

CCTV กับมหานคร แห่งความปลอดภัย

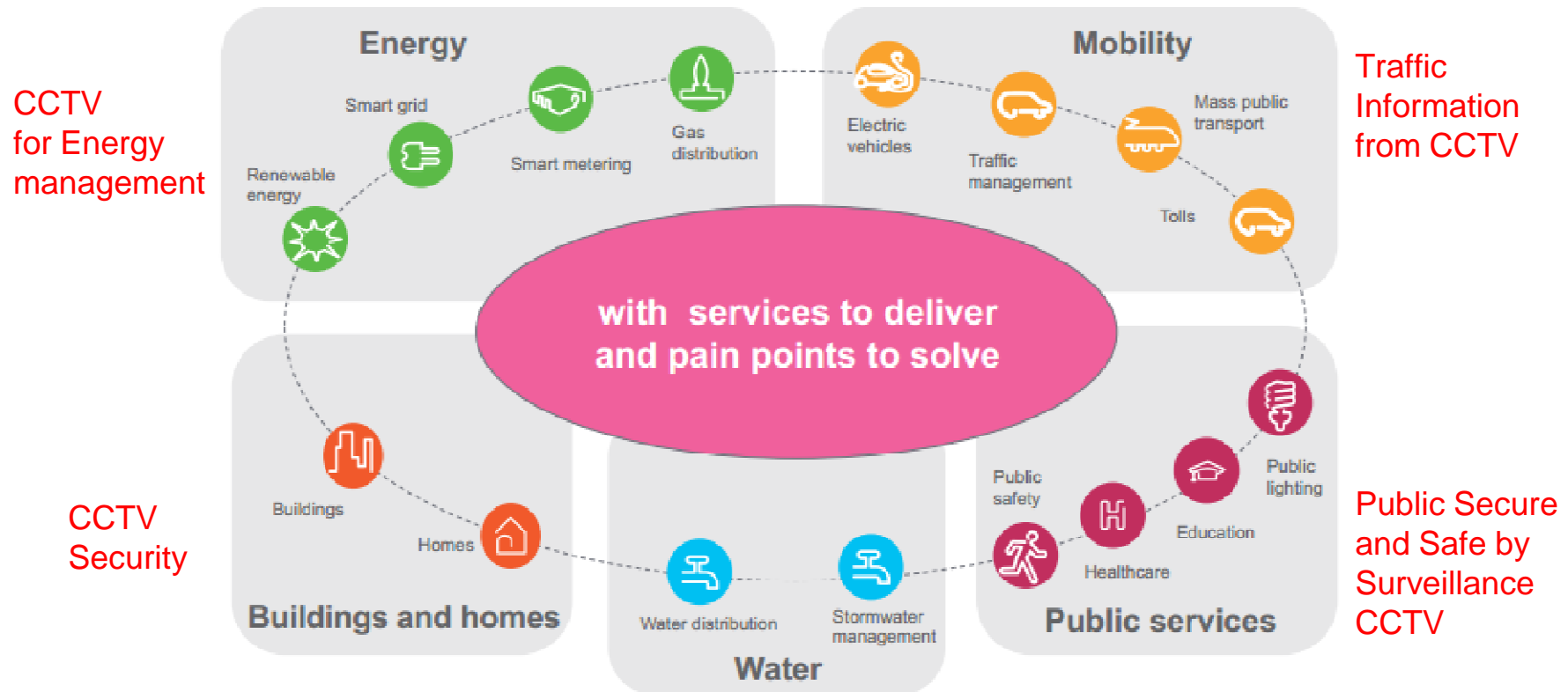
ดร.ภาสกร ประถมบุตร

สถาบัน
NSTDA

Outline

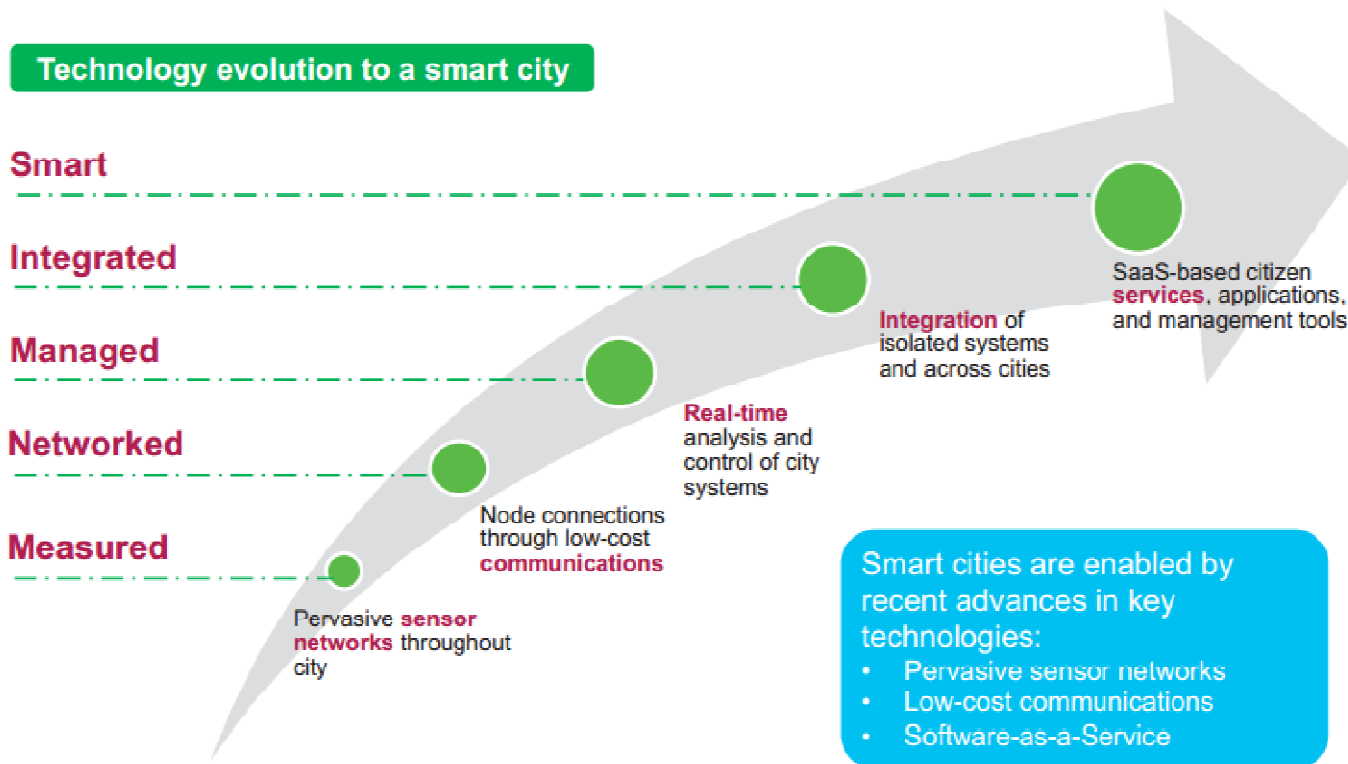
- Smart City concept
- Trend of CCTV
- How to drive CCTV industry?

City Infrastructure



<http://www.iec.ch/whitepaper/pdf/iecWP-smartcities-LR-en.pdf>

Step-by-step approach to becoming smarter



<http://www.iec.ch/whitepaper/pdf/iecWP-smartcities-LR-en.pdf>

Key Technologies in Public Safety/Security

Smart cities are enabled by recent advances in key technologies:

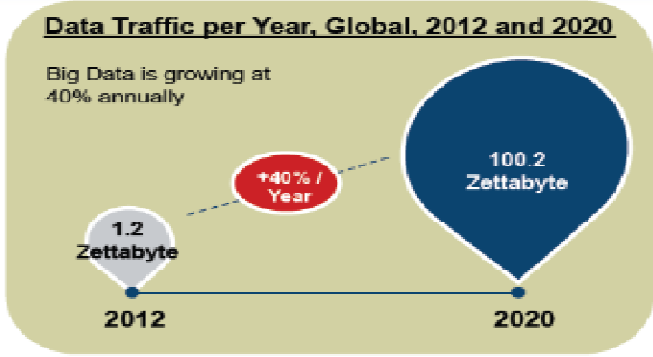
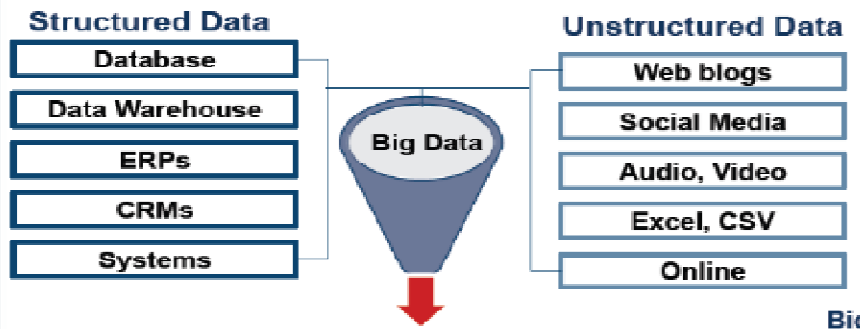
- Pervasive sensor networks
- Low-cost communications
- Software-as-a-Service

- Pervasive sensor networks
 - Sensor: CCTV, Infrared, motion sensor and etc.
 - Human: Social media, wearable device
- Low-cost communication
 - WiFi, 4G, 5G, FTTX
- Software as a Service and Service Platform
 - Video Surveillance as a Service (VSaaS)
 - Video Analytic Open Platform

Big Data Deluge

Digital content is doubling every 18 months

Big Data, Sources & Types of Services, 2014



Types of Data-Enabled Services

Social Sentiment Analysis	Data Analytics	Marketing Optimization - Micromarketing
Open Innovation	Discovery and Navigation	IT Economics
Security Intelligence	Asset Management	Data Visualization

Big Data Creates New Value Propositions for Businesses

- Cloud-connected cars**
Nissan is looking at analytics on sensor data and telematics to improve self-diagnostics
- Facebook Personalized Marketing**
Facebook analyses location data to reach more customers with personalized, targeted products
- Smart Factories**
Pepsi's Latin American division merged customer, logistics, and manufacturing data to significantly improve its plant operations
- Emergency Responses**
During Superstorm Sandy, 2012, Twitter hashtags were analysed to find out where power, fuel, food and water were urgently needed.

Source: IBM, Cisco, Frost & Sullivan Analysis

ที่มา: Frost & Sullivan

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Trend of CCTV

- Intelligent and proactive video surveillance systems that not only improve safety and security, but also bring real commercial benefits to all types of organizations.
- Intelligent video systems that extract video and data from surveillance video streams and integrate that information with other applications, such as retail management systems or access control systems, will increasingly become the norm.

<http://www.riscglobal.com/top-10-ip-technology-trends-for-2014-and-beyond/>

Trend of CCTV

- IP cameras that integrate seamlessly with existing business-intelligence applications through the use of open-platform infrastructure and APIs.
- Cloud-based video solution or IP camera with on-board storage via a high capacity SD card and free to download software. - small system solution.
- IP surveillance opens new doors the migration of access-control systems to a digital environment

<http://www.ifstcglobal.com/top-10-ip-technology-trends-for-2014-and-beyond/>

Video surveillance: IHS predicts the trends for 2014

- Video Surveillance: The Star Markets for 2014
- Big Data: Crowd Sourcing Video Surveillance and Social Media Analytics
- Cloud-Based Video Surveillance Opens Markets in China
- Thermal Cameras Hit the Commercial Market

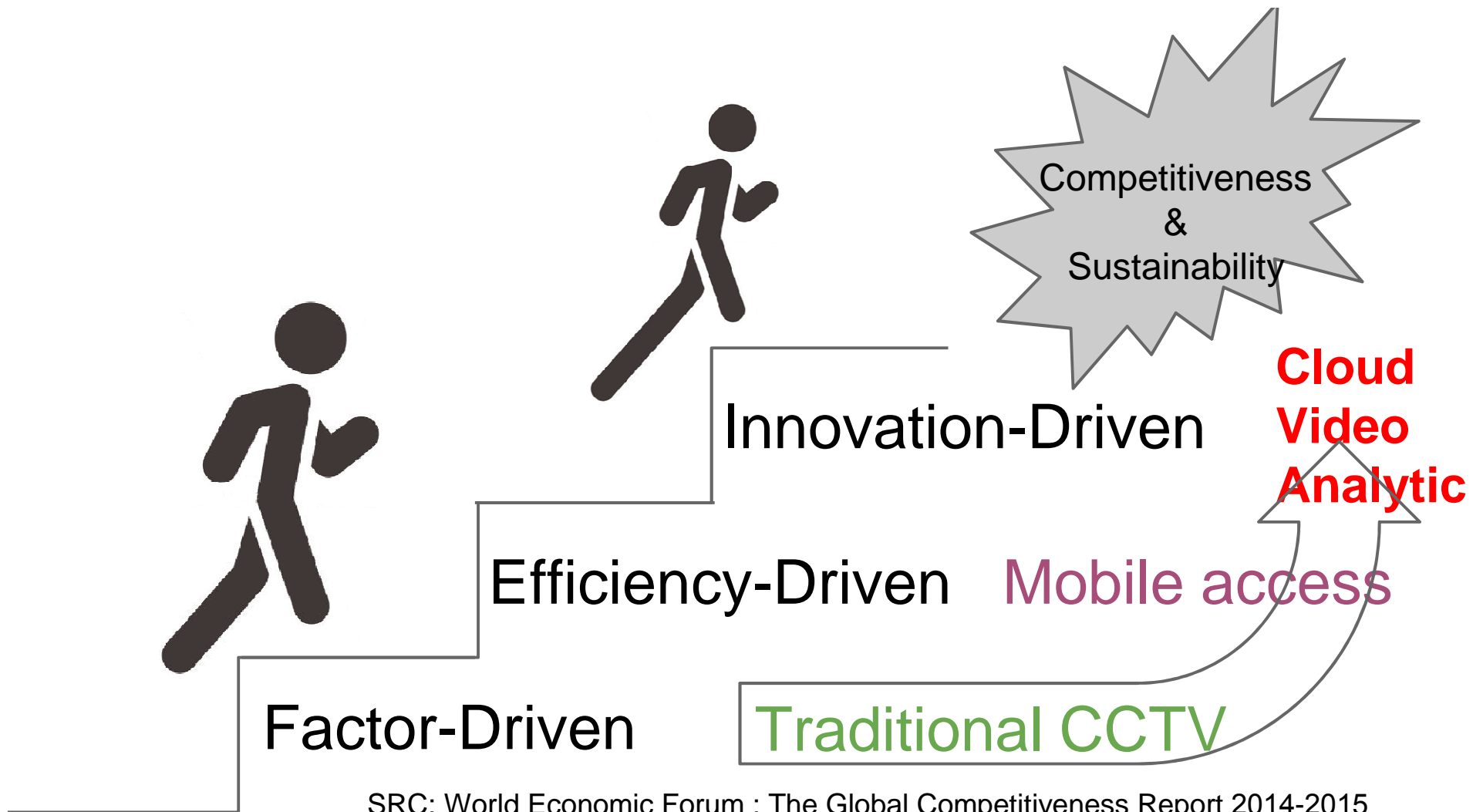
<https://thesecuritylion.wordpress.com/tag/cctv-trends-for-2014/>

H.265 มาแทน H.264

เปรียบเทียบมาตรฐานการเข้ารหัสวิดีโอ โดยมีค่า PSNR เท่ากัน^[5]

มาตรฐานการเข้ารหัส	อัตราบิตลดลงโดยเฉลี่ยเมื่อเปรียบเทียบกับ			
	H.264/MPEG-4 AVC HP	MPEG-4 ASP	H.263 HLP	H.262/MPEG-2 MP
HEVC MP	35.4%	63.7%	65.1%	70.8%
H.264/MPEG-4 AVC HP	-	44.5%	46.6%	55.4%
MPEG-4 ASP	-	-	3.9%	19.7%
H.263 HLP	-	-	-	16.2%

<http://th.wikipedia.org/wiki/การเข้ารหัสวิดีโอประสิทธิภาพสูง>



SRC: World Economic Forum : The Global Competitiveness Report 2014-2015

ใช้คอมพิวเตอร์ช่วยคน



<http://globalvue.co.uk/3-reasons-install-cloud-cctv/>

Security Intelligence Analytics **VS** **Traditional Video Surveillance**

<p>More Features for *Less with advanced features:</p> <ul style="list-style-type: none"> ▪ Trip Wire Detection ▪ Loitering Detection 	<p>Reduces 2yr Operational Cost by > 50% :</p> <ul style="list-style-type: none"> ▪ 2 years operation cost of security guard to operate and monitor surveillance camera 24 x 1000 = \$24,000 ▪ Hardware cost = \$2,000 	<p>Instant Reaction with events notification alert:</p> <ul style="list-style-type: none"> ▪ Receive alerts on your mobile device and assign staff for action ▪ Watch event videos on your mobile device when alerted 	<p>Simplify Business Operation with ONE platform:</p> <ul style="list-style-type: none"> ▪ Get business intelligence features on the same platform ▪ Removes complexities of managing a separate analytics system
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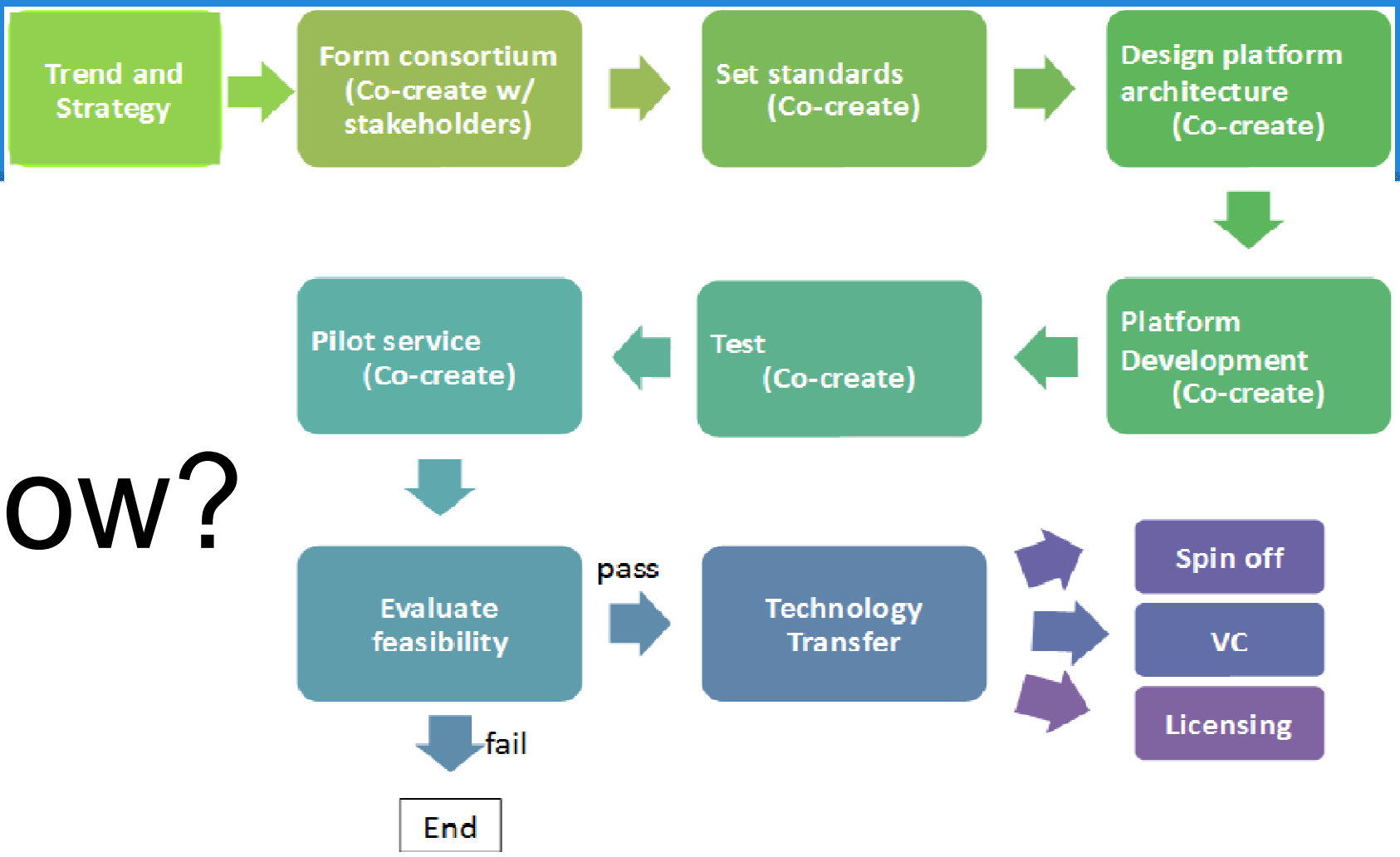
**Based on two year operation cost*

ตัวอย่าง

Technology

License Plate Recognition (LPR), Cloud Video Analytics, Kalman Filters Application to Track Moving Items, Real Time Automatic Alerts Algorithms Online Video Analytics, Object Sorting and ID, Behavioral Analysis, Video Analytics Architecture Image Segmentation Algorithms Item Tracking, Intelligent CCTV Surveillance Algorithms, Item Identification and Recognition, IVS Based Face Recognition, Sorting Actions and Behaviors, Crowd Surveillance, Multi-Camera Intelligent CCTV Surveillance Systems, Remote Threat Identification, Distributed Sensors Remote Systems, Remote Biometric Identification, Watch Lists fused IVS, Fused VA and Biometrics , Fused Multi-modal IVS Biometric Remote People Screening, Intelligent Video Surveillance Tracking, IVS & VA based Behavioral Profiling, Tag and Track, Wireless Video Analytics, Video Content Analysis Algorithms, Automated Analysis of Video Surveillance Data, Item Detection, Gaussian Mixture Based Background Subtraction Algorithms, Background Subtraction, Item Detection Based on Single-Image Algorithms, Item Tracking Algorithms, Kalman Filtering Techniques, Region Segmentation, Partially Observable Markov Decision Process, IVS Systems, "Splitting" Items Algorithms, Dimension Based Items Classifiers, Shape Based Item Classifiers, Event Detection Methods, Vision-Based Human Action Recognition, Derived Egomotion, Path Reconstruction Algorithms, Video Cameras Gap Mitigation Algorithms, Networked Cameras Tag and Track Algorithms, Fusion Engines, Event Description, IVS Reasoning, IVS Reporting, Smart Cameras, Pulse Video Analytics

How?



ตรวจจับการกระทำ ผิดกฎจราจรอัตโนมัติ



XXX-XXXX
กรุงเทพมหานคร



- ตรวจจับความเร็ว
- ฝ่าไฟแดง
- ตรวจทะเบียนรถ
- ติดตามรถหาย
- ตรวจจับการเบียดเส้นที่บี
อัตโนมัติ



CCTV

เฝ้าระวัง เตือนภัย พฤติกรรม ผิดปกติอัตโนมัติ



- ชกต้อย
- คนลี้ม
- รถชน
- ปีนข้ามรั้ว
- ไฟไหม้



Intelligent CCTV Consortium

Goal

1. To become the best common platform for a video analytic provider.
2. To initiate innovative CCTV services to the market.
3. To reduce cost and to raise the competitiveness for Thai industry.

Intelligent CCTV Consortium purpose

1. To provide the common platform of CCTV analytic services.
2. To share the knowledge, technology and business opportunity.
3. To collect big data and to perform interoperability testing.
4. To suggest the policy to the regulator or the related organization.
5. To promote CCTV analytic to the ASEAN and World market.
6. To educate user the benefit of CCTV analytics.

Video Analytic Open Platform

ผู้ประกอบการ
ผู้ให้บริการ



นักวิจัยพัฒนา
อาจารย์ นักศึกษา

ผู้ขับเคลื่อน
นโยบาย

ผู้ใช้



CCTV Consortium

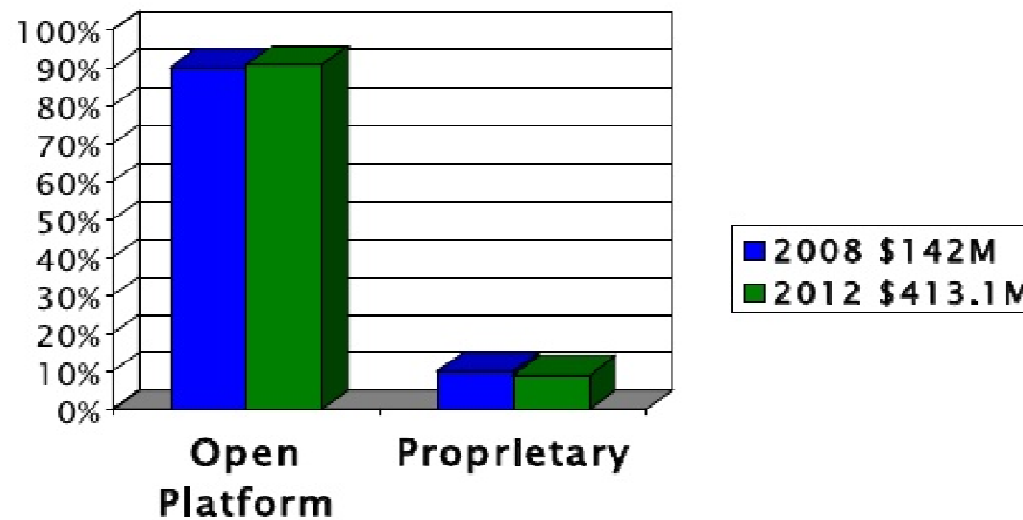


Backup slides

Americas Market for IP Video Surveillance Management Software



Revenue (\$M)



Source: IMS Research

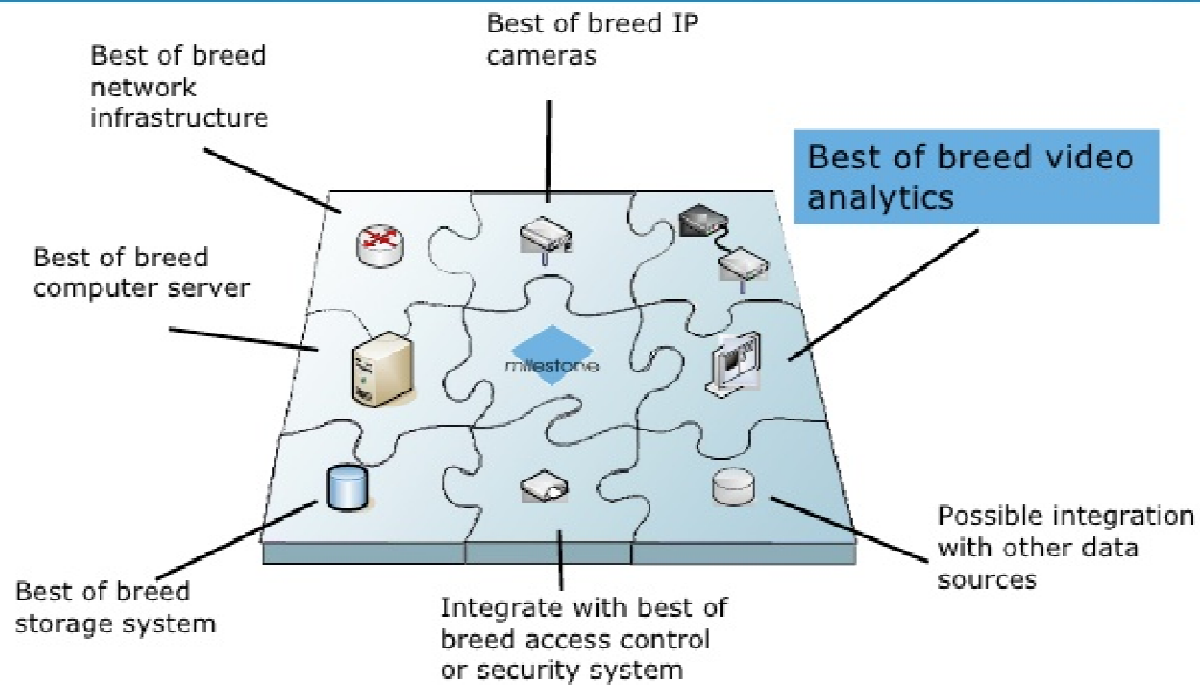


The Open Platform Company

Milestone Systems Confidential

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Milestone — The Open Platform



The Open Platform Company

Milestone Systems Confidential

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