



International Conference
on Smart Mobility

Hajj and Umrah Pilgrimage Registration Process Decentralized Apps

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@2023

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Hajj & Umrah Pilgrimages Registration Process Decentralized Apps



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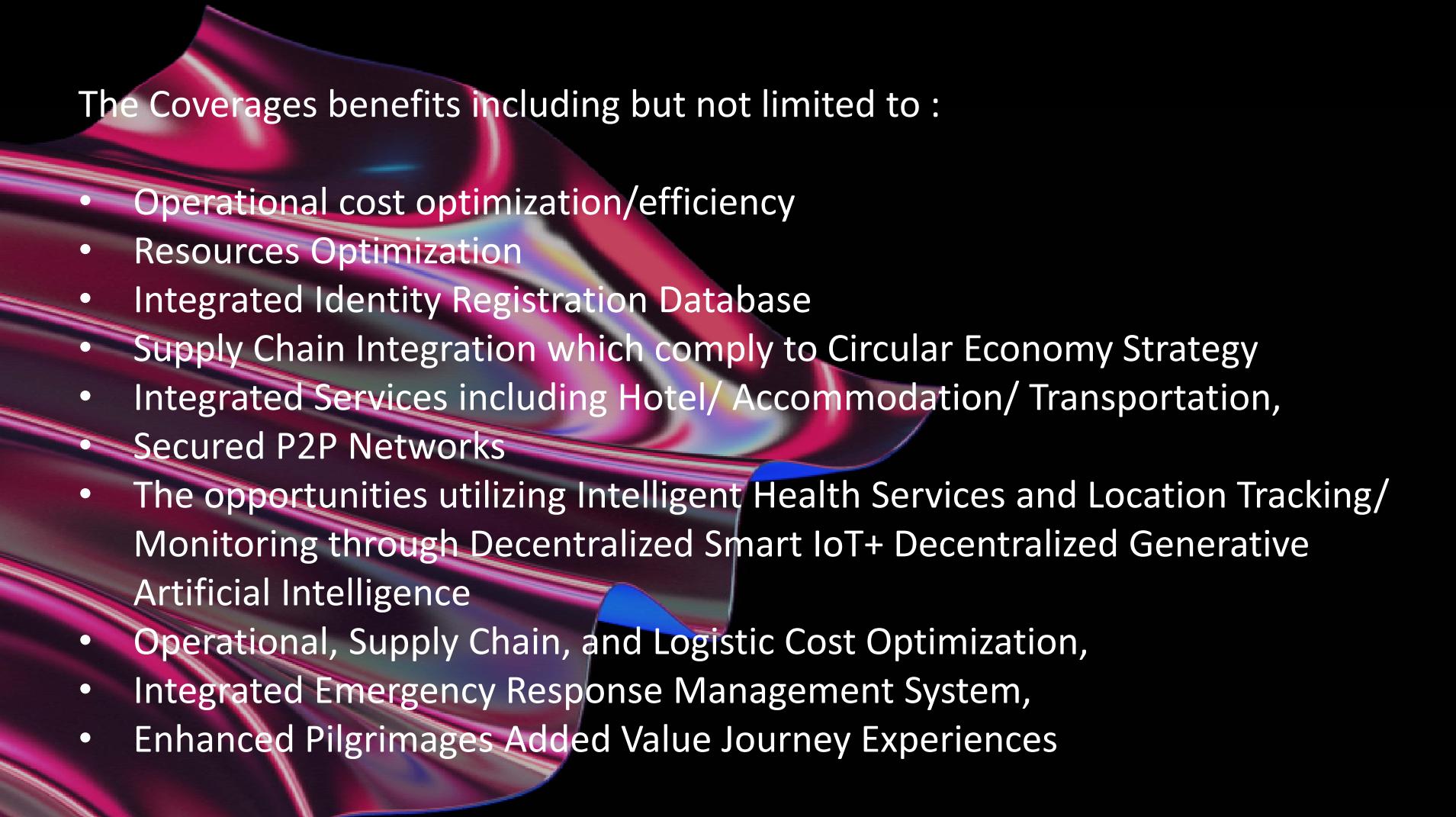


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Background and Problem Statement Initiatives:

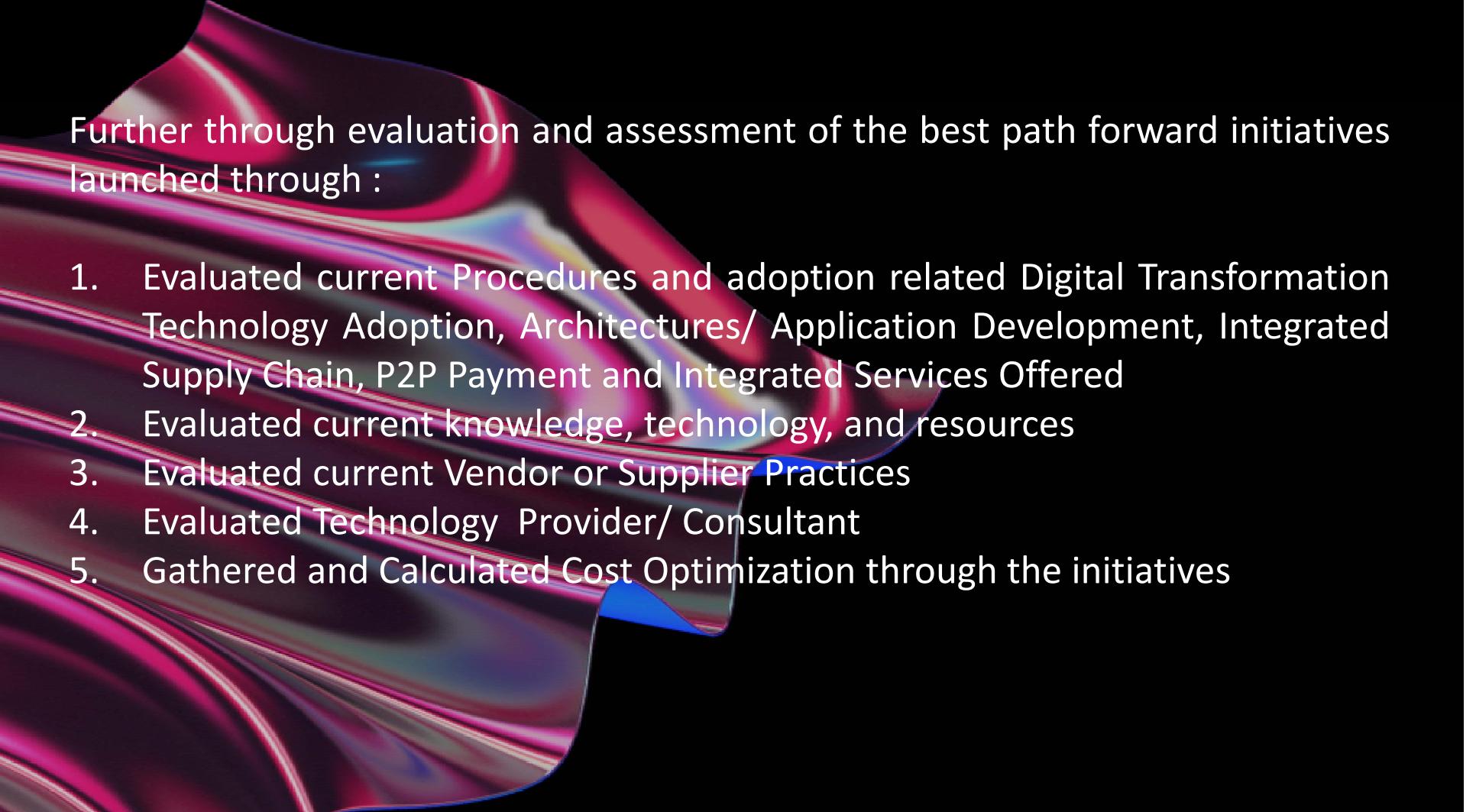
Every year 2-3 million pilgrims with different background and most of them are elderly from 184 countries in the world congregate in the holy place ‘Haram’ at Makkah in Saudi Arabia to perform Hajj and Umrah. Problem facing by Pilgrims starting from the registration process which involving multi channel including Visa arrangement, travel management, Health Screening, etc. Follow hardship of travel, weather, continuous religious activities at specific time and sites will lead to injury, tiredness, sick, and exhausted. Moreover other significant problems including missing and lost pilgrims, injuries, and even death.

Hajj and Umrah Pilgrimage Smart Mobility Decentralized Application bring all the integrated services which required by pilgrims and government of Saudi KSA including integrated identity database registration process, health monitoring, personal tracking, integrated transportation and accommodation, etc. as one application which are running on safe and secured decentralized infrastructures.



The Coverages benefits including but not limited to :

- Operational cost optimization/efficiency
- Resources Optimization
- Integrated Identity Registration Database
- Supply Chain Integration which comply to Circular Economy Strategy
- Integrated Services including Hotel/ Accommodation/ Transportation,
- Secured P2P Networks
- The opportunities utilizing Intelligent Health Services and Location Tracking/ Monitoring through Decentralized Smart IoT+ Decentralized Generative Artificial Intelligence
- Operational, Supply Chain, and Logistic Cost Optimization,
- Integrated Emergency Response Management System,
- Enhanced Pilgrimages Added Value Journey Experiences

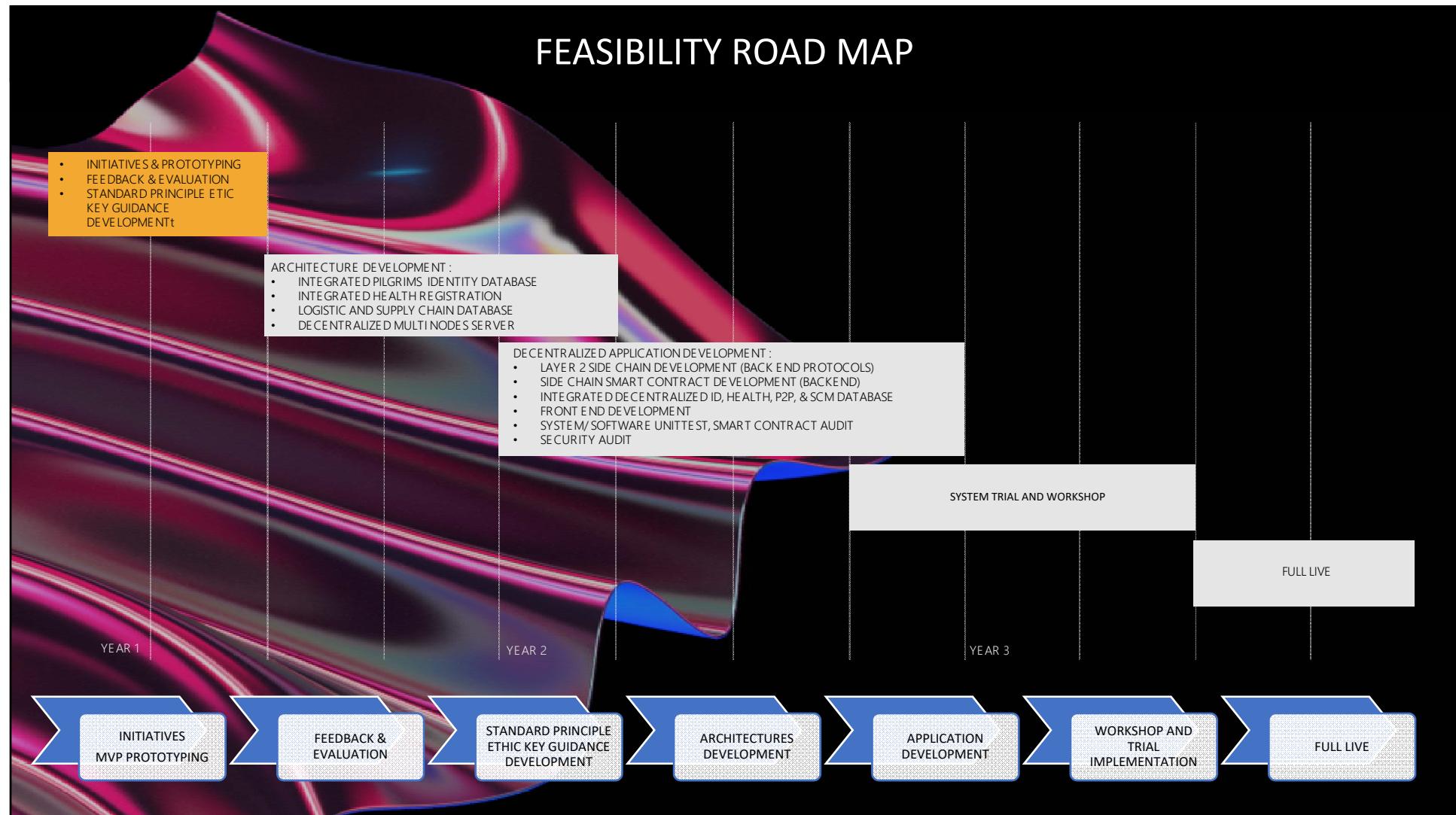


Further through evaluation and assessment of the best path forward initiatives launched through :

1. Evaluated current Procedures and adoption related Digital Transformation Technology Adoption, Architectures/ Application Development, Integrated Supply Chain, P2P Payment and Integrated Services Offered
2. Evaluated current knowledge, technology, and resources
3. Evaluated current Vendor or Supplier Practices
4. Evaluated Technology Provider/ Consultant
5. Gathered and Calculated Cost Optimization through the initiatives

Initiatives Advantages:

- Integrated Pilgrimage Identity Registration Database,
- Transparent Information to Pilgrims End User,
- Resources Optimization through Decentralized Server,
- Pilgrimage Integrated Services during in Makkah or Madinah,
- Supply Chain Services Integration including Hotel/ Accommodation/ Transportation,
- Integrated Payment Services through Secured P2P Networks,
- Health Services and Location Tracking/ Monitoring through Decentralized Smart IoT+ Decentralized Generative Artificial Intelligence,
- Operational, Supply Chain, and Logistic Cost Optimization,
- Integrated Emergency Response Management System,
- Enhanced Added Value Pilgrimages Journey Experiences



Measurable:

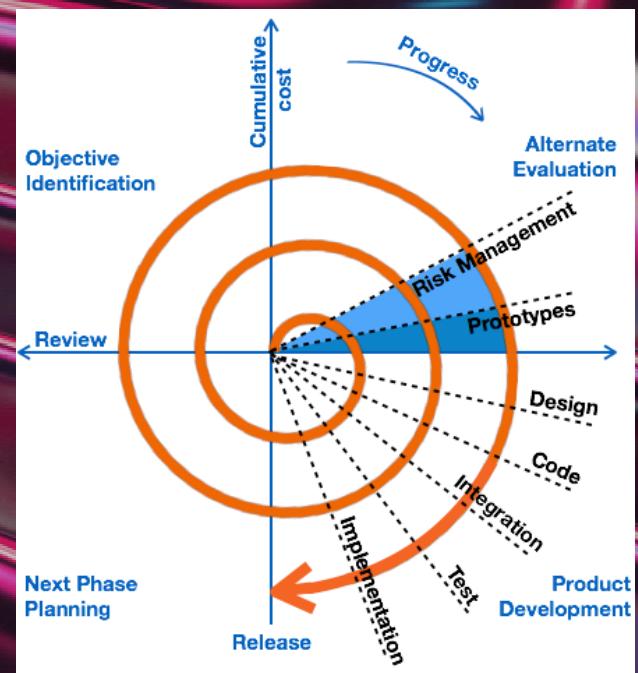
The initiative outcome could be measured through :

- Delta cost optimization as part services product efficiency.
- Delta Customer Satisfaction Ratio as part customers journey experiences

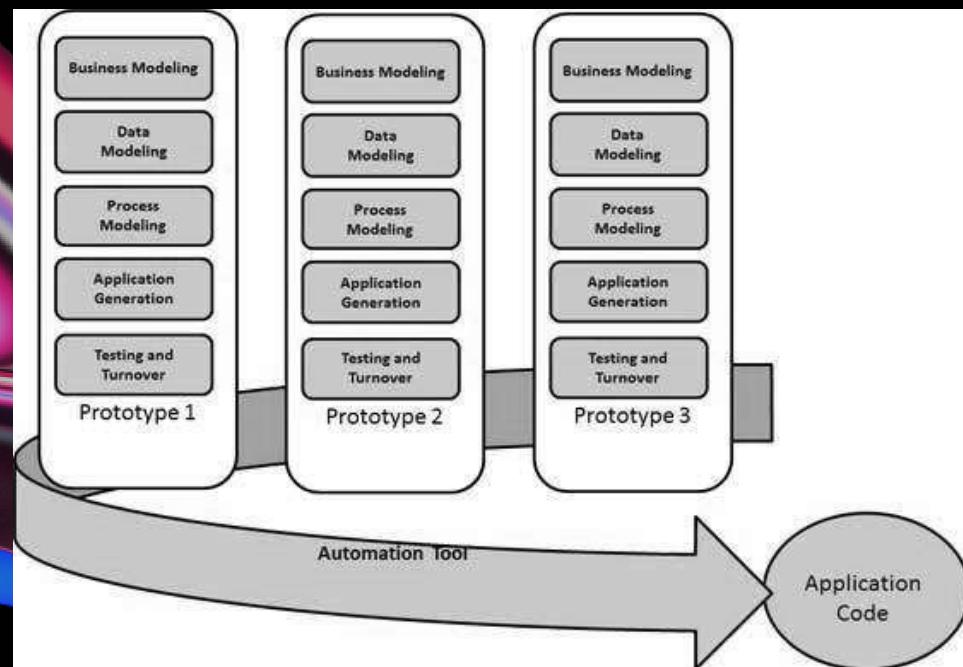
Project Initiatives Aligned :

- The initiative is aligned with Saudi KSA Vision & Mission Umrah/ Hajj 2029 Road Map
- The path selection through Partnership as part cost - time effective and to ensure all aspect requirement has been accommodate and comply with standard and regulation

SOFTWARE DEVELOPMENT LIFE CYCLE ADOPTION



Spiral Model



Rapid Application Development (RAD)

Criteria	Layer 1	Layer 2
Definition	Layer 1 scaling solutions are modifications in the base protocol of the blockchain network to achieve improved scalability.	Layer 2 scaling solutions involve the use of off-chain services or networks to improve scalability.
Working	Changes in the base protocol, such as larger block sizes or new consensus mechanisms, can empower scalability.	Sharing the transaction ordering and processing workload with off-chain solutions improves scalability.
Types	<ul style="list-style-type: none"> • Consensus protocol improvements • Sharding • Modifications in block size 	<ul style="list-style-type: none"> • Nested blockchains • Sidechains • State channels

Types of Layer-2 Solutions

01. Nested Blockchains

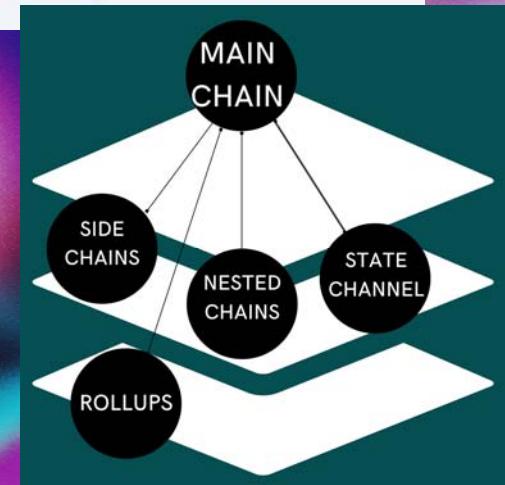
State Channels & Payment Channels

02.

03. Sidechains

Rollups

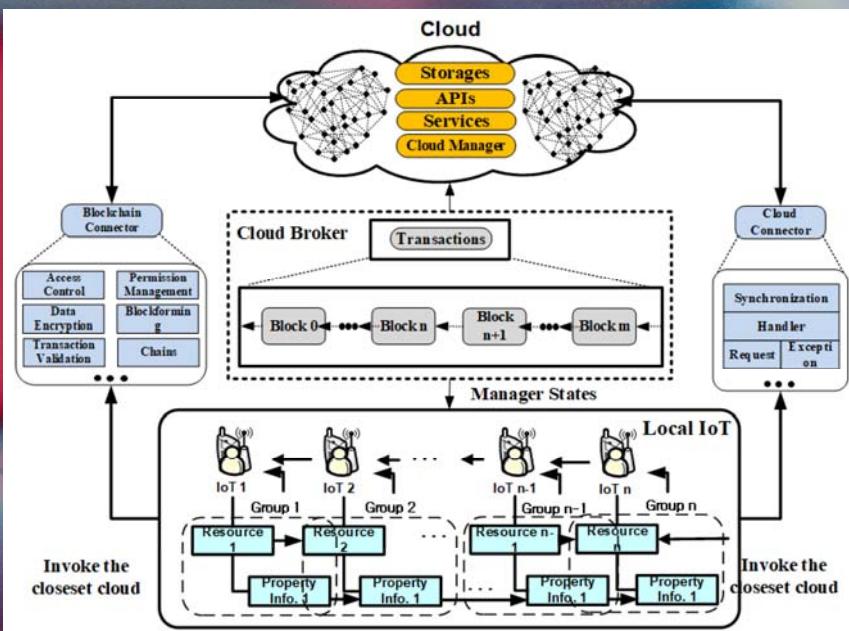
04.



LAYER-2 PROTOCOL SELECTION FOR SCALABILITY



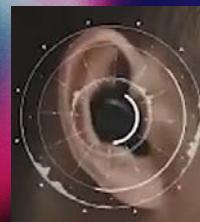
Decentralized Integrated Hajj/ Umrah Registration & P2P Payment Process



IoT - Blockchain Architectures



Smart ID Badge with finger print authentication (ZK Verification), Access Services ID, and P2P Payment Protocols



Smart Earpiece with activity update, language translation



Smart Wristband with Health and Activity Monitoring and Personnel Tracker



Thank you