BRINGING THE IOT FROM INDUSTRY TO SOCIETY

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A QUICK IOT STORY
› A fifth object of the invention is to provide control outputs in a TTA system for operating outdoor or indoor advertising displays.

› A sixth object is to provide a TTA system which may be broadcast over telephone company central office dial tone generator equipment to all area subscribers and which will automatically set digital clocks and other machinery.
NEW DOG, OLD TRICKS

‘73
Analog Wired Copper
Wired, SS7, PSTN

Today
Digital, wired or wireless
Wired/Wireless IP

Sensors
Connectivity
Gateway
Network
Applications
BASIC IOT STACK

- Business Layer
- Application Layer
- Knowledge Layer
- Monetization Layer
- Service Enablement Layer
- Communications Layer
- Resource Layer
- Asset Layer

IoT Data and Services
Management
Security
IOT APPLICATIONS ARE EVERYWHERE

Critical Infrastructure Protection
Emergency Response
E-Health
Connected Vehicle
Transport transactions
Traffic Management
Connected vessel
ICT infrastructure for road and rail
Grid control
Public Safety
Strategic Networks
Asset mgmt & critical infra systems
Smart Grid Comm.
Smart Metering
Customer & revenue mgmt

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MISSING THE "I" IN IOT

Closed Loop Solutions Become Ecosystems

- Stove Pipes
- Devices
- Connectivity
- Internal Business

- Open Innovation
- Data & Analytics
- Automation
- Marketplaces
› Need to support establishment of horizontal specialization
› Equipment providers should enable their devices to produce data
› Operators should get into the business of serving data
› With data available entrepreneurs will build Apps
› Society will buy apps that are useful
› Markets, not governments pick winners
SOCIETY BUILT ON TRUST

› I don’t need to grow my own food
› I can buy raw ingredients from one vendor or ready to eat meals from another
› I believe there is a system of rules and enforcement to protect me
WHAT’S THE HOLD UP?

› Afraid to relinquish control
› Don’t want to share
› Fear someone else will make money off of our hard work
› Standards & interconnectivity
› Outside innovation
EXISTING BARRIERS X10

Q: What are the greatest barriers inhibiting business from adopting the industrial Internet?

- Lack of interoperability or standards: 65% (60%), 67%
- Security concerns: 64% (60%), 72%
- Uncertain ROI (e.g., insufficient business cases): 53% (50%), 53%
- Legacy equipment (e.g., no connectivity or embedded sensors): 38% (33%), 47%

Source: World Economic Forum Industrial Internet Survey, 2014
BREAKING THE BARRIERS

DEVICE CONNECTIVITY

BUSINESS MODEL

SOCIETY ACCEPTANCE
Connectivity and Uniformity

- Automotive & Transport
- Energy & Utilities
- Safety & Security
- Other Industry Solutions

- Service Creation & Exposure
- Eco-System Management
- Application Creation & User Interaction

- Analytics & Data Management
- Customer & Revenue Management
- Device Management

Connectivity Management
REACHING CRITICAL MASS

› Value scales with participants and data
› Allow data producers and application creators to join with zero effort
› Requires technical interfaces and flows to be well defined
› How each participant makes money should be clear, each layer designates their own wholesale pricing to the layer above

Image Credit: Paramount Pictures
Onboarding must be frictionless
Each member of the chain can include items from below
Federation Required (Unless Non Profit Consortium)
Who should own all this?
ECOSYSTEM BUSINESS

Must Enable and monetize complex ecosystems

Metadata based systems for changing business models

Open web services for connectivity

Data partitioning for multiple parties

Cloud Scalability

Analytics
Society just wants to use the App

App/ISV is the person the customer thinks of for support. Wants to provide great experiences.

Should operate Business Core, understands how to run high-end back office systems. Has financial depth.

High incentive to turning Products into ongoing revenue streams. Proactively embedding connectivity
› Let the consumers chose
  - Device owners should opt-in to data production
  - Consumers not likely to buy “creepy” apps

› Regulation is inevitable
  - Data Clouds will have some requirements to set and verify data
  - Data Clouds should limit what data can be consumed by what apps in what jurisdictions. Policy enablement is critical

› Security
  - Model is data collection and analysis, always flowing up. Actuators if any would be delivered at the App level and require Consumer conscious action
  - Methodologies exist for verifying integrity of the data (has device been hacked)