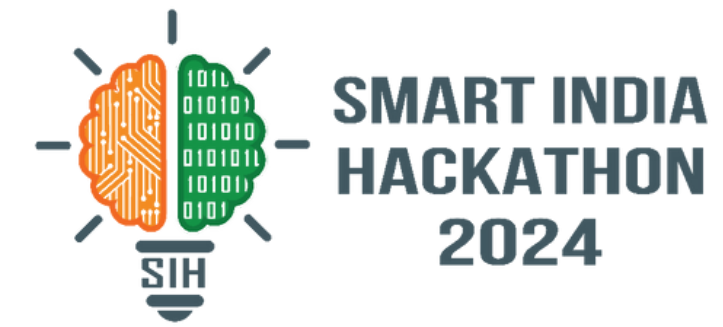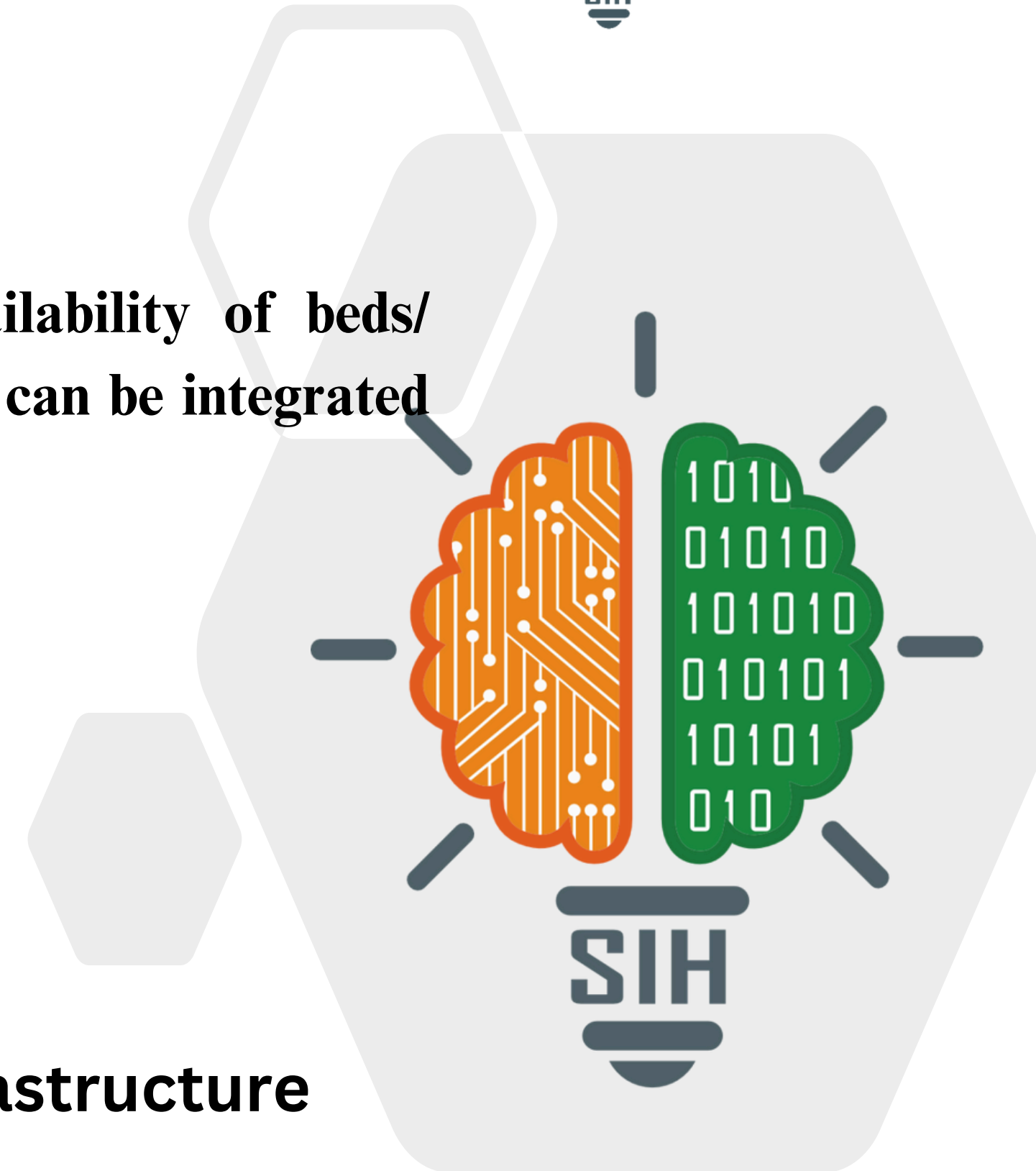# TITLE PAGE

- <u>Problem Statement ID</u> – 1620
- <u>Problem Statement Title</u> - Queuing models in OPDs/ availability of beds/ admission of patients. A hospital-based solution is ideal which can be integrated with city wide module
- <u>Theme</u> - MedTech/BioTech/HealthTech
- <u>PS Category</u>- Software
- <u>Team ID</u> - 31059
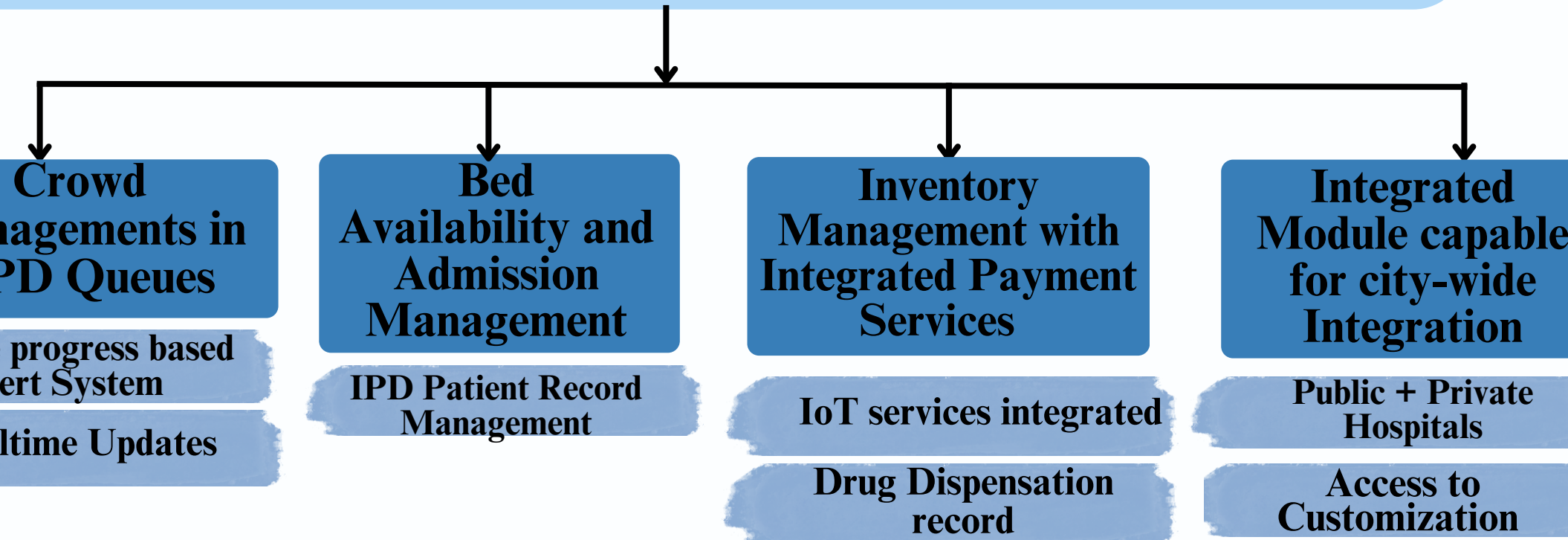- <u>Team Name - Alpha Spark</u>

<u>IDEA TITLE</u>

MAHI - Management Application for Hospital Infrastructure

MAHI - Management Application for Hospital Infrastructure

Alpha Spark

Proposed Solution - MAHI

Single Multilingual Application for All Purposes

Crowd Managements in OPD Queues
- Queue progress based Alert System
- Realtime Updates

Bed Availability and Admission Management
- IPD Patient Record Management

Inventory Management with Integrated Payment Services
- IoT services integrated
- Drug Dispensation record

Integrated Module capable for city-wide Integration
- Public + Private Hospitals
- Access to Customization

How it Addresses the Problem

- Patient QR for quick access to view and update medical records.
- Eliminates the need for multiple apps, unlike NIC.
- Scalable and secure for seamless city-wide integration.
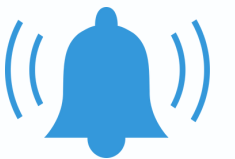- Ensures medical data confidentiality with encryption and hybrid cloud.

Innovation and Uniqueness of Solution

- Access for rural users via a simple WhatsApp bot and toll-free number

- **AI-Based Navigation for Hospital Infrastructure**
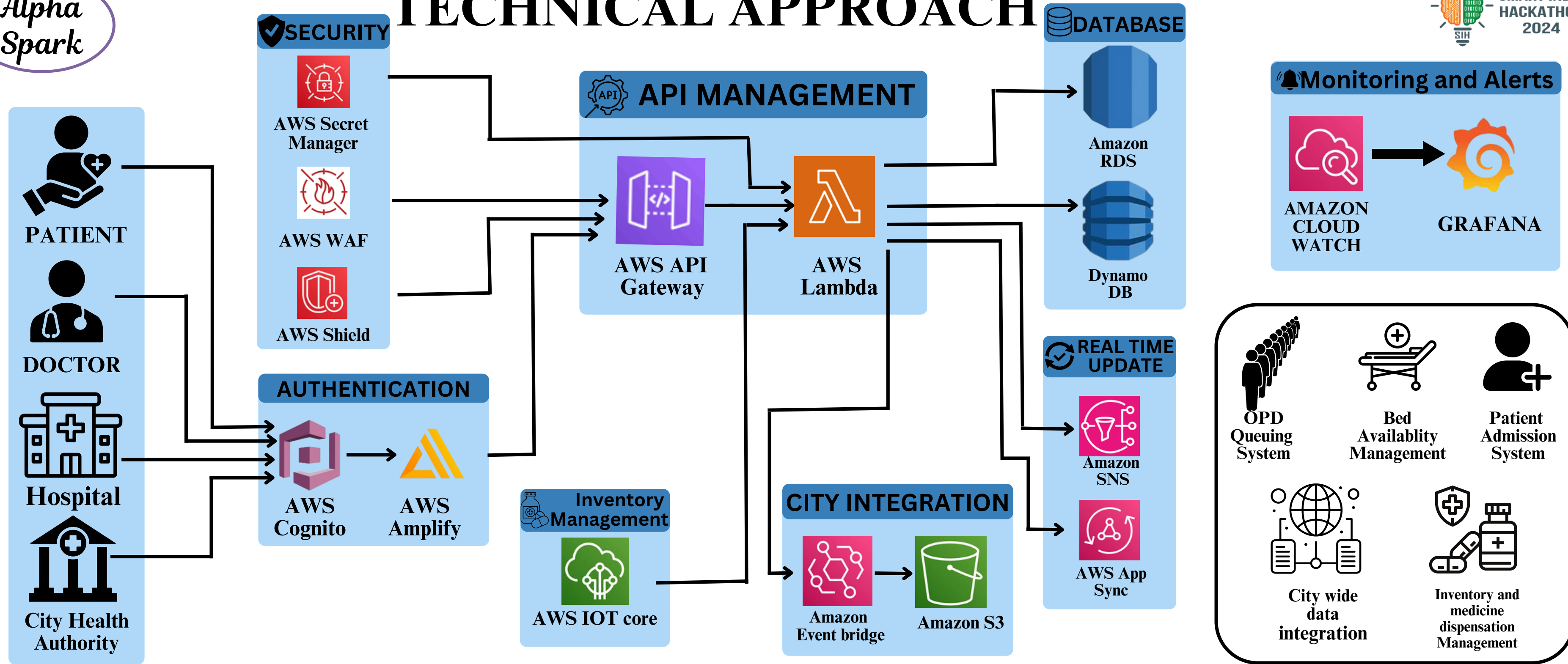
- Suggested alternative hospitals based on available services.

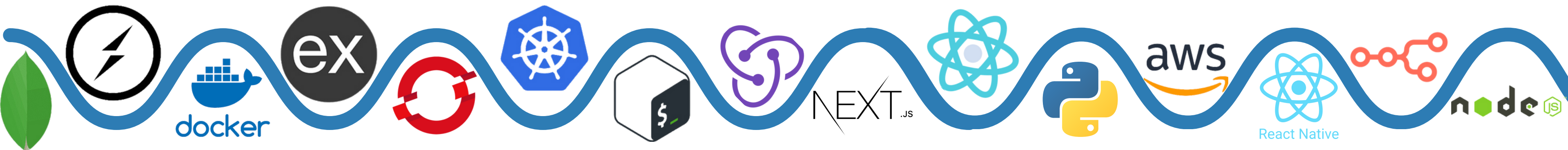- Patient QR for quick access to view and update medical records

- Dashboard for Data Analytics with necessary insights

TECHNICAL APPROACH

SMART INDIA HACKATHON 2024

SECURITY
- AWS Secret Manager
- AWS WAF
- AWS Shield

PATIENT

DOCTOR

Hospital

City Health Authority

AUTHENTICATION
- AWS Cognito
- AWS Amplify

API MANAGEMENT
- AWS API Gateway
- AWS Lambda

DATABASE
- Amazon RDS
- Dynamo DB

Monitoring and Alerts
- AMAZON CLOUD WATCH
- GRAFANA

Inventory Management
- AWS IOT core

CITY INTEGRATION
- Amazon Event bridge
- Amazon S3

REAL TIME UPDATE
- Amazon SNS
- AWS App Sync

- OPD Queuing System
- Bed Availablity Management
- Patient Admission System
- City wide data integration
- Inventory and medicine dispensation Management

TECH STACKS

docker ex NEXT.js aws React Native node js

Alpha Spark

Analysis of Feasibiliy

Challenges

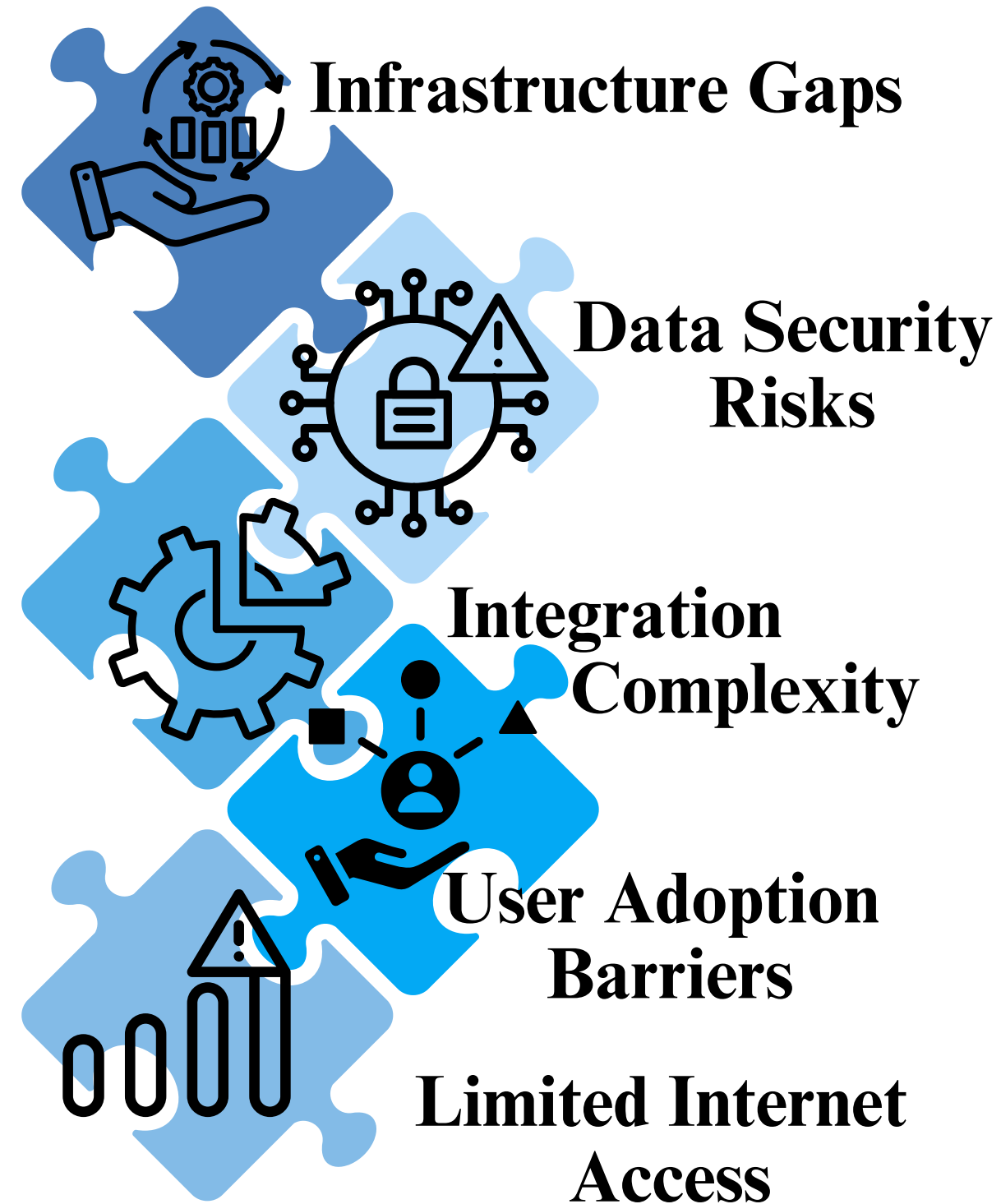# Corresponding Strategies to Overcome

Build on top of NIC Modules

Scalable via secured Cloud based services

Technical Readiness through Open-source Softwares

Cross-Platform Compatibility

Infrastructure Gaps

Data Security Risks

Integration Complexity

User Adoption Barriers

Limited Internet Access

AWS, OpenShift, and Docker for scalable hybrid cloud deployment.

Secure real-time data with Node.js Socket.io, and Kubernetes

Ensure seamless integration using Express.js, MongoDB, and monitor via Grafana.

Provide a multilingual, user-friendly interface with React Native, Next.js, and AI navigation.

Enable offline functionality with AWS, Node.js, and SMS via Python

RESEARCH AND REFERENCES

WORKING PROTOTYPE

https://ehospital.gov.in/ehospitalsso/ehosModuleList.jsp

https://informatics.nic.in/uploads/pdfs/1705c896_info_apr_2022_14feb23_final_compressed_1.pdf

https://www.sciencedirect.com/journal/operations-research-for-health-care

https://www.smartqueue.com.au/smartqueue-for-healthcare-centers/

Progress Report:

The MAHI project is 80% completed, with final optimizations and testing in progress.

MAHI

JOIN US
Your Health Journey!

User sign up

Doctor sign up

Hospital sign up

User Information

Gender

Female

Phone Number

+91-456-7890

Address

123 Anywhere St., Any City, ST 12345

City

Any City

Country

Any Country

Medical Reports

Upload in PDF

Weight

Vivek Mishra

Father Name

Vivek Mishra

All the details are correct

Submit