STRATEGY | TECHNOLOGY | EVENTS

Nxt Wave Inc.

Established in Curaçao since 101010

Nxt Wave Inc. is an independent strategy & technology advisory firm aimed at helping clients with relevant insights and intelligence. Nxt Wave Inc. has global alliances with cool vendors, leading technology service providers and top notch analysts firms.

How to Create Smart Cities in the Caribbean...

Anil Sadhoeram

Chief Philosophy Officer

ir Anil Sadhoeram
Nxt Wave Inc.

A bit about my Background

Technology Changes Everythink™

TIME

Social Media is now Mainstream Media

Facebook's Mark

Put the needle on the record...

Music has gone streaming

Youtube is the new Television

And Video is On Demand

Share Economy

Everything-as-a-Service

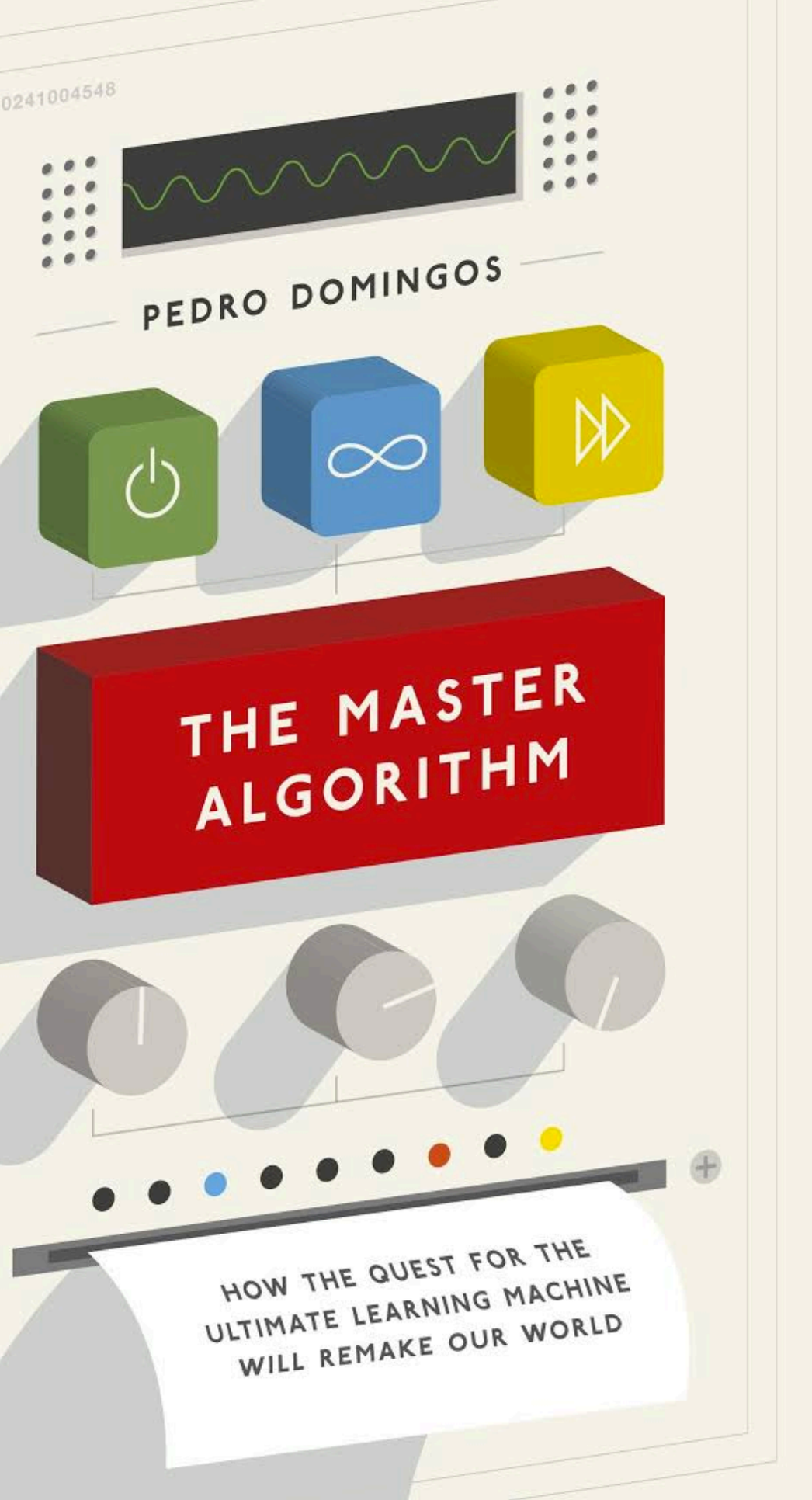
THE BIG 5

Autonomous Things

The internet is now the X internet

Size of data sets in terabytes

Business email sent per year	2,986,100	National Climactic Data Center database	6,144
Content uploaded to Facebook each year	182,500	Library of Congress' digital collection	5,120
Google's search index	97,656	US Census Bureau data	3,789
Kaiser Permanente's digital health records	30,720	Nasdaq stock market database	3,072
Large Hadron Collider's annual data output	15,360	Tweets sent in 2012	19
Videos uploaded to YouTube per year	15,000	Contents of every print issue of WIRED	1.26


0241004548
PEDRO DOMINGOS
THE MASTER ALGORITHM
HOW THE QUEST FOR THE ULTIMATE LEARNING MACHINE WILL REMAKE OUR WORLD


"I've talked to Mark about this. His understanding of the subject is limited."
Elon Musk
"...people who drum up doomsday scenarios... I actually think it is pretty irresponsible."
Mark Zuckerberg


"
Whoever leads in AI will rule the world
Vladimir Putin


Trust me!
Don’t Believe Fake Facts!

So the Big Q is:

How& Who to Trust ?

"On the Internet, nobody knows you're a dog."

“With the Rise of Smart Cities we need next levels of cyber security and cybertrust…

Smart City Operating System

What is the Key of Smart Cities?

Think Global, Act Local!

Georgetown is not
Amsterdam is not
New York...is not
New Amsterdam

How will 5G benefit the smart city vision?

$160 billion in benefits and savings in energy

Energy and Utilities

Water Pipes leaks and sewers 1

Smart Lighting 1

Save power

Reduce pollution

Keep people safe

Smart Grids

Economies of scale

Automated real-time grid switching

Smart Traffic 3

Autonomous vehicles

Vehicle Platooning

Road Safety

Smart Parking

On-vehicle communication

Mobility and Transport

Smart Parking 1

Security

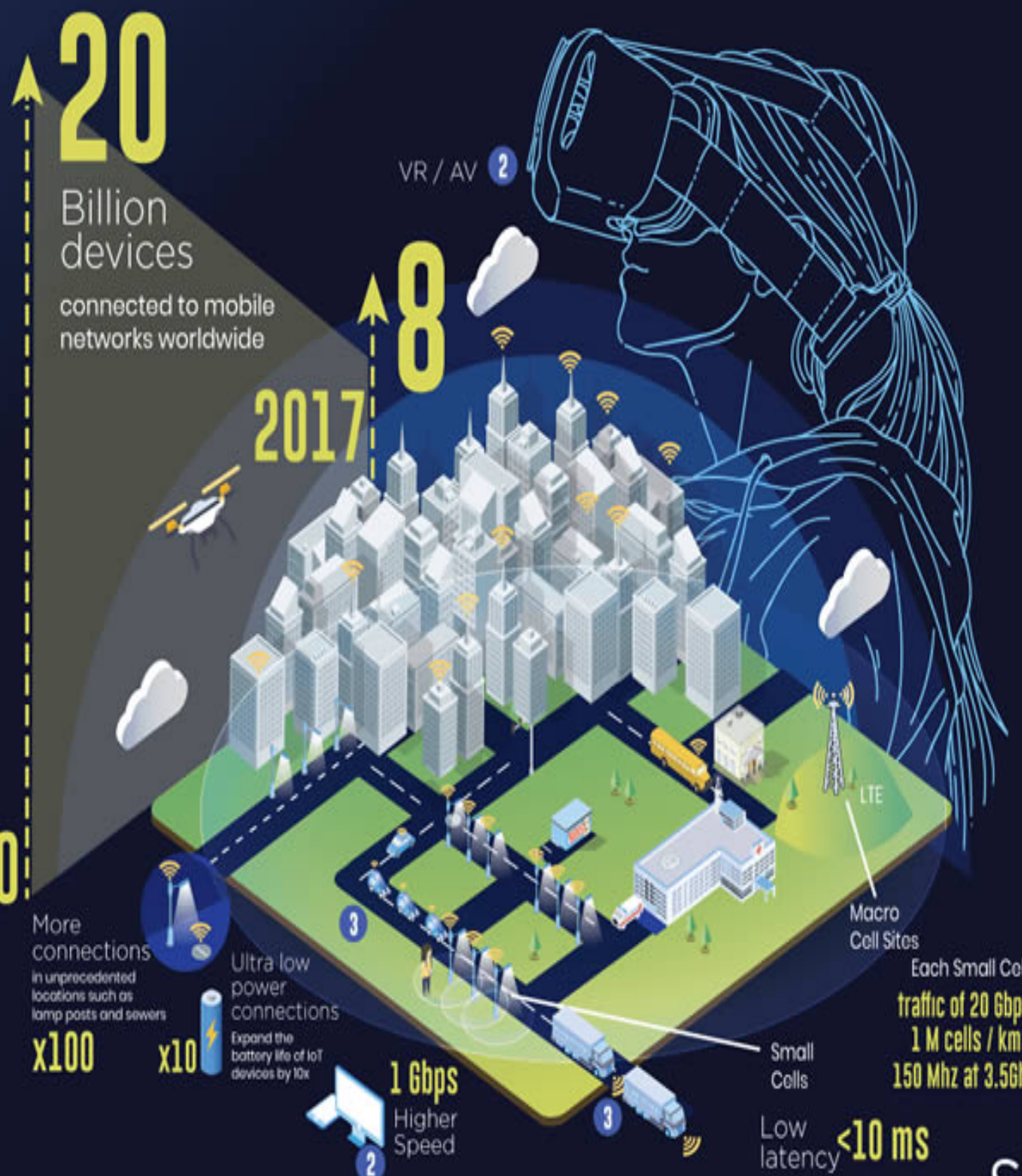
Surveillance Cams

Drones 2

Broadband Video

Sustainability

Air Quality Sensors 1



How will 5G be used?

1. Massive Internet of Things **MIoT**
2. Enhanced Mobile Broadband **EMBB**
3. Mission Critical Services **MCS**

IOT

5G capacity increases with densification

Cities play a critical role for Small Cell deployment in Mobile Network Densification.

Tomorrow's wireless networks will require hundreds, or even thousands, of small cells densely deployed across cities.

Each Small Cell
traffic of 20 Gbps
1 M cells / km2
150 Mhz at 3.5Ghz

small cells

The full promise of Smart Cities and 5G requires a robust deployment of small cells

Low latency <10 ms

Low latency, more adaptive response times that support time sensitive applications, such as autonomous vehicle communication.

SMARTCITY
EXPO WORLD CONGRESS

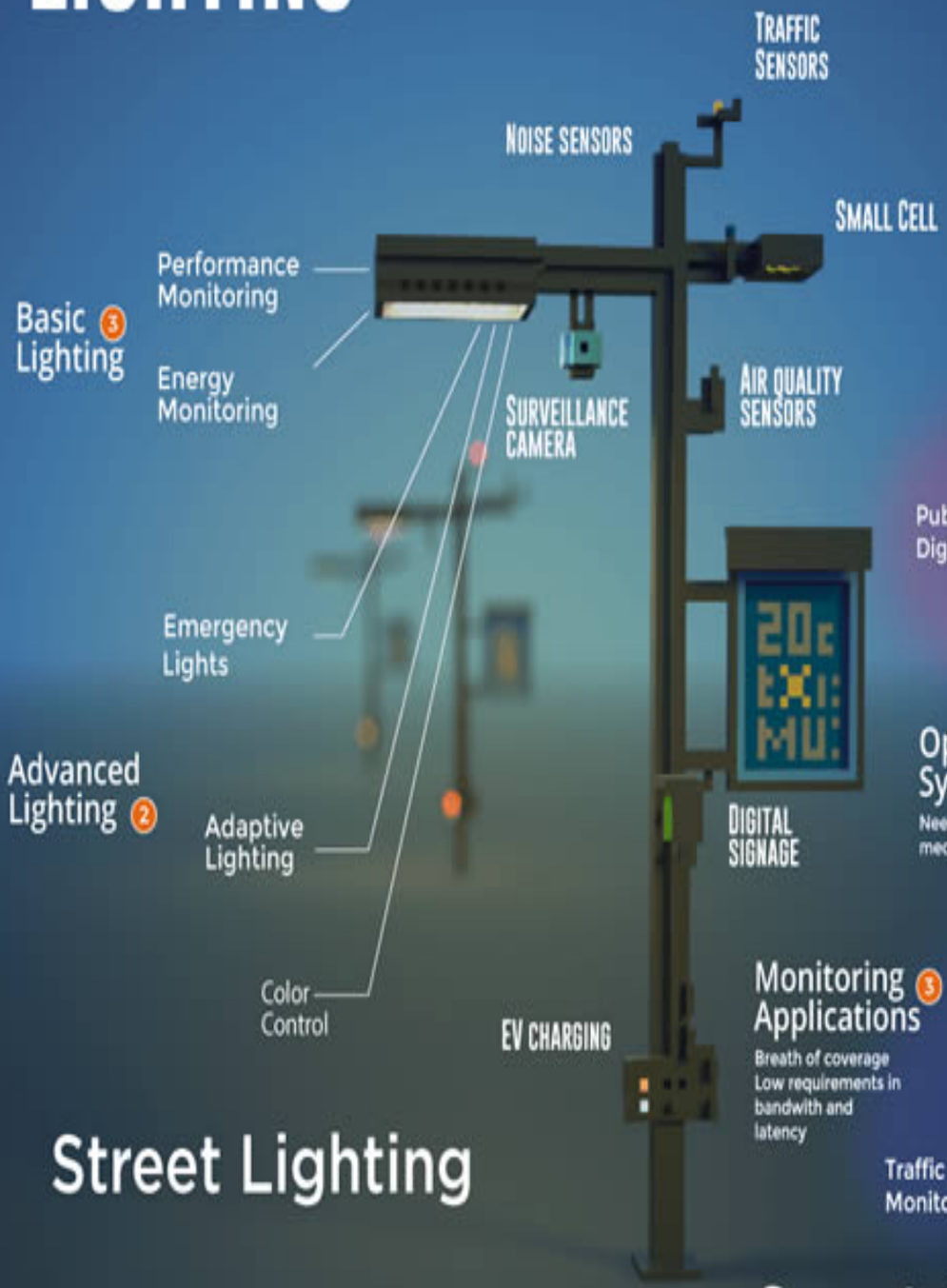
Sources:

SMART STREET LIGHTING

Energy Savings

LEDS reduce energy consumption for street lighting by up to **50%**

New LED deployments when made together with networking and controls installations reduce costs, increase efficiency and functionality of street lighting and provide a smart city platform for many solutions.
LED networks offer cities the chance to deploy smart city solutions that can save money, keep residents safe, improve sustainability, and attract new people and businesses.



Street Lighting

Which network technology?

1 Massive Broadband

+ Low latency
+ High speed
+ High bandwidth
+ MBBs

- Higher Cost
- Short range
- Requires density

Licensed
· 3G,4G LTE, 5G
· Wi-Fi
· Pt2Mpt

2 Mediumband

+ Good balance between price and number of supported applications

Unlicensed
· PLC
· RF Mesh

3 Narrowband

+ Low cost
+ Long Range
+ Low Power
- High latency
- Very limited data
- Risk of interference (unlicensed)

Unlicensed
· Sigfox
· LoRaWAN

Licensed
· NB-IoT
· LTE-M

Smart City Platform Applications

Critical Systems 1
- Public Wifi
- High definition (HD) video surveillance
- Traffic Lights Control
- Public messaging / Digital signage
- Gunshot detection

Operational Systems 2
Need reliability and medium-low latency
- Smart waste management
- Smart parking

Monitoring Applications 3
Breath of coverage
Low requirements in bandwith and latency
- Environmental monitoring: air quality & noise
- Traffic Monitoring

SMARTCITY EXPO WORLD CONGRESS

Source: Navigant Research
Smart Street Lighting as a Smart City Platform
white paper published 2Q 2017 commissioned by Echelon

IoT in Healthcare

Gartner

Gartner says: “Manage AI Implementations Across Government Organizational Boundaries for Maximum Results”

- The same networks of sensors and cameras used to improve transport efficiency can be used to save lives and fight against crime.

- The same intelligent traffic lights used to improve traffic flow can be utilized by ambulances and fire trucks to get to the emergency scene quicker.

- The same license plate recognition technology used to track parking can be used by law enforcement to find stolen cars and track criminals.

looked at dozens of smart applications that will be relevant for cities through 2025.

Security

- Predictive policing
- Real-time crime mapping
- Gunshot detection
- Smart surveillance
- Emergency response optimization
- Body-worn cameras
- Disaster early-warning systems
- Personal alert applications
- Home security systems
- Data-driven building inspections
- Crowd management

Healthcare

- Telemedicine
- Remote patient monitoring
- Lifestyle wearables
- First aid alerts
- Real-time air quality information
- Infectious disease surveillance
- Data-based public health interventions: Maternal and child health
- Data-based public health interventions: Sanitation and hygiene
- Online care search and scheduling
- Integrated patient flow management systems

Mobility

- Real-time public transit information
- Digital public transit payment
- Autonomous vehicles
- Predictive maintenance of transportation infrastructure
- Intelligent traffic signals
- Congestion pricing
- Demand-based microtransit
- Smart parking
- E-hailing (private and pooled)
- Car sharing
- Bike sharing
- Integrated multimodal information
- Real-time road navigation
- Parcel load pooling
- Smart parcel lockers

Energy

Building automation systems

Home energy automation systems

Home energy consumption tracking

Smart streetlights

Dynamic electricity pricing

Distribution automation systems

Water

Water consumption tracking

Leakage detection and control

Smart irrigation

Water quality monitoring

Waste

Digital tracking and payment for waste disposal

Optimization of waste collection routes

Economic development and housing

Digital business licensing and permitting

Digital business tax filing

Online retraining programs

Personalized education

Local e-career centers

Digital land-use and building permitting

Open cadastral database

Peer-to-peer accommodation platforms

Engagement and community

Local civic engagement applications

Local connection platforms

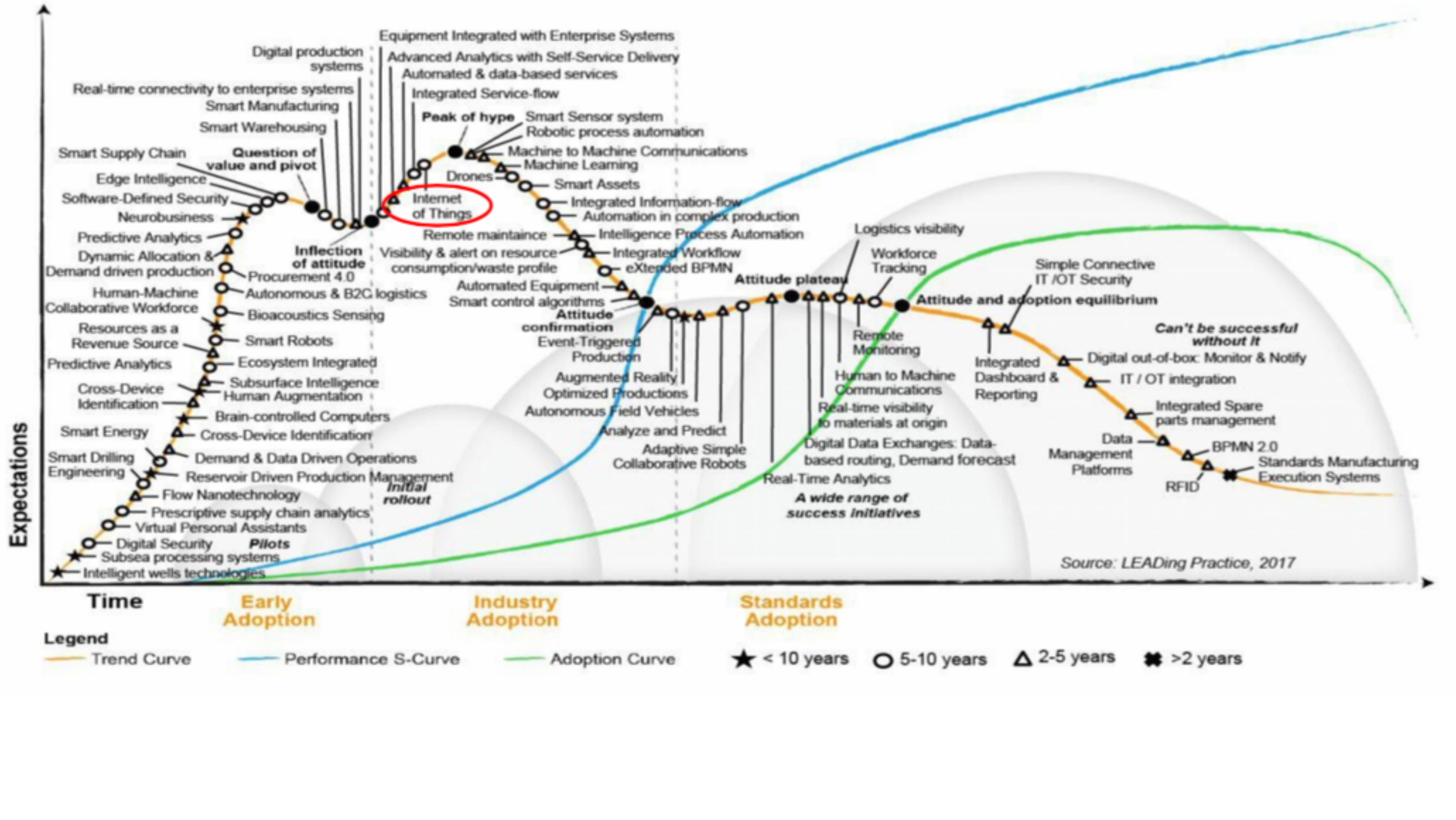
Digital citizen services

SOURCE: McKinsey Global Institute

Oil Boom!
The Billion Dollar Question

https://www.nytimes.com/2018/07/20/business/energy-environment/the-20-billion-question-for-guyana.html

Oil & Gas Emerging and Disruptive Trends



There are countless opportunities for IoT Oil & Gas Industry

Upstream	Midstream	Downstream
Asset Tracking	Tank Farm Monitoring	Perimeter Security Sensors
Vehicle Monitoring	Field Crew Monitoring	Perimeter Video Camera
Remote Video	Remote Video	Mobile Asset Tracking
Machine Monitoring	Pipeline Monitoring	Vehicle Monitoring
Site Monitoring	Terminal Access control	Production Sensors
Well Head Monitoring	Asset Tracking	IoT Cloud Storage
Security/Access Sensors	Flow Meter Connectivity	Lone Worker Wearables
Lone Worker Tracking	Pipeline Monitoring	Contractor Tracking
Rig Monitoring	Wellhead Monitoring	Refinery Monitoring
Tank Monitoring	Cargo Shipping Monitoring	

Investments in Digital Technologies

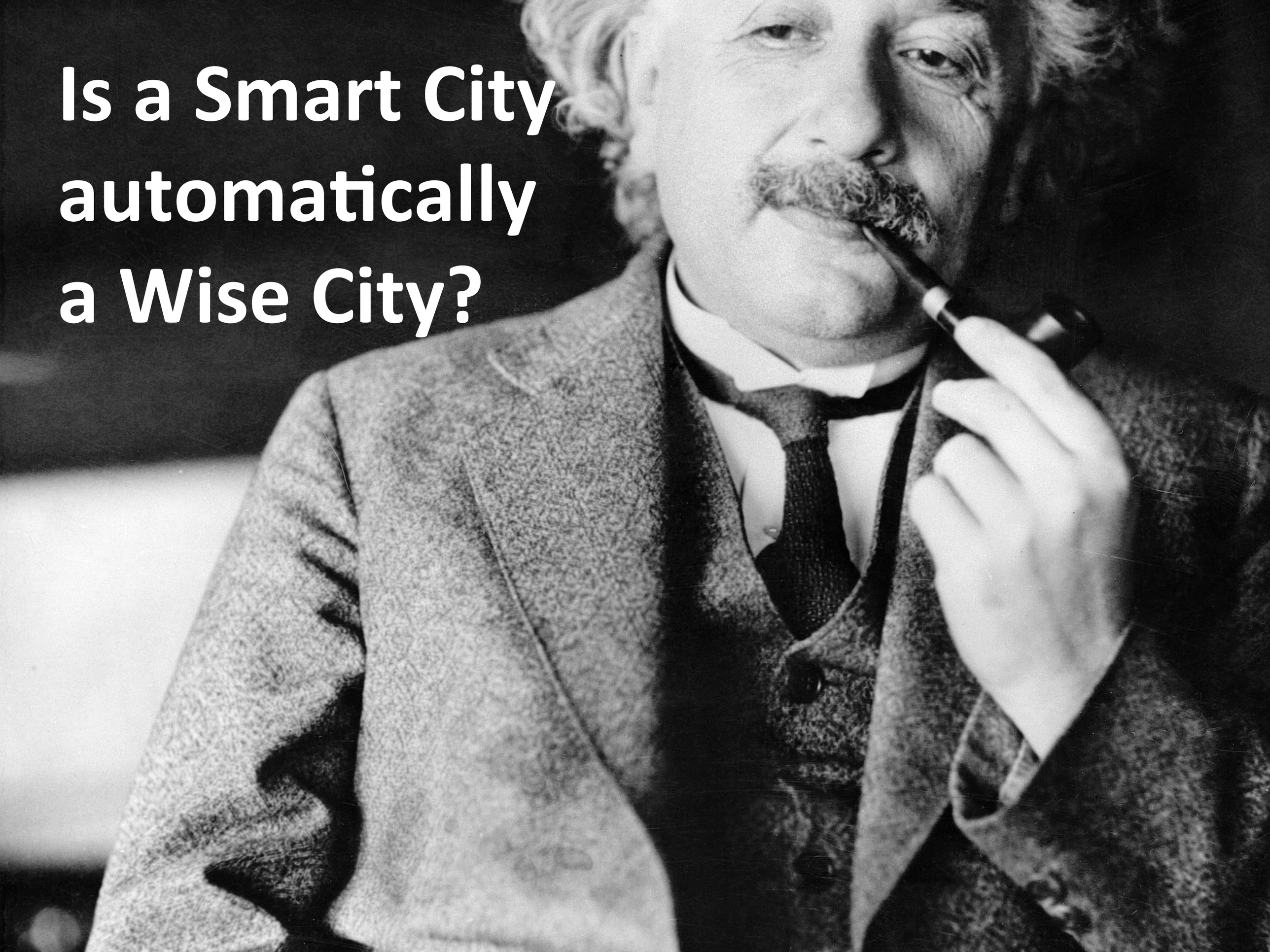
Global $30.57 Billion Internet of Things (IOT) In Oil and Gas (O&G) Market - Analysis And Forecast: 2017-2026

Focus on: IoT solutions such as platforms and analytics,

Applications such as Upstream, Midstream and Downstream

RESEARCHANDMARKETS
THE WORLD'S LARGEST MARKET RESEARCH STORE

Is a Smart City automatically a Wise City?



The Rise of Smart Cities
and the need for a New Script.

What about Ethics?

Terms &Conditions May Apply

Who owns the Data?

think > te-ch-no-lo-gy

Smart Cities need Smart Citizens!

Al hebben alle Citizens een Smartphone, al hebben we de beste Computer en Internet Technologie uitgerold in de stad, of op een eiland, daarmee hebben we niet automatisch een Smart City.

“OUR EDUCATIONAL SYSTEM IS ROOTED IN THE INDUSTRIAL AGE. IT VALUES PUNCTUALITY, ATTENDANCE, AND SILENCE ABOVE ALL ELSE.”

Lets have a closer look at goal #2

…if not all children can go to school…

then we should bring the school to all kids!!!

Stay Hungry,

Stay Foolish!

Steve Jobs

Thanks for your time. For more info please connect:

https://www.linkedin.com/in/anilyzer/