The 4 Steps of Digital Transformation

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Senior Director, Strategy & Operations, IoT
Device Partners, Microsoft
Here’s what we’re covering

- Four steps of digital transformation
- Differences between PaaS & SaaS
- P&L opportunities by partner type
- Digital transformation case studies
Digital Transformation

**Business Insights**
- Sensor proliferation
- Data collection, transfer, storage and processing
- New insights - understanding product and service more deeply

**Operational Efficiencies**
- Process engineering and product engineering improvements
- Cost reduction
- Time to market reduction
- Predictive maintenance

**New Business Models**
- Provision of services alongside devices and hardware.
- Devices / hardware / machines delivered “as a service”.

**Features and Rev Streams**
- Enablement of ancillary businesses, new businesses and transformed businesses
Digital Transformation

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Features and Rev Streams

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- AAEON
- NEynamcom
- Avalue Technology Inc.

Linker Networks

IoT in Action
Transformation in your...

Market offering
- From “MRI Scanner” to “Remote diagnostics subscription”
- From “Industrial Machine” to “Machine uptime subscription”
- From “Thermometer” to “Temperature Control Service”

Profitability
- From hardware margin to subscription margin
- From capex to capex+opex

Customer relationships
- From transaction relationship to annuity relationship
- From procurement relationship to business owner relationship
IoT ... “as a service” models

**IoT Platform (as a Service)**

<table>
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<th>Customer/ 3rd Party</th>
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Suitable for more complex solutions requiring high controllability, high customization, with low endpoint volume

**Partnership Opportunities for PaaS providers:**

- System Integrators for integrating customer apps into platform
- ISVs for delivering companion apps for customer integration
- Cloud Service and Connectivity Providers for IaaS services

**IoT Software (as a Service)**

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Suitable for less complex solutions and common use cases requiring low degree of customization, with high endpoint volume

**Partnership Opportunities for SaaS providers:**

- ISVs for app dev
- Channel partners for customer acquisition
- Cloud Service and Connectivity Providers for IaaS services
- CRM partners for customer data management
IoT Platform (as a Service)

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IoT ... “as a service” models... in Microsoft

**IoT Platform (as a Service)**

**Azure IoT Solution Accelerators**
Solution accelerators for customers with cloud solution expertise and the need to fully customize

**IoT Software (as a Service)**

**Azure IoT Central**
Fully managed IoT SaaS
No cloud solution expertise required

Built on the same Azure IoT Platform Services
Opportunities for P&L transformation by business type
Opportunities for P&L transformation by business type

**ISV**

**New Insight opportunities**
Enhance customer experience by understanding how product features are used.

**Operational efficiencies**
Increase speed to market and reduce cost through process automation.

**Business Model changes**
Subscription-based services.

**New Revenue opportunities**
Consumer apps represent a new channel for future services.
Opportunities for P&L transformation by business type

System Integrator

New Insight opportunities
Remote monitoring of systems and processes.

Operational efficiencies
Remote troubleshoot and problem resolution. Service engineer arrives with right parts to fix physical infrastructure.

Business Model changes
Selling repeatable solutions and retaining IP.

New Revenue opportunities
New services offerings such as business consulting, data science and device lifecycle management.
Opportunities for P&L transformation by business type

**Solution Aggregator**

**New Insight opportunities**
Remote monitoring of systems and processes.

**Operational efficiencies**
Single relationship and billing for customer including applications, infrastructure and cloud.

**Business Model changes**
Aggregation of hardware and software-based connected device solutions for specific verticals.

**New Revenue opportunities**
Subscription-based revenue.
Higher margin for higher value services than pure hardware distribution.
Opportunities for P&L transformation by business type

Device Builder / OEM

New Insight opportunities
Insight on how product is used in the field.

Operational efficiencies
Decrease manufacturing downtime by predicting and resolving issues before they happen.

Business Model changes
Product as a service.

New Revenue opportunities
Attach and monetize new services.
Introducing an example of all four steps of business model transformation through broad ecosystem partnership
Intelligent Street Light
Infrastructure for smart city

• Energy Saving
• More sustainable & cleaner environment

• Operational Efficiency
• More Safety
Please welcome...

Steve Hsu
Senior Advisor, IoT Business & Services, AAEON Technology Inc.
Intelligent Street Light
Infrastructure for Smart City

Presenter: Steve Hsu
Title: Senior Advisor
Date: 2018.12.12
Transition from Products to Solutions

**Applications**
- Transition from Products to Solutions

**IOT PLATFORMS**
- SPD
- NSD
- RMD
- IOT

**INDUSTRIAL SYSTEMS**
- Embedded Box PC, HMI/Panel PC
- Firewall & NVR
- Rugged Tablet PC

**EMBEDDED CPU BOARDS**
- Embedded CPU Board
- Industrial Mother Board

**SOLUTIONS**
(Smart City & Smart Mfg)

**PLATFORM**
(Cloud, API, Data Conversion, Data Mgt...)

**PRODUCTS**
(sensor/node, RF wireless, Gateway...)

MCU Nodes & ATOM/ARM Gateway w/ Wireless
LED Streetlight with 7-Pin NEMA Socket

Wireless Network:
- Sub-G with Gateway
- NB-IoT/LoRa with Basestation

Data Centre:
- The Cloud
- User’s Server

Powered by Microsoft Azure

CMS Platform
Central Management System (CMS)

- Real-time inspection
- Remote control
- Schedule management
- Fault detection
- Asset management
- Report and analysis
- Open API for integration

Open Integration
Azure IoT Service for Edge-x

Application Server

Data Processing and Analytics

Device Connectivity

Application Server → Api Service → Azure SQL Database

Azure Cache for Redis

Service Fabric Reliable Service

Realtime data processing

Alarm

Data Parser 2 db

Non-Realtime data processing

Alarm Job

Schedule Job

Other Job

IoT Hub

Gateway

power meter

Streetlight

Azure IoT Hub
Intelligent Streetlight based Smart City

**Future Proof**
Connected street lights are the hubs for smart city sensors to transfer data

**AI / Data Analytics**
To let the authority precisely evaluate and plan the policy

**Intelligent Lighting**
Monitored and managed wirelessly dimmable street lighting

**Smart Surveillance**
Detection of movement by pedestrians, cyclists and cars

**RFID**
Traffic management and parking information

**Emergency Call**
A communication device designed for the public to easily call for help

**5G MicroCell**
Micro cell for 5G deployment

**Airbox**
Air quality monitoring, such as PM2.5

**Digital Signage**
Deliver public messages and increase revenue opportunities with interaction

**Charge Station**
Charging station for electric vehicles
Case Study – Taipei City Installation

- IP Cam & Image Recognition
- Emergency Alert
- Emergency Intercom & Video Call
- Interactive Screen
- Lighting Controller
- Weather Sensor
- Free Wi-Fi
- Gateway
- First Aid Kit
- USB/Wireless Charging Station
- UPS Battery Backup
Smart City Features for Taipei City

- **Real-time Info**
- **Management**
- **Statistics & Report**
Case Study - Integrated Digital Signage

- Display local time of the year, month, and day of the year
- Display real-time meteorological information about temperature, humidity, air pressure, wind speed, rainfall, PM2.5, and match weather forecast information
- Set the theme photography to 4 featured landmarks in the park. After starting the photography lens, you can select the theme screen to make a background photo.
- 228 Park covers a large area, rich in historical information, designing this park map as a guide
- Put on the promotion videos of recent activities in different seasons or put in time announcements on the marquees. The videos and texts can be updated through the rear management platform.
- To introduce the new green energy generation effect, build the power generation floor under the park mat.
- More interactive systems to enhance people’s interest in pedaling
Enabling w/ Ecosystem Partners

SYSTEM INTEGRATORS
- Hitachi, ARROW, AVNET, Tyco, etc.

PLATFORMS BUILDERS
- Microsoft Azure, ARM mbed, etc

SALES CHANNELS
- INTEL Aggregators
- Microsoft Channel Partners
- Local Channel Partners

INFLUENCERS
- Agencies, Consultants
- City Councils
- Architects and Planners

Know ecosystem players ➔ How does it qualify? ➔ Which outcome is critical and who can make it happen?
Solution/Service Revenue Models

Device Sales
- Sales for units: Nodes, Wireless & Gateway
- Sales for one time: Central Manage System (CMS)

Project
- Solution Enabling
  - Customization Effort (SW, HW)
  - Project Management
- Recurring Support
  - Change Requests/Enhancements
  - Analytics and Reports (CMS)
  - Consultancy

Service/Spares
- Spares Sales (high margin) with Catalogs
- Service & Maintenance (Comprehensive AMC)
Digital Transformation in AAEON

**Step 1 - Business Insights**
- Understanding vertical domains & products/services needs
- Leverage HW competence for HW platform (sensor/node, RF & gateway)
- Partner MS & 3rd parties to build up PaaS & SaaS for applications

**Step 2 - Operational Efficiencies**
- Process/Quality Improvement for Smart Manufacturing
- Remote Monitoring & Control for Smart City
- Prediction & Remote Troubleshoot

**Step 3 - New Business Models**
- Provision of services along with devices
- “Product as Service”; subscription-based, PPP, ESCO...
- Packaging the solutions and duplicate to other customers

**Step 4: Features & Revenue Streams**
- From HW margin to subscription margin
- From transaction to annuity relationship
- New services offering; business consulting, data science
Edge
Brighten Up Your City and your day
點亮你的城市,點亮你的每一天
edgex.cloud
Thank you!