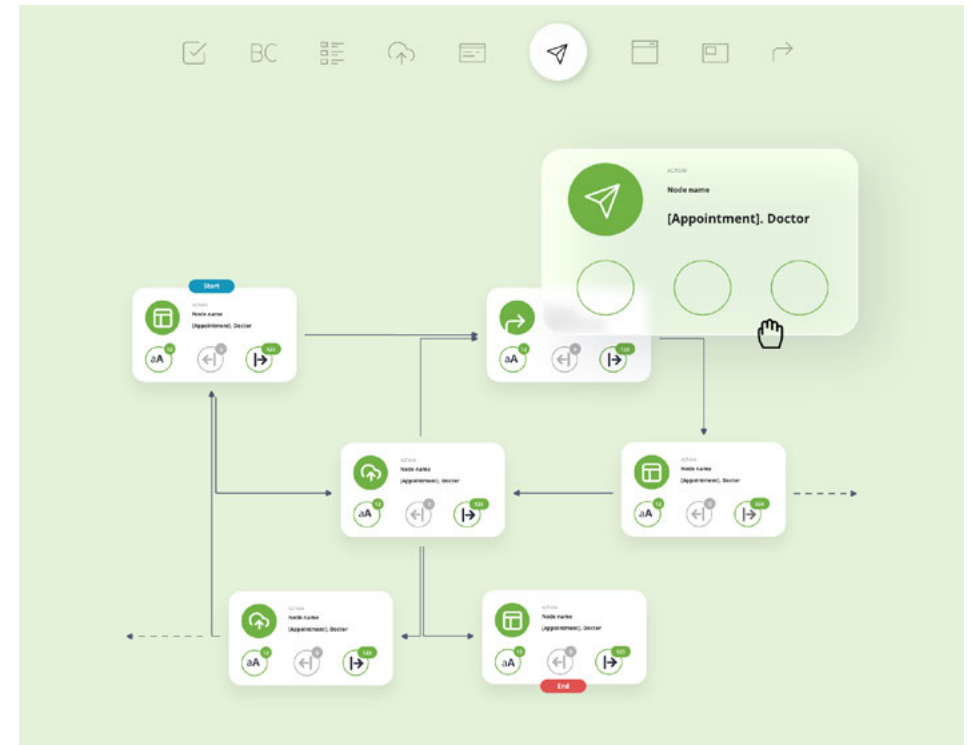
- improving chatbots automation
- delivering drag-and-drop builder
- detecting possible issues

Low-code chatbot design platform



Bot diagram for flow visualization

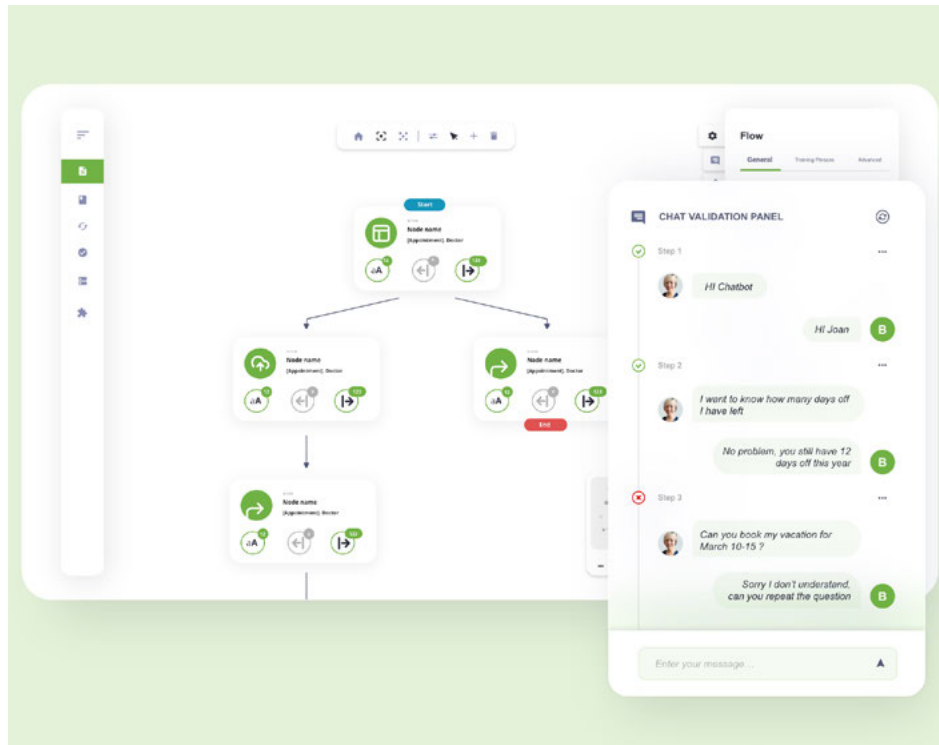
Any conversational platform requires chatbot functionality. Here's a bot diagram for flows' visualization to enable a full view of the flow structure. The user can follow the possible missing flow elements and correct any issues. The user-friendly interface integrates available tools, turning it into a virtual assistant for business and technical users.



Flow map diagram

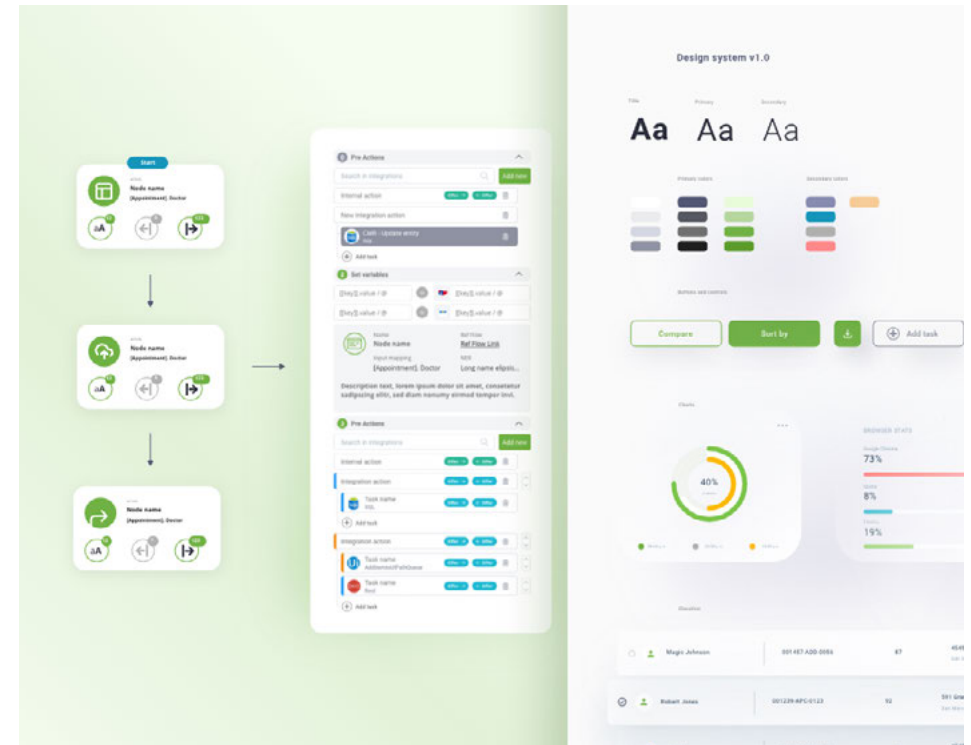
This depicts the processes to document, study, plan, improve or communicate the operations in clear, easy-to-understand diagrams. While representing the configuration of the conversation between the end-user and the chatbot, the flow diagram provides comprehensive information for each step of the conversation flow.

Low-code chatbot design platform



Flow map diagram with expandable chat details

A comprehensive set of information for each step of the conversation flow, including contextual data and integration calls, provide a better understanding of the flow diagram's operation and easy conversation flow & update. The expandable chat details allow the user to follow the actual conversation.



Style guide for better app unification

A style guide optimizes the development and unifies all interface spaces. It delivers UI solutions as a set of guidelines, parameters, controls, and components that make the user interface intuitive and consistent.

Let's work together!

Contact us.



Maciej Teska

Chief Executive Officer

maciej.teska@synergycodes.com



Damian Kałużny

Business Development Team Leader

damian.kałuzny@synergycodes.com

Synergia Pro Sp z o.o (Synergy Codes)

Centrum Południe 1, Powstańców Śląskich 15

53-332 Wrocław, Poland

hello@synergycodes.com

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