

# Smart Building Management 4-Week Assessment



We appreciate your interest in **GlobalLogic** as your potential partner.

We are eager to bring our experience & skills to shape and deliver **a data-driven comprehensive workplace performance visualization tool**, empowering employees fulfilling your ambition of the **most phenomenal workplace on earth**.

We have a long history and deep expertise in **working with Azure and Microsoft technology** and look forward to **partnering with you** to bring your vision of a **smart building management system** to life through a **world-class digital experience**.

This document will demonstrate our high-level plan for partnering with you to deliver results.

**We look forward to continuing the conversation with you.**

## Our approach has 3 core tenets:

**First and foremost,** the right Engineering team expertise to deliver your product on time and on budget. Our engineering team is a trusted partner of Microsoft, with more than 15 years' history of partnership and product development. We have great experience implementing Azure products for the customers from all over the world.

**Secondly,** the ability to augment the expertise with our UX/UI team, to be the conduit between your vision and the GlobalLogic Engineering teams' technical skills. Our experienced product designers ensure the best transition from user stories and wireframes into a robust design system, and the best digital experience.

**Thirdly,** an understanding of your wider vision, and desire to be your long term partner in the creation of a data-driven, AI powered, Microsoft systems-based smart building management platform.

## Why GlobalLogic?

### ↑ Sector specific knowledge

From building insights tools for multiple users, to designing workplace services products, GlobalLogic has sector specific experience that can help you on your journey.

### ↑ Partner specific knowledge

We thrive in partnership with our clients, and have a successful history of collaboration with architecture firms and office enablers, including FLAD, Perkins and Will, Steelcase. Our website for NBBJ was recognized as Best in Class for Architecture / Interior Design by the interactive media awards.

### ↑ Ability to pivot

Our approach is one that enables easy pivots during a project duration, allowing us to work to your stakeholder needs and expectations.

### ↑ Curious and passionate

Our teams are made up of the most curious of minds who apply passion to each of their projects. They'll often go beyond the task at hand to provide the smartest solutions.

### ↓ Blended teams

We often work with a distributed team, offshoring with the right team balance. This allows us to significantly reduce overall project commercials this way.

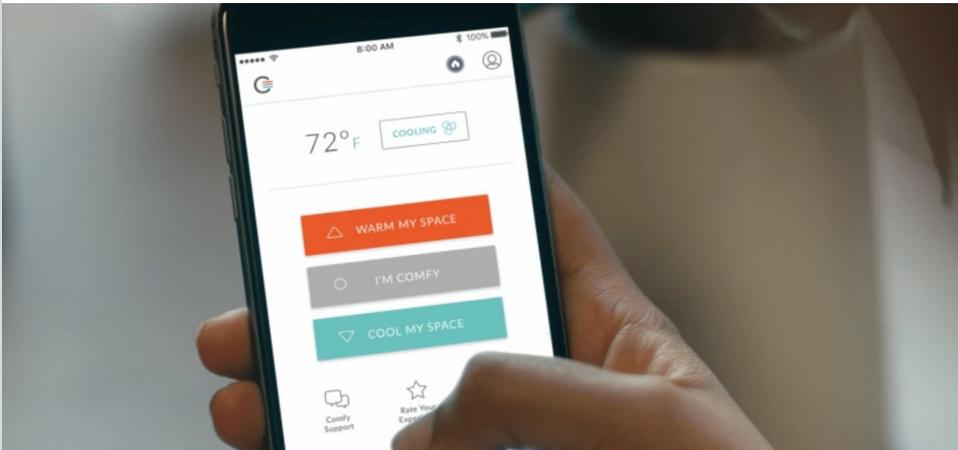
### ↑ Experts with vast knowledge

Our teams are experts in their fields, like Azure, with experience across vast ecosystems and technologies. This vast mix of knowledge means they approach every new project with open minds and curious brains.



**The world has changed, there is no going back to normal, only forward to better.**

We recognize with you that the world has changed. COVID and climate change is accelerating the race to find smarter uses of technology, data, and AI to create the workplaces of the future. Human-centric / safe / smart / empowered. Blending campus, home, virtual; a hybrid of different work environments.





People  
Density

Temperature

Light  
Levels

Noise

Room Booking  
& Usage

Hygiene

**GlobalLogic can build the right technology to control multiple environmental conditions which create an amazing user centered workplace.**

What makes an environment great is a positive human experience. Technology, data, and AI can combine to deliver this in a personalized and nuanced way. Future success will be a connected digital ecosystem that **constantly learns** to enable optimum human working conditions, doing so almost invisibly in the background.



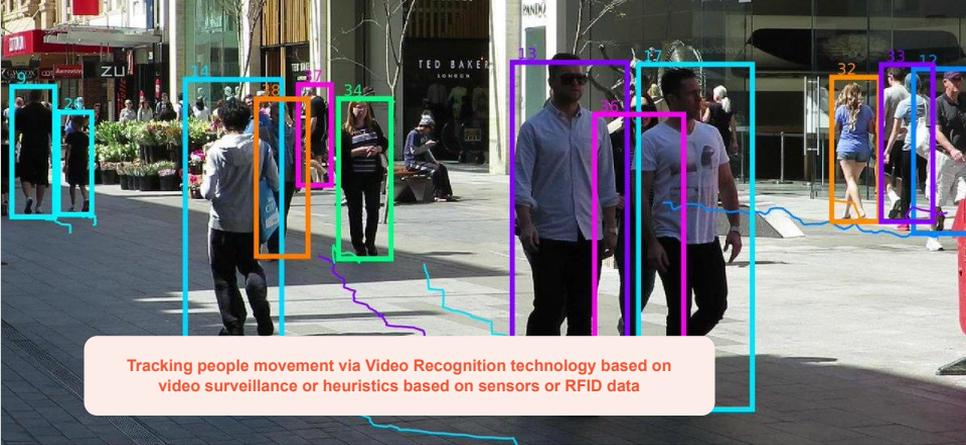
Mood  
Emotional  
Wellbeing

Emergence  
Safety

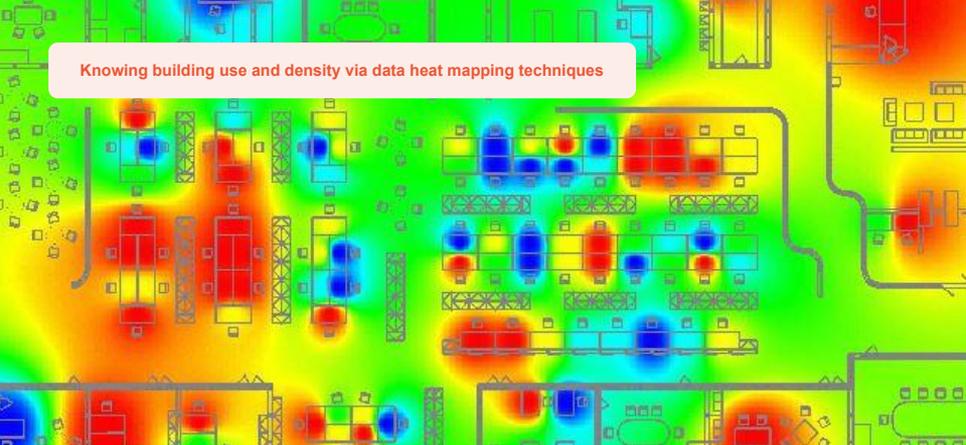
Oxygen  
& CO2 levels

Environment  
Impact  
Energy &  
Water use

Connection to  
Working from  
home



Tracking people movement via Video Recognition technology based on video surveillance or heuristics based on sensors or RFID data



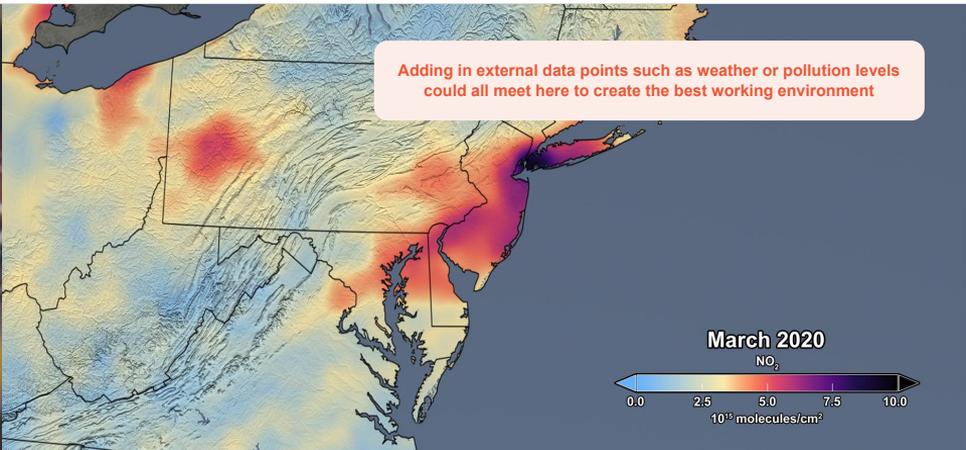
Knowing building use and density via data heat mapping techniques

**Building on the data you already have, we could collect a wider range of rich environmental inputs to feed into a synchronized ecosystem.**

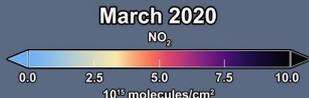
**Azure** allows us to understand multiple types of inputs that could inform the system, and the right technology to collect that information is key. Having this knowledge ensures that we truly understand and track all environmental variables to create the most phenomenal workplaces in the world.



Using technology to monitor facilities to control temperature, humidity, light and noise levels via Indoor Environmental Quality Sensors



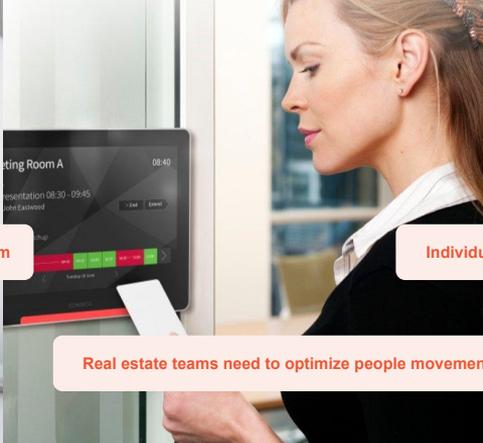
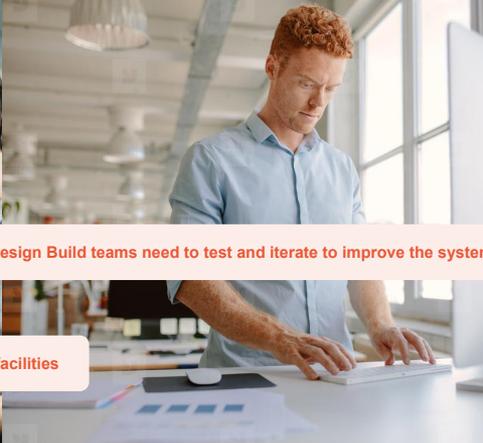
Adding in external data points such as weather or pollution levels could all meet here to create the best working environment





Design Build teams need to test and iterate to improve the system

Site managers need technical control over multiple facilities



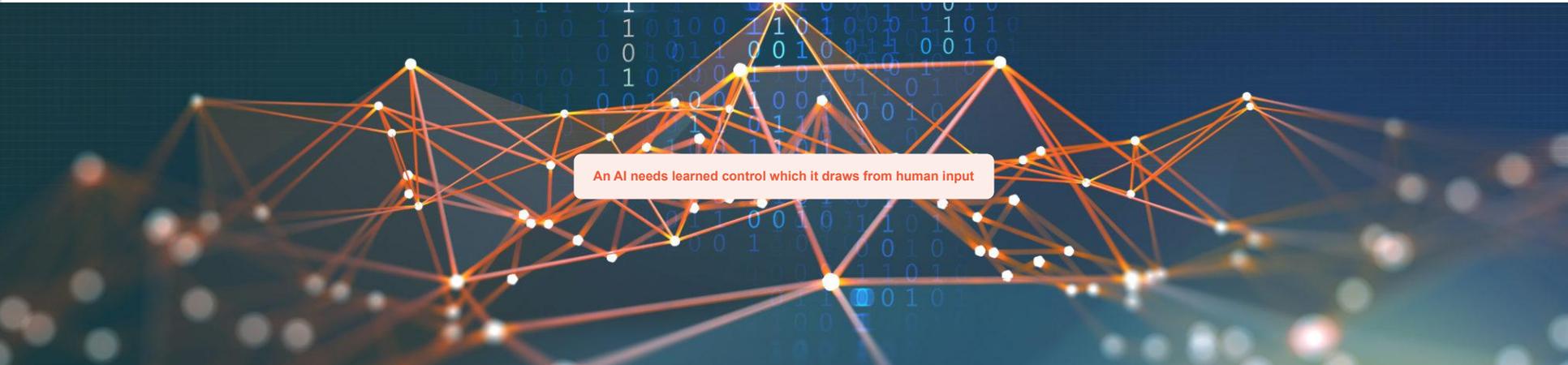
Individuals need personalized basic control via smartphone

Real estate teams need to optimize people movement and room booking



**AI will learn from different users as they control the system in multiple ways.**

The system will never have one owner, and different users will need multiple ways to access and control different outcomes. From Site Managers with technical overview, Real Estate teams tracking people movement, the Design Build team improving the system, and even individual micro-control users of the system, all inputs will teach the AI about the optimal environment.



An AI needs learned control which it draws from human input



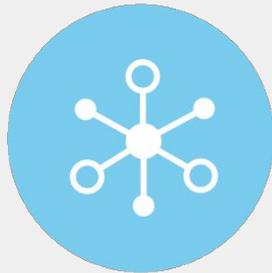
**GlobalLogic provides product engineering services with intelligent experiences in mind.**

Our expertise in Microsoft technology, coupled with our approach to experience design, makes us uniquely qualified to support your needs.. GlobalLogic does not want to be a passive engineering development partner but one that takes our design experience, with Microsoft technology, and thoughtfully supports you with unparalleled value and knowledge.

## Extensibility & Interaction - Key Pillars for Workplace Visualization Platform

Our technical decisions and roadmap are based on our assumptions about your ambition to build an extensible and interactive workplace visualization solution:

- **Azure based platform** for comprehensive workplace visualization
- Enable **easy onboarding** of new buildings and spaces
- **Extensible integration** with data sources
- **Interactive** workplace management



Integrate

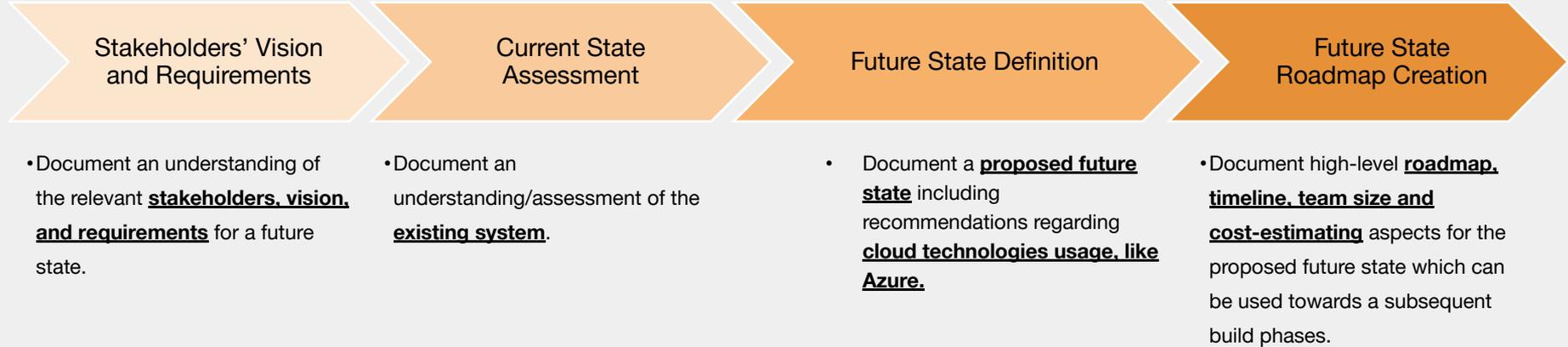


Analyze

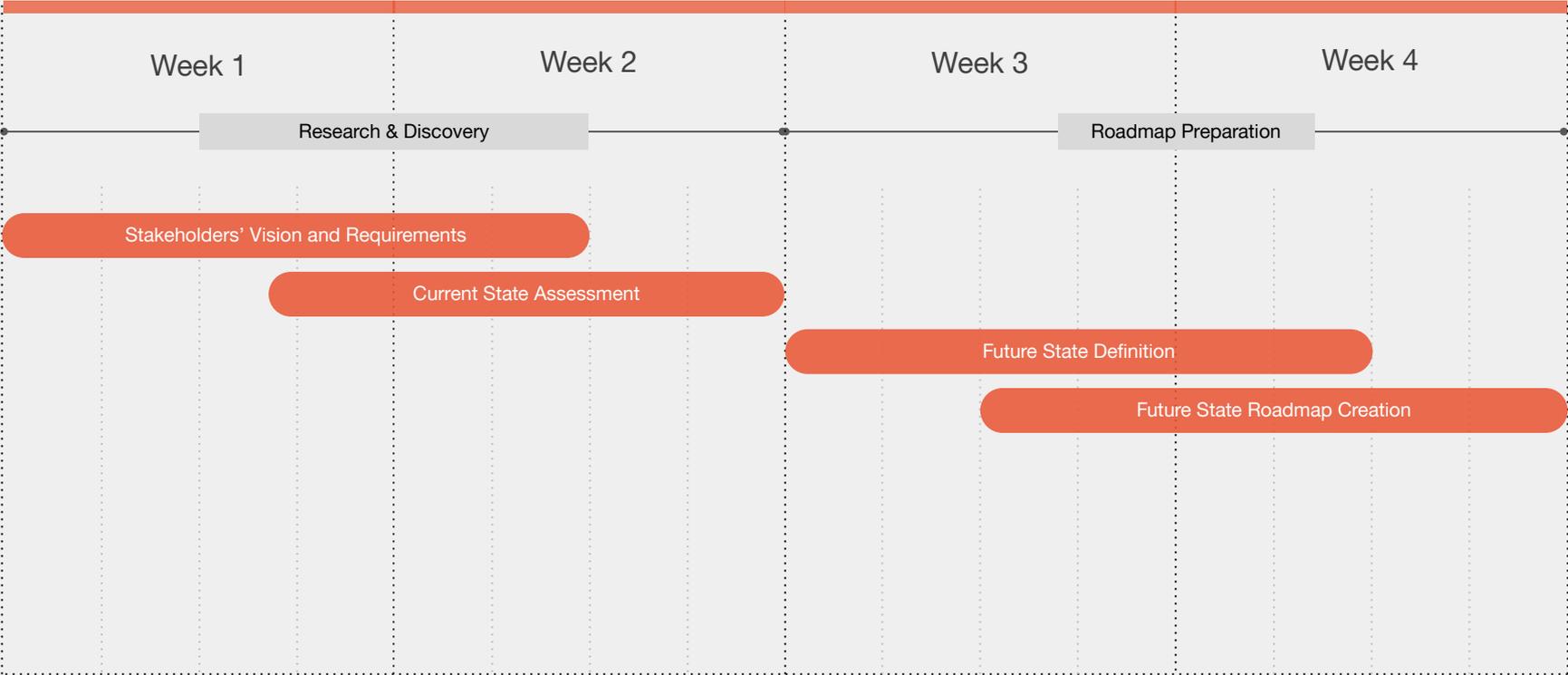


Visualize

# High-Level Plan



# Roadmap



## Key Team Member Roles

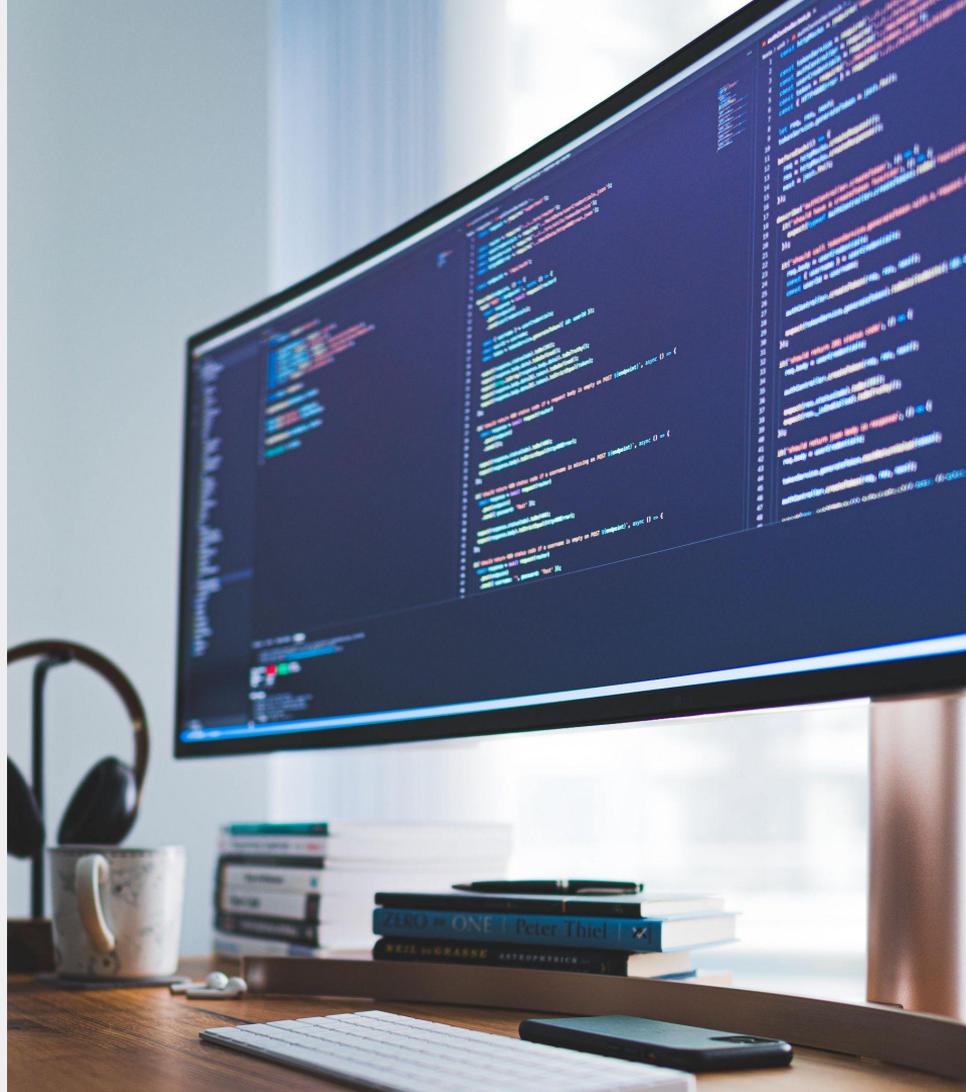
Brief description of skills and competencies that are expected for key roles in the team.

<b>Role</b>	<b>Skills</b>
Project Manager	Project leadership and management; sprint planning, design research & strategy; usability testing. 7+ years of experience
Senior Business Analyst	Definition and documenting requirements. Change control management. Backlog management. 5+ years of experience
Solution Architect	Business analysis, software architecture design, Big Data, IoT, Azure Cloud, DevOps, Security. 7+ years of experience
Engineering Team Lead	Azure, .NET, Typescript, JavaScript, Express.js, Jest, React, Redux/MobX, Webpack, GraphQL, REST API. 5+ years of experience
ML/AI Architect	Business analysis, software architecture design, Azure services, ML, AI, Data Science, Data Analysis, Big Data. 7+ years of experience
ML/AI Team Lead	Strong Mathematical Skills, Practical experience in Data mining, Exploratory data analysis and Machine learning, Strong experience in Image processing, Face & emotion detection and processing. 5+ years of experience

## Globallogic R&D Example

### Our Solution Accelerator for Smart Building Management and Field Services

This is an example of an industry accelerator we built utilizing the Microsoft Technology stack including Azure, IoT, Power Platform and Dynamics



## Mission and Vision

Enable people to be in a more safe and comfortable environment

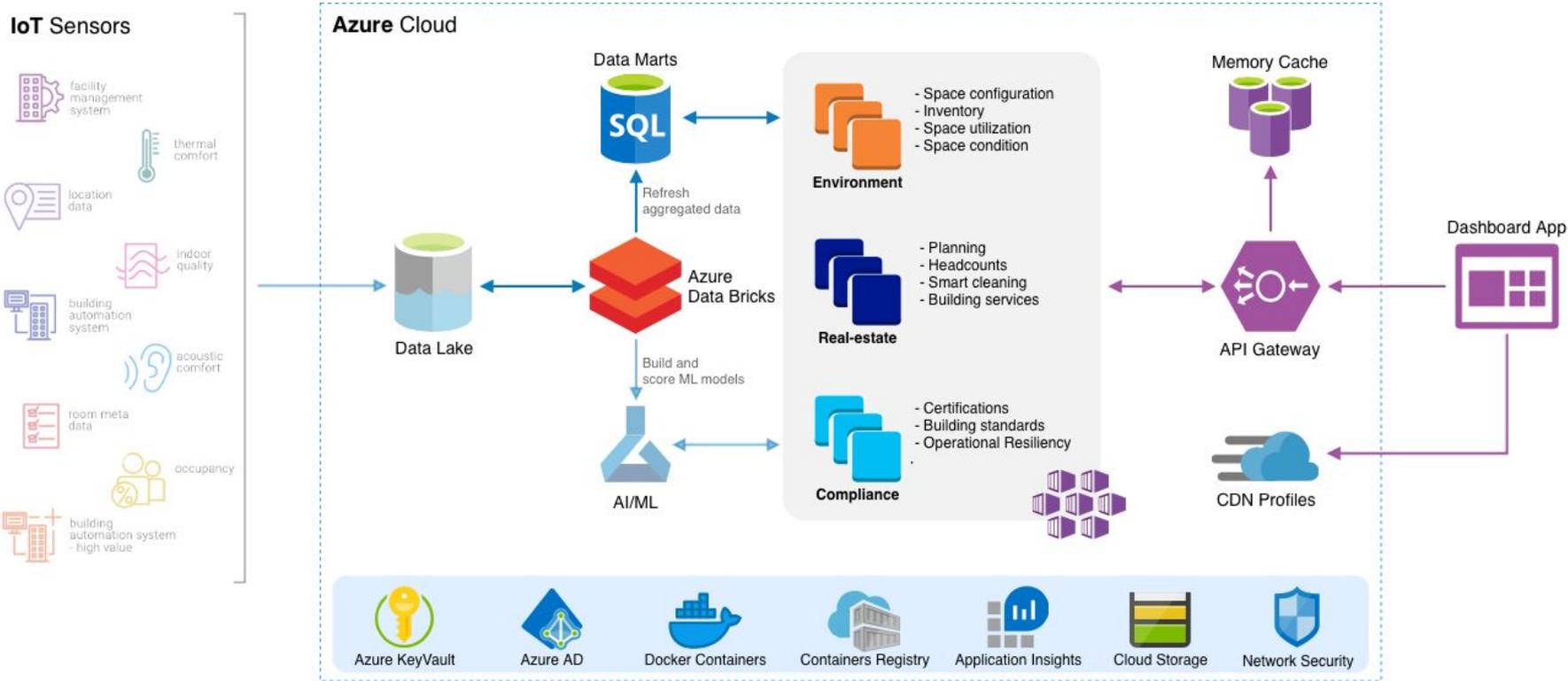
By creating a space that is able to adapt and react quickly

Utilizing digital technology in a seamless and efficient manner, providing intelligent experiences that makes it easier to interact and communicate with the environment

## Value Proposition

- Azure services allow us to work with the technology that is already in place so it's possible to avoid unnecessary custom engineering
- Possibility to evaluate design intent against the real situation
- Unobtrusive mechanism aimed to cope with rules limitations
- Real information about the quarantine limitations compliance and insights based on it
- Interaction transparency and predictability to lower stress and anxiety
- Improved operations and energy management

# Typical Architecture



# Meet Jack

*He is a building administrator. He works at the big office and is responsible for the microclimate in the office and COVID limitations compliance.*

## Get notification

## Investigate the issue

## Monitor the situation

## Human intervention

Jack is working when gets a notification on his laptop. Temperature Sensor value has risen above 22C in the QA Room.

Jack is investigating the situation. The system is trying to fix the issue increasing the power of the air conditioner in the QA room. Conditioner power is increased up to 70%.

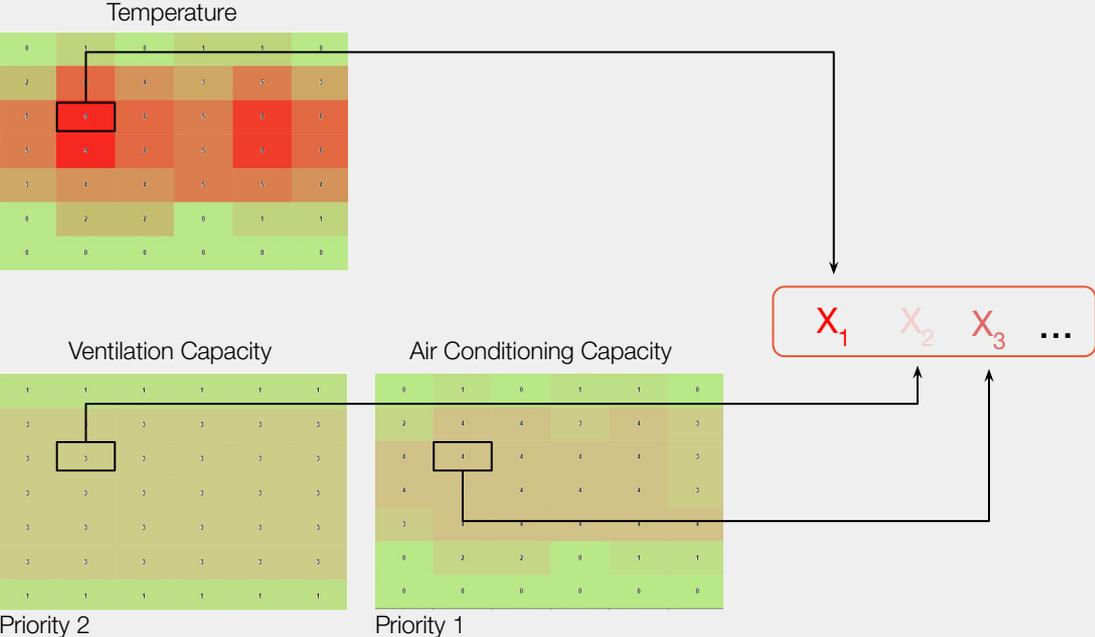
Jack checks if the system is able to make the temperature within the acceptable ranges. Looks like the air conditioner power is enough to deal with the issue.

After several attempts the system sends the notification that it was able to decrease the temperature inside the room. Jack's intervention is not needed.

## Channels



# Incident Processing Flow



An incident happens in case of one or more measurements are going outside the required range.

The system extracts the measurements values from all supervised heatmaps using time label and physical space label as the extraction key.

The incident is being handled via the system devices which are connected to each other. The system makes a decision according to the priority of each device in case of the incident.

## Meet Mary

*She is a janitor. She works at the big office and cleans at the second and third floor.*

### Get notification

Mary is working in the second floor. She gets a notification on her smart watch. She needs to disinfect a small meeting room on the second floor.

### Identify time span

The system calculates the time span in between the meetings when Mary can perform a cleaning and disinfection and sends the message with the time frame to her.

### Disinfection

Mary goes to a small meeting room to do disinfection.

### Disinfection done

After the cleaning and disinfection she marks the task as done. The system changes the meeting room status and makes it available for next meetings.

### Channels



# Meet John

*John is a manager in the big company, and he needs to have a lot of meetings with his team.*

## Meeting room selection

John needs to create a meeting with five people at 11am. The system suggests to him two rooms that could fit five people in compliance with COVID safety rules.

## Meeting room selection

He chooses the room and checks its schedule to find the best time slot.

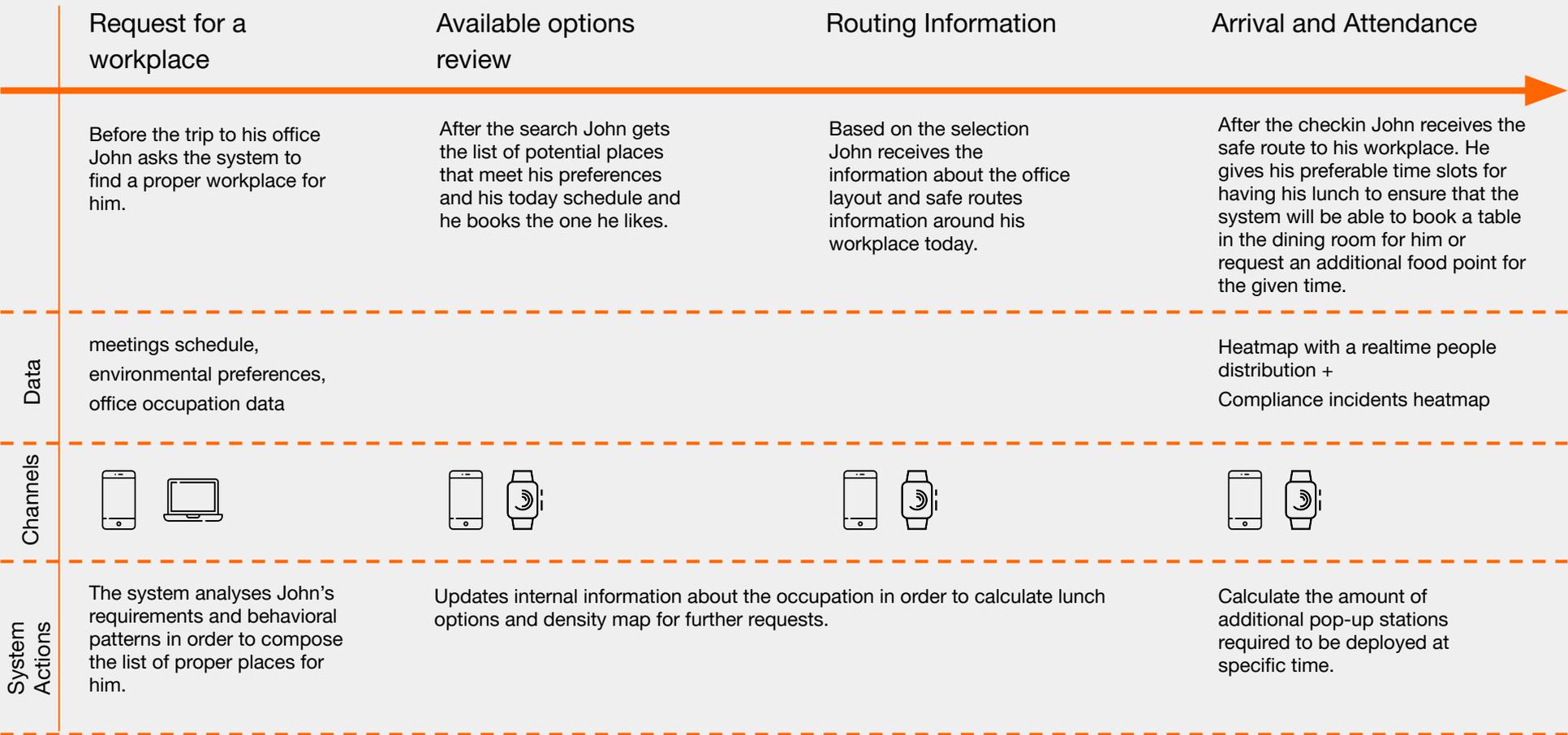
## Book the selected meeting room

He chooses the time slot from 11 A.M till 11:30 A.M. and books the room.

The system adds extra time slot for disinfection and cleaning and marks this room available for other bookings only after 11:45am.

## Channels





## About Us

GlobalLogic is a strategic consulting and product engineering services company.

Our engineering expertise, user-centered approach, and industry expertise has enabled hundreds of companies to deliver their next generation products and digital experiences.

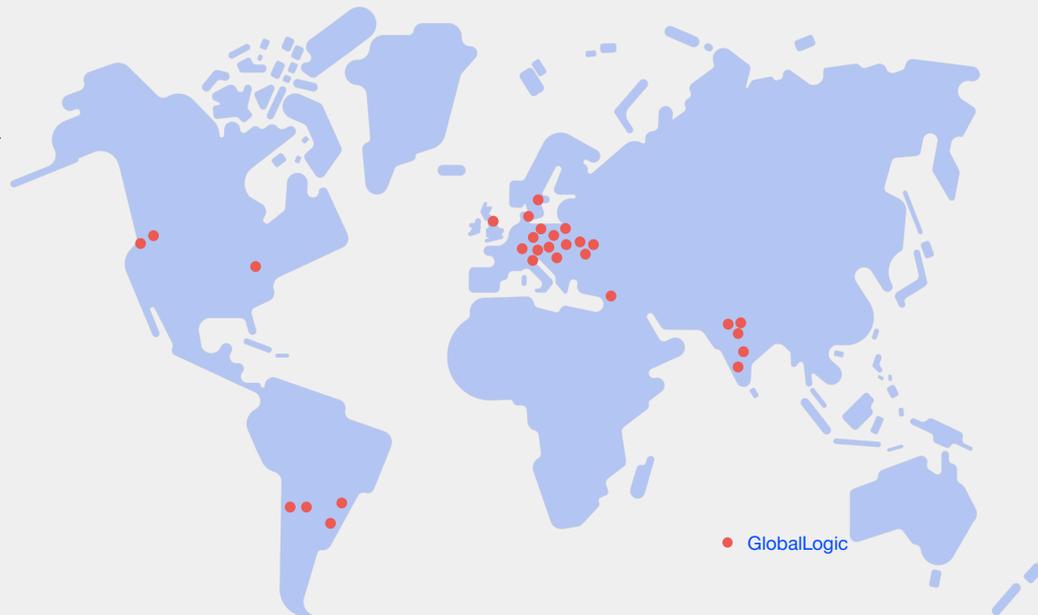


## Silicon Valley ingenuity with global scale

For 20 years, we have partnered with businesses across every major industry to make amazing products and connect the dots between people, products, and business opportunities. Now, in an increasingly digital world that places the consumer at the center of every interaction, we're showing businesses how they can connect the dots back to consumers, innovate within predictable budgets, and bring the next generation of digital products and services to market.

### Key Stats:

- 300+ active clients
- 1000+ active projects
- 1,500+ product releases annually
- 17,000+ designers, strategists, and engineers worldwide
- 30 global engineering and design centers
- 2 strategic design studios (Method)
- Owned and funded by Partners Group & Hitachi



## We help organizations imagine and evolve their products and services.

### **Customer Experience**

Creating products and services that simplify existing solutions or identify and meet emerging needs.

### **Technology**

Efficiently deliver digital experiences and use technology to scale capabilities, such as data-driven insights.

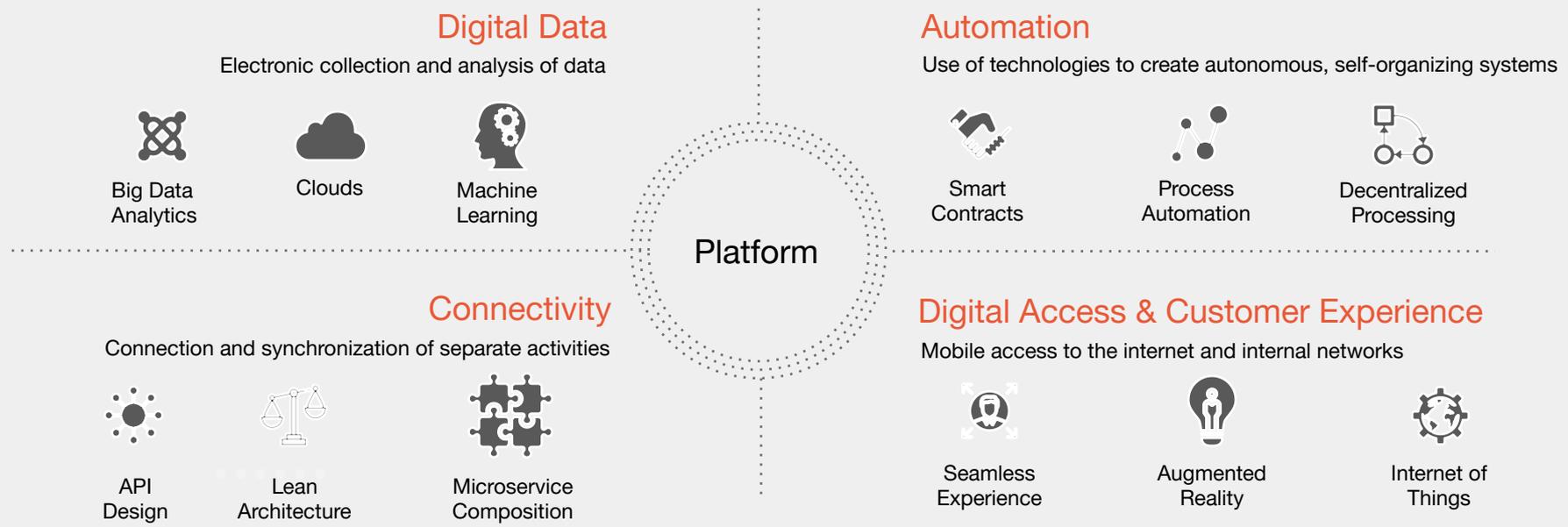
### **Business**

Innovating on the value the company creates by exploring new markets, products or services. Delivering higher value at lower costs.

### **Organization**

Establishing processes and practices that support innovation and efficiency gains, and then act on them to create competitive advantage.

# GlobalLogic is a “One Stop Shop” Digital Transformation Partner



# Case Study



## Development of Front Office Suite for Managed Security

### Overview

Leading managed security solutions provider partnered with GlobalLogic to create a pre-authorized and ad-hoc visitor management system. The system should provide temporary access management for employees who forget their regular access media and backend infrastructure for real-time data sync between central servers and building's local boxes.

### Approach

GlobalLogic team had complete ownership of design, development, QA & maintenance.

We were responsible for hardware integrations with license reader, USB card reader and Logitech IP camera.

To support on-boarding and data analysis we designed & implemented a scalable backend infrastructure for real-time data sync.

The team managed multiple versions of the product and provided offshore quality support.

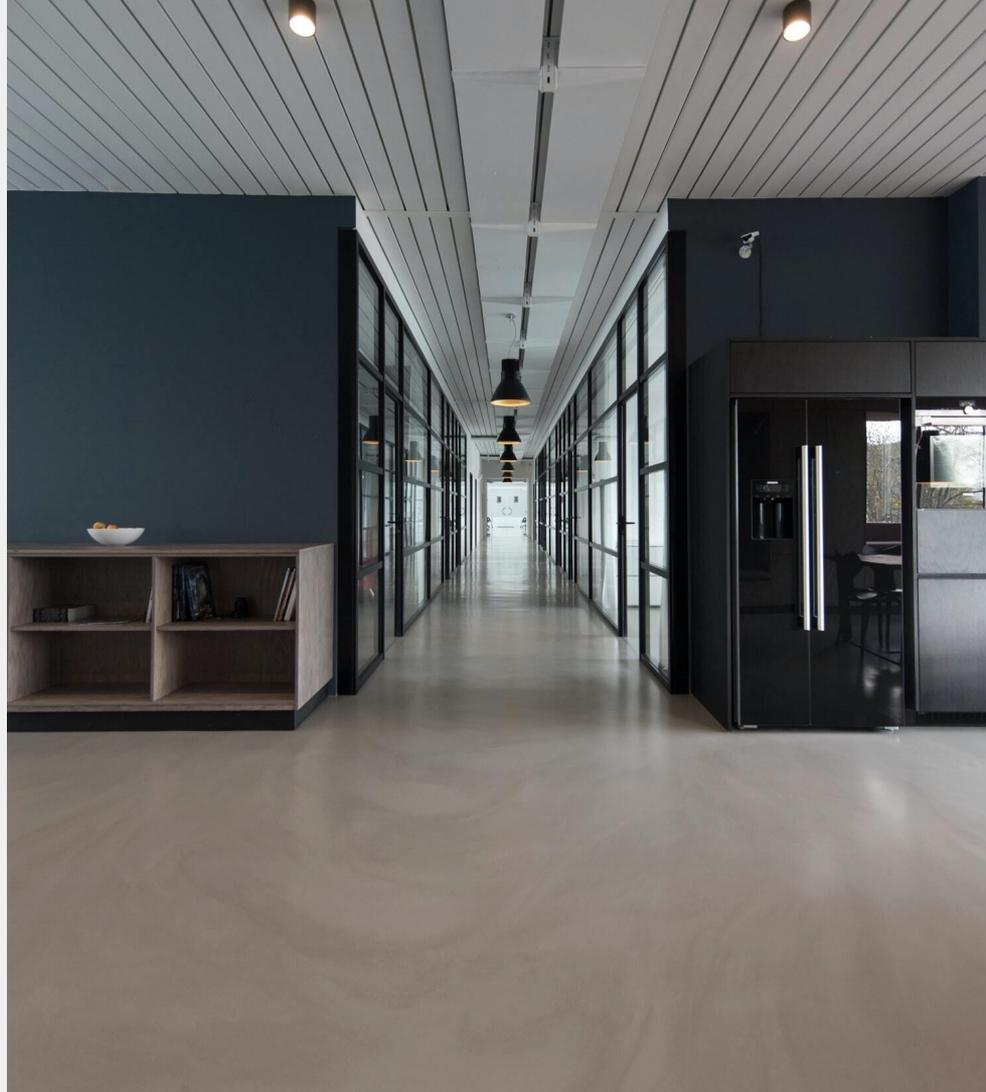
### Outcome

GlobalLogic has developed a scalable architecture to let the system work even in offline mode.

We reduced response time for visitor management from 25-30 seconds to 5-7 seconds.

### Technologies

C#, Entity Framework, WCF, WCSF, WPF, MVP, MVVM, PRISM, Visual Studio, SQL Server, Windows.



# MDM Solution for Property Management in Real Estate

## Overview

Our client, a world-wide corporation that operating in real estate domain, partnered with GlobalLogic to build Next-gen MDM platform aimed to achieve following business goals: build property data management solution for their BI platform that will satisfy end users business needs across different industries and markets; build platform that allows for fast ingestion and consolidation of new data sources.

## Approach

GlobalLogic owned 100% of product design and development activities, including:

- Requirement elicitation and backlog refinement
- UX/UI design
- Architecture design utilizing Azure cloud (PaaS)
- Infrastructure setup from scratch and DevOps services
- Frontend, middle layer and database development
- Full-cycled QA testing
- Automated testing of APIs

## Outcome

GlobalLogic team assessed the right choice to go with building client's own developed solution against of customizing expensive 3d-party tools. We tuned effective development process from scratch and coached the partner managerial team to follow it.

The team easily adapted to client's policies and standards. We successfully transferred information about project to the client IT team during project closure through professional trainings and guidelines.

## Technologies

NET 4.7, ASP.NET Web API, Angular 6, Typescript, Bootstrap, Ag-grid, Azure SQL DB, Cosmos DB, Blob storage, Service Bus, Log Analytics; Azure Service Fabric

## Workspace Experience for Real Estate Company

### Overview

GlobalLogic partnered with a leader in commercial real estate services and investment to create a next-generation standard for workplace services.

Our team tended to elevate the workplace experience to drive value for the client property tenants; deliver experience-driven services, technology, and spaces that create value for occupier/investor clients; to contribute to the client's workplace transformation efforts.

### Approach

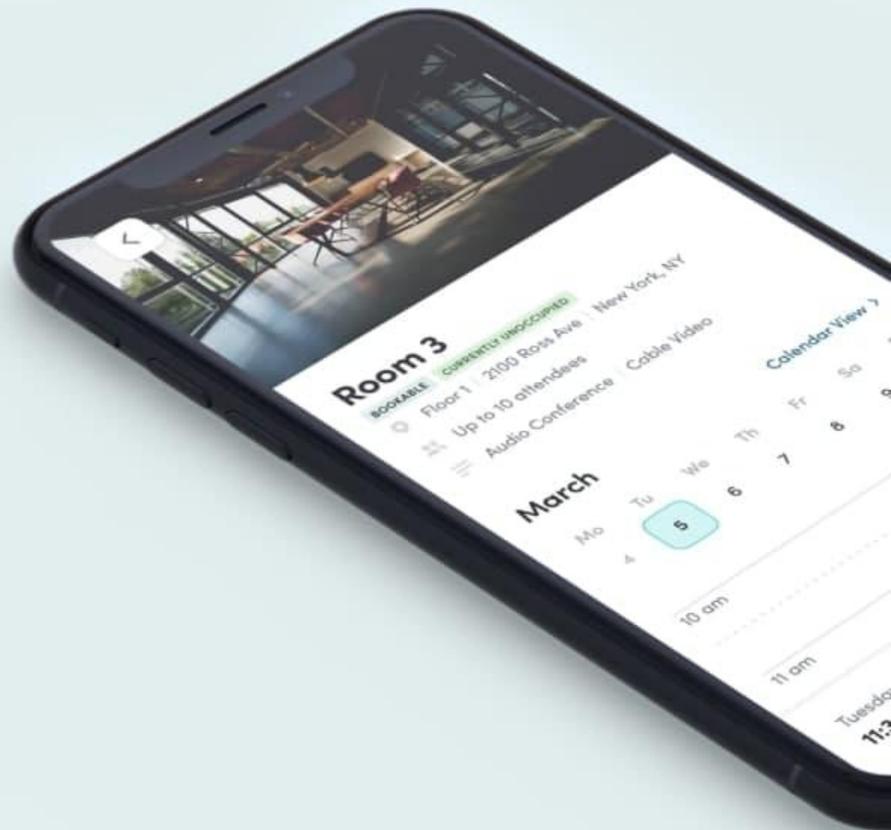
The client and GlobalLogic partnered to create a digital assistant designed to elevate the full potential of the client's real estate offering by enhancing productivity and well-being in the workplace.

With a making-as-thinking approach, GlobalLogic created a native iOS Swift prototype of the desired experience. The prototype served as a communication tool to facilitate all conversations between design, engineering, and the client's stakeholders—it promoted and drove a common understanding of user needs and business objectives.

### Outcome

GlobalLogic designed a scalable, ownable, white-label workplace experience that provides multiple jumping off points for different critical actions in users' day-to-day work life (calendar events or wayfinding).

The solution recognizes the diverse work ways and creates a customized experience. It helps new employees get acquainted with their environment, enables returning users to discover spaces and amenities.



Thank you!