NICT ASEAN IVO FORUM 2015

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IoT Open Innovation Platform

Adoption of Open Innovation Platform for collaborative IoT solutions and applications development.

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Internet of Things (IoT)

Web of smart devices.
50B devices by 2020[1]

Intelligent network of data and services

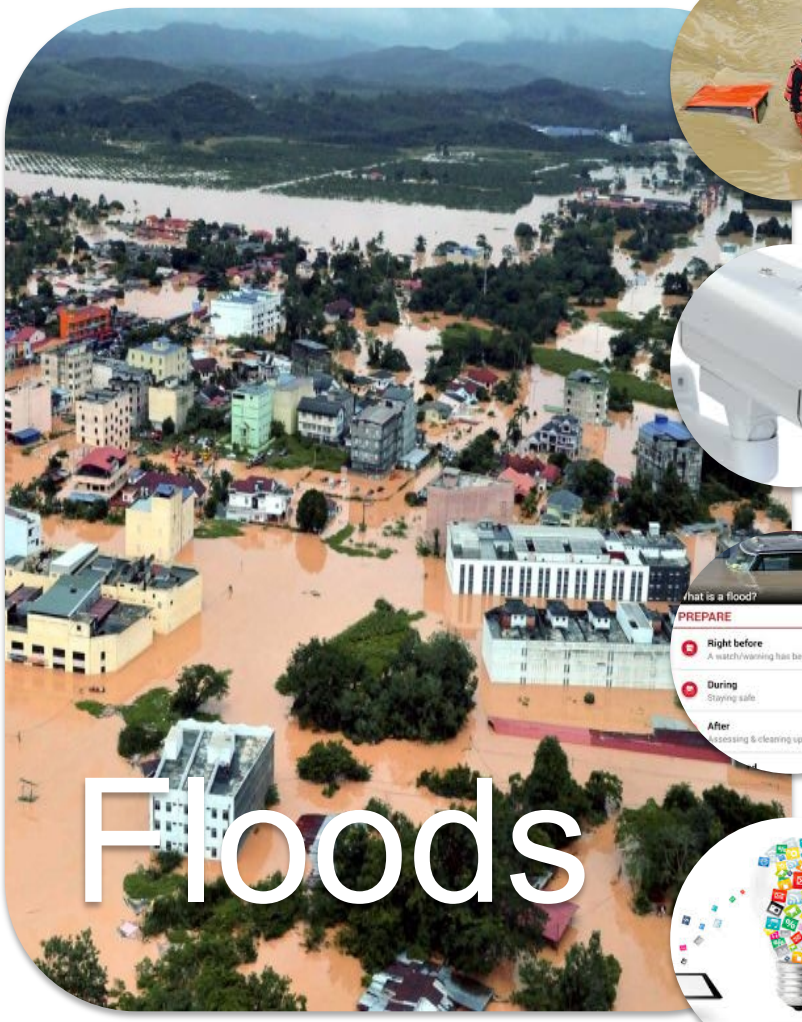
Huge market for smart and mobile applications

The widespread usage of smart phones and smart sensors in the network today has transformed the network into a connected web of smart devices and intelligent services.

1. Sources: Cisco

Huge Demand for Applications & Services

Natural Disaster Relief Use Case



Search and Rescue
Flood Relief

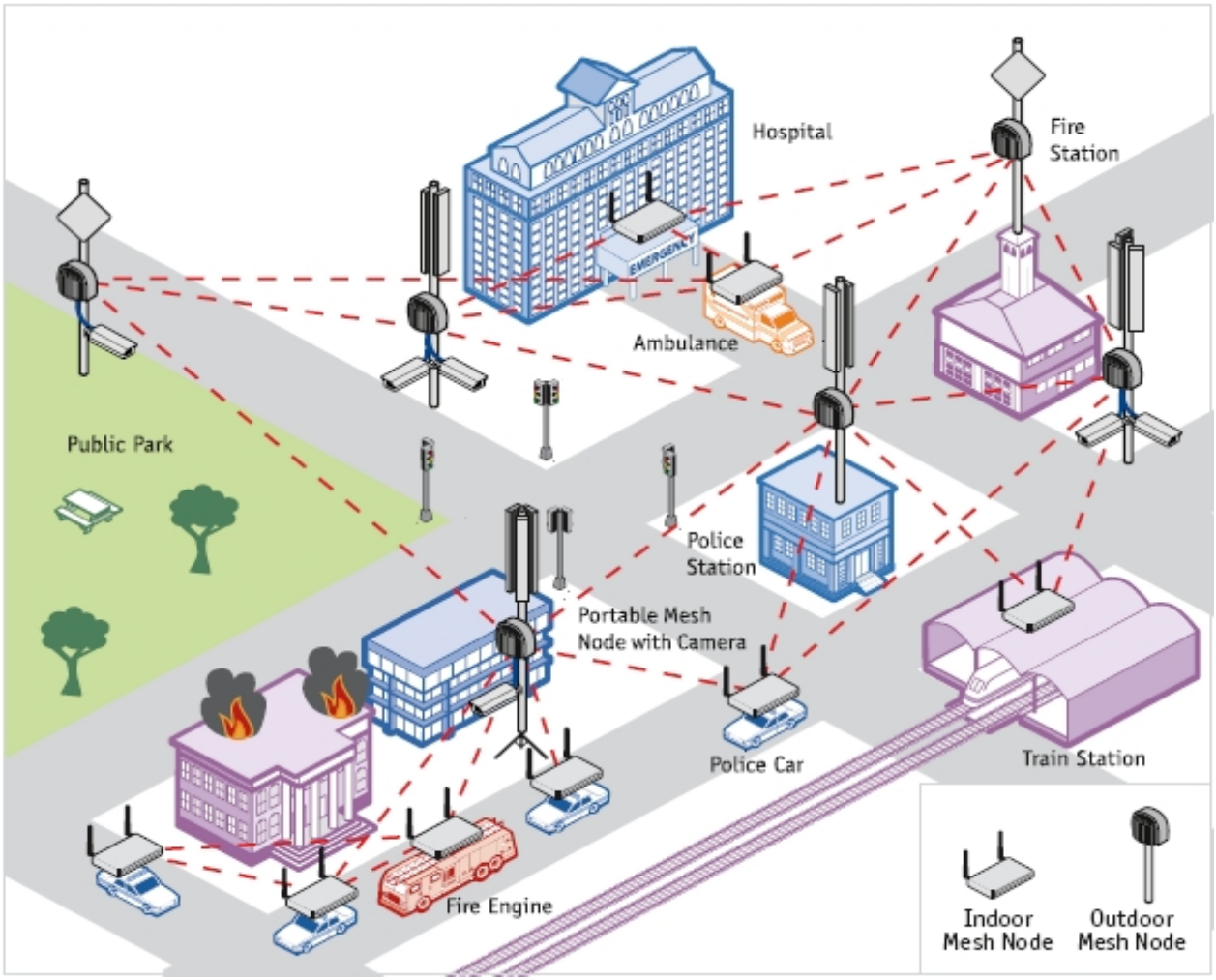
Surveillance & Monitoring System

Flood Relief IoT Application urgently needed

Rapid creation of live saving & relief applications

Customer Aware Retail Advertisement Use Case

Public Safety Rescue Integrated System Use Case



Cars

Traffic Light

Fire Truck

Camera

Hospital

Fire Station

Assisted Living for the Elderly Use Case

Social Needs

Medical Care

Physical Care

Family Ties

Communication

Self Reliance

Rapid Changing Market Requirements

Rapidly changing market require rapidly changing applications. Otherwise they become obsolete and unusable.

Challenges in IoT Applications

- **Pervasiveness**: Widespread use of connecting devices creates a huge network of many different types of IoT devices to [illegible]es the complexity to interconnect devices.
  - Application centric platform[illegible] layer to connect to the different devices available.
- **Complexity**: No common stand[illegible]ncompatibility of technologies among different system provider. Huge [illegible]fort.
  - Platform middleware provi[illegible]egration by adopting common standards.
- **Vulnerability**: Multi-vendors pr[illegible] services. No control over your own data, services and security.
  - Platform includes private c[illegible]loud adoption to provide platform ownership.
- **Diverseness**: Market place has [illegible]changing requirements. Applications will take too long to develop and de[illegible]cy tools and platforms. Need to produce compelling application[illegible]
  - Platform provides the facility to develop and test applications rapidly.

Application Enablement Platform

Platform Middleware

Platform Ownership

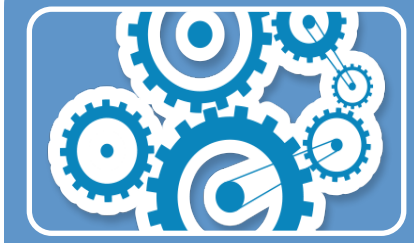
Rapid Development Platform

Opportunities in IoT Applications

An IoT platform needed to provide these features

Challenges in IoT Applications

Application Enablement Platform



Platform Layer

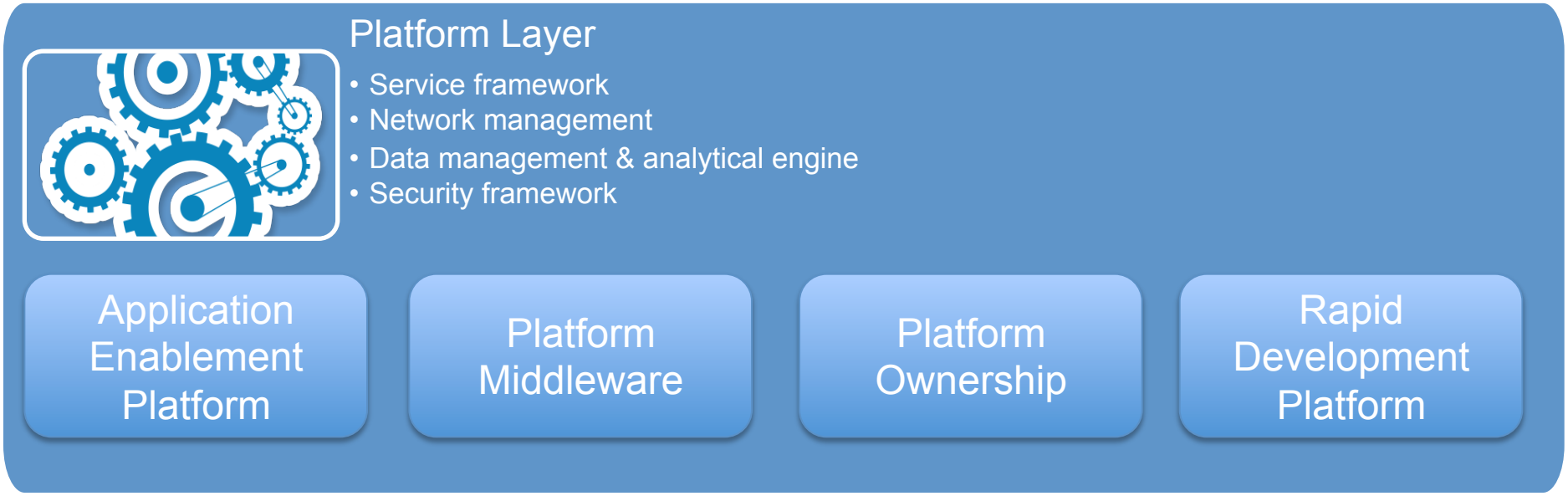
- Service framework
- Network managem
- Data management
- Security framework

Platform Middleware

Platform Ownership

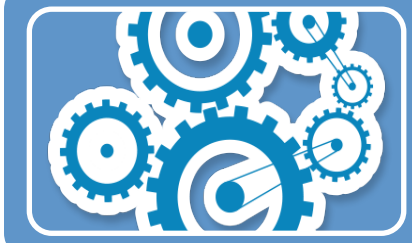
Rapid Development Platform

Platform Layer Realization



IoT 4 Layers Architecture

Application Layer

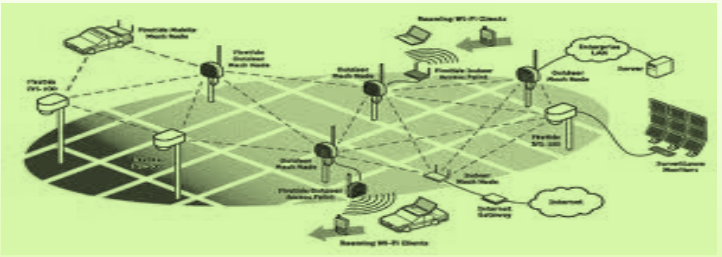


Platform Layer

- Service framework
- Network management
- Data management & analytical engine
- Security framework

Network Layer

- Wired and wireless connectivity
- Edge middleware
- Pervasive network



Sensor (& Actuator) Layer

- Sensors & actuators
- Embedded middleware
- Mobile devices

IoT Open Innovation Framework

Network of sensors and devices

IoT platform bridge between data and services

Services

Device	Sensor	Network
• Smart phones • Tablets • Wearables	• Cameras • Energy Sensors • Soil Sensors	• WIFI • 3G/4G

MIST

MIMOS Internet Services of Things

The key to unlock IoT innovations

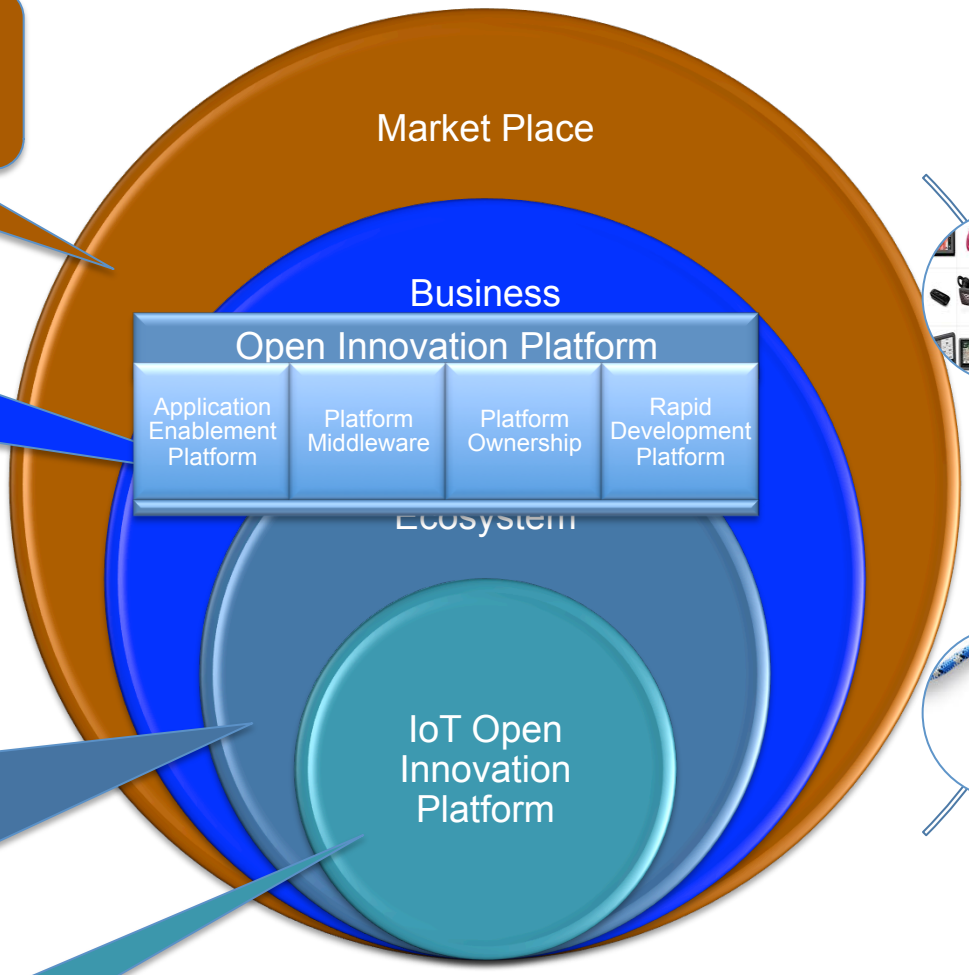
Supporting the Market Place

The arena where values and services are traded

Business plans for revenue generation and profit

Defines the interconnection of things with the internet, the HW and SW platforms, and standards

Technical platform for IoT solutions and applications



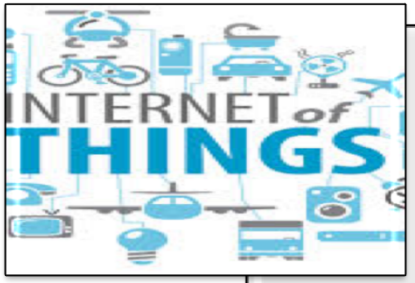
The IoT platform needs to support the Business Model Framework and Market Place

Trends in the Market Place (Telecom Perspective)

Managed Services Trend Will Begin To Rise In Telecom Market

Telecom Providers Will Begin Monetizing Their Data Internally And Externally

Data monetization will be important for mobile service providers to create new revenue streams.



Telecom Providers Will Expand Ecosystem Partners And Drive The Market As M2M Evolves To IoT

Commercialization of Services

Trends

- Managed Services
- Monetized Data
- Internet of Things

Means

Open Innovation Platform

- Application Enablement Platform
- Platform Middleware
- Platform Ownership
- Rapid Development Platform

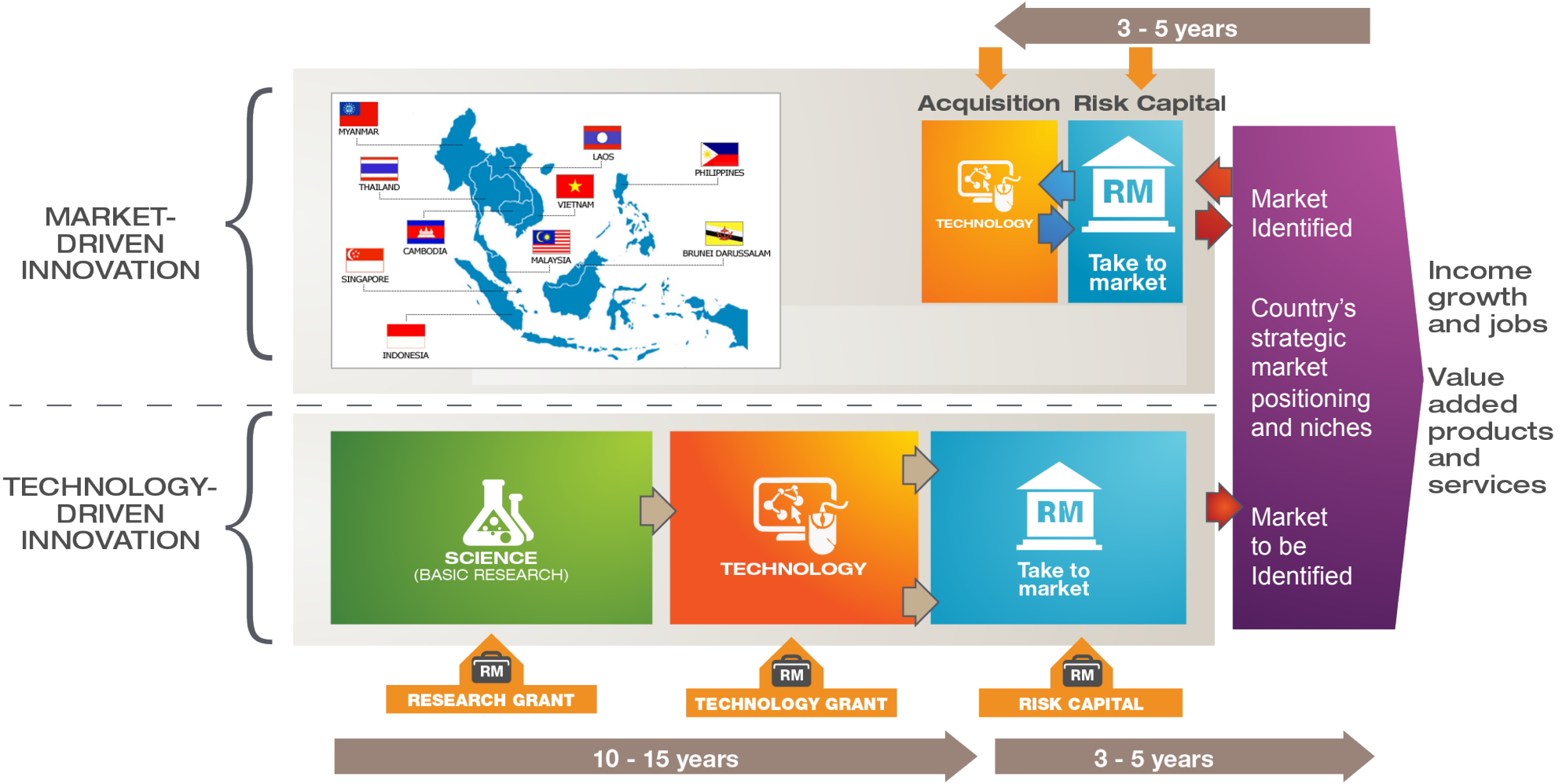
Solutions


Mobile Applications

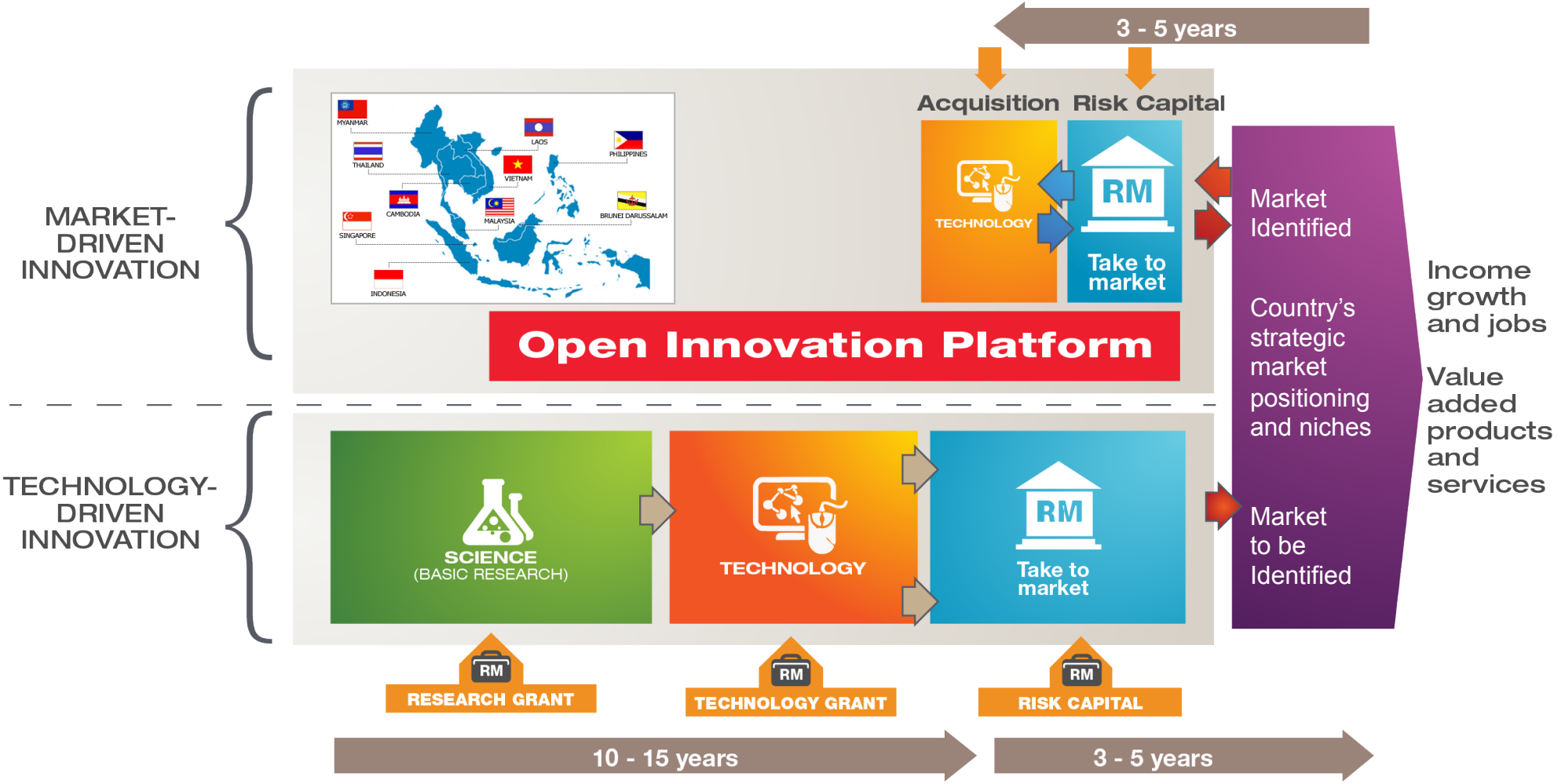

Enterprise Solutions


Consumerization of IoT

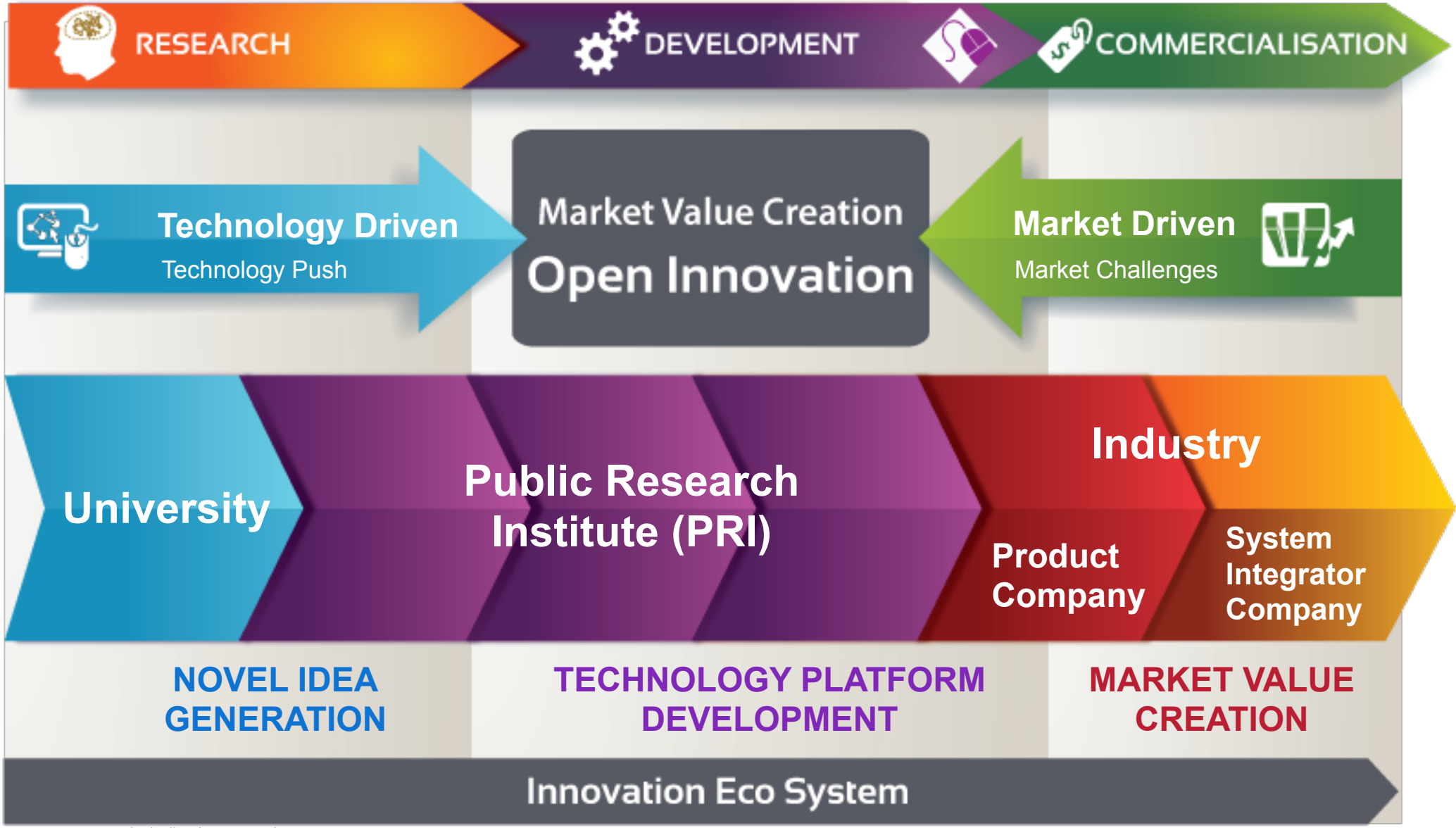
Universal Innovation Model



Open Innovation Platform to accelerate industry growth



Collaborating for Success



Value of Open Innovation Platform

MIMOS

RESEARCH

- Focus on novelty and inventiveness in Technology Research

Sandbox

Research Components

DEVELOPMENT

- Create strategic technology platforms adoptable by researchers and industries

Open Innovation Platform

TECHNOLOGY INDUSTRIALISATION

- Showcase local technology in Domestic Market
- Gov. funds the industry and all Flagship Programs of Ministries

Product Development

COMMERCIALISATION

- Focus on Solutions for Market Verticals
- Go-Global market strategy thru G2G Bilateral Agreements

- Products
- Solutions
- Applications

Acquire | Existing | New Component

Speed To Market Thru Open Innovation Platform

Collaborating for Economic Growth

"Economic growth is based on advances in productivity, and productivity is based on discovery and innovation"

Professor Jeremy Siegel, Wharton.
The Shape of Things to Come, *Newsweek*, April 8, 2010

Innovation Economy
(Knowledge Economy)

High Impact Innovation

New Innovations:

- Business Models
- Services
- Products
- Technologies

Collaborations on IoT Open Innovation Platform

Applications Centric Platform

- Application Integrated Development Environment
- Intelligent Dashboard

Platform Middleware

- Virtual Internet Protocol
- Services Framework

Wireless Network Infrastructure

- Smart Antenna
- Application Defined Network
- Universal Gateways

Proposal Summary

Identify the scope for an IoT Open Innovation Platform for ASEAN

- To provide the medium for collaborations and reuse among academia, research institutes and industries.
- To collaborate among ASEAN and NICT.

Identify technical opportunities for an IoT platform for ASEAN

- How to deliver the value chain for IoT?
- What platform to meet the needs of ASEAN countries market place?
- What specific technologies required for ASEAN unique requirements?

Propose a development plan for an ASEAN IoT platform

- Propose a prototype based on the requirements and scope required.

Thank You