



Internet of Everything: Smart Grid project

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2014: the inflection point?



Let the Numbers Do the Talking

Sales of Smartphones & Tablets exceeding those of PCs from **2011**

More Smartphones than PCs by end of **2014**

1:2
Mobile devices over world population ratio in 2018

Over **\$25 billion** of sales in stores in 2013

100 Mbps bandwidth through LTE networks

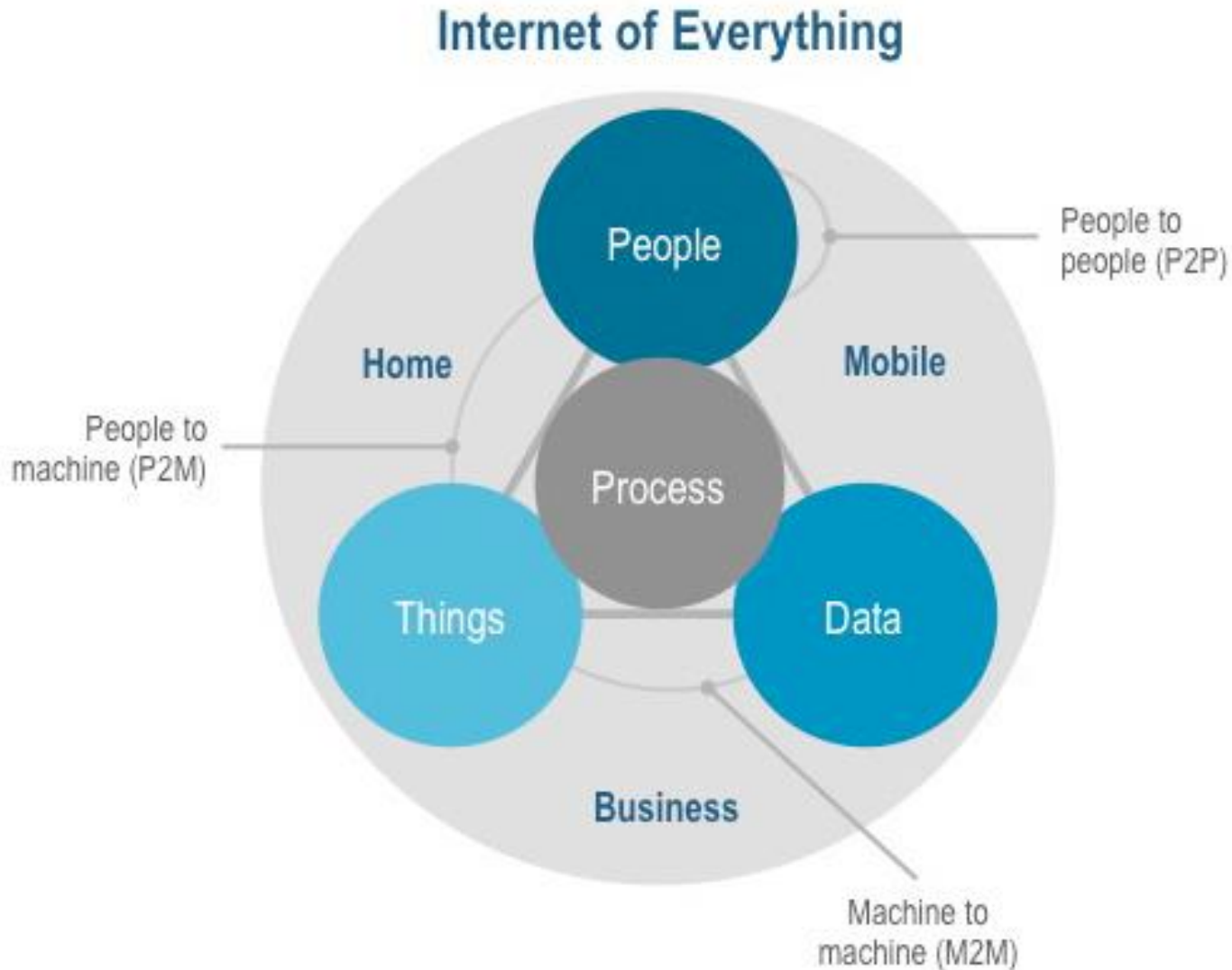
Over **500,000** Apps optimized for Tablets

More Mobile Internet surfers than fixed/PC Internet surfers from **2014**

2 million Mobile Apps available

Over **150 billion** Mobile Apps downloaded

The demand is growing





The Internet of Everything



People

Connecting people in more relevant and valuable ways.

Process

Delivering the right information to the right person (or machine) at the right time.

Data

Leveraging data into more useful information for decision making.

Things

Physical devices and objects connected to the Internet and each other for intelligent decision making.

People-to-People + People-to-Machine + Machine-to-Machine

Cisco Vision: IoT Platform



Sensors and Devices

- Location
- Identity + Policy
- Aggregation
- Security
- Mobility
- Lightweight IPv6



Networks, Computing, Storage

- Scale + Reliability
- Resource orchestration
- Difficult networks
- Privacy + Security
- Service Provider M2M
- ASICS + Software



Data Analytics

- Data Aggregation
- Video Analytics
- Streaming Data
- Data Federation
- Embedded analytics



Control Systems

- Determinism
- Safety
- Latency
- Virtual Machine Control

IoT Platform



Data Center



Intelligent Network



Cloud



Fog

Internet of Things: What If We Deliver a 1% Improvement?

Industry	Segment	Type of Savings	Estimated Value Over 15 Years (Billion nominal USD)
Aviation	Commercial	1% fuel savings	\$30B
Power	Gas-fired Generation	1% fuel savings	\$66B
Healthcare	System-wide	1% Reduction in System Inefficiency	\$63B
Rail	Freight	1% Reduction in System Inefficiency	\$27B
Oil & Gas	Exploration & Development	1% Reduction in Capital Expenditures	\$90B
Total			\$276B

Source: "Industrial Internet: Pushing the Boundaries of Minds and Machines," GE, November 26, 2012

Barcelona: Smart City...\$3B Value Creation

Smart Lighting

Smart Buses

Smart Water

Smart Bus Stop

Smart Parking

Smart Waste



Revenue

Citizen Experiences

Jobs

Productivity

Cost Avoidance

New Places in the Network (PINs)

Information Technology (IT)

Operational Technology (OT)

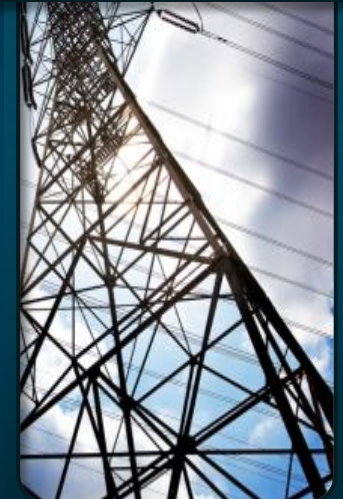
Data Center

Campus

Branch

Plant

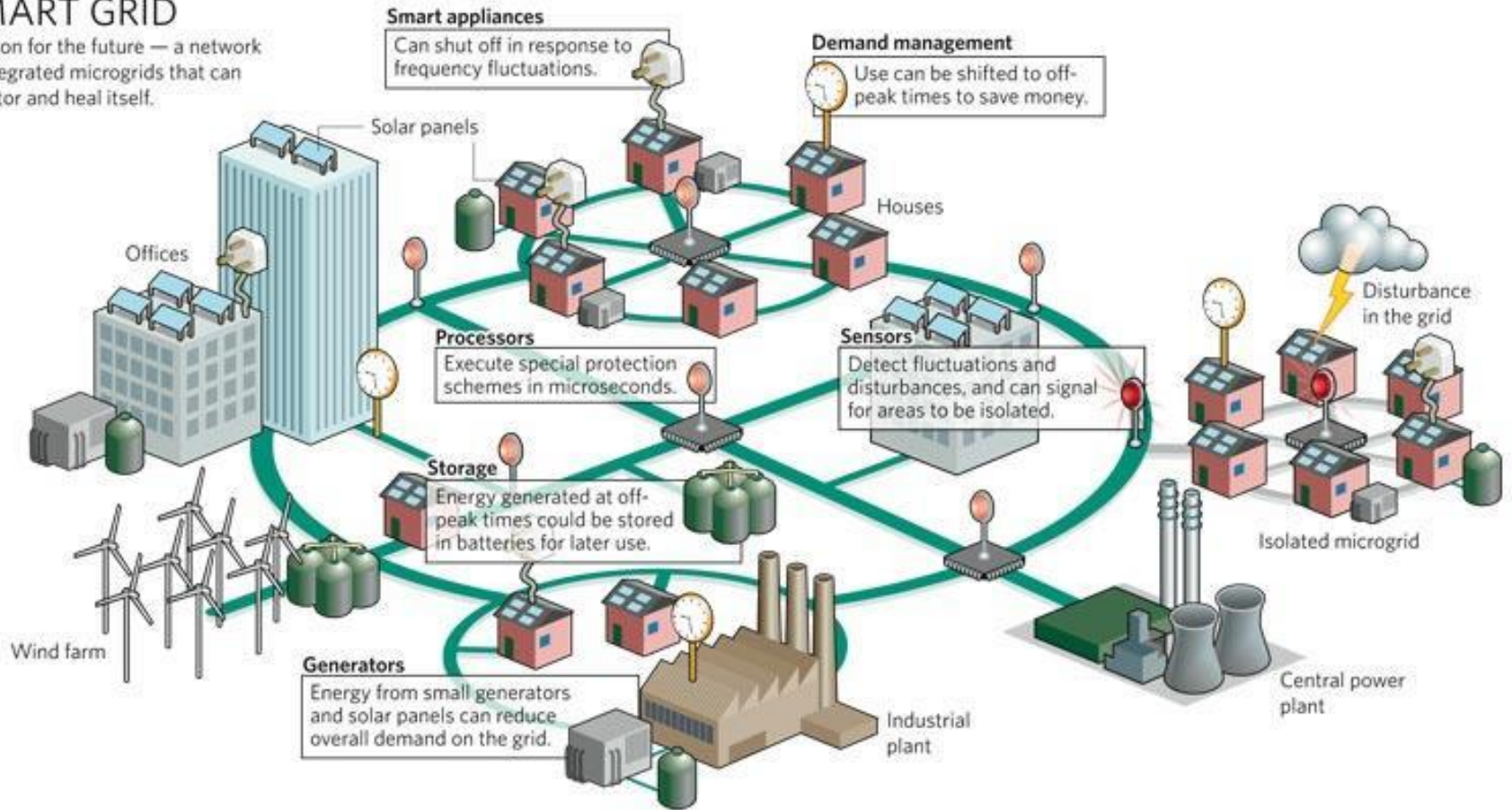
Field



IoT

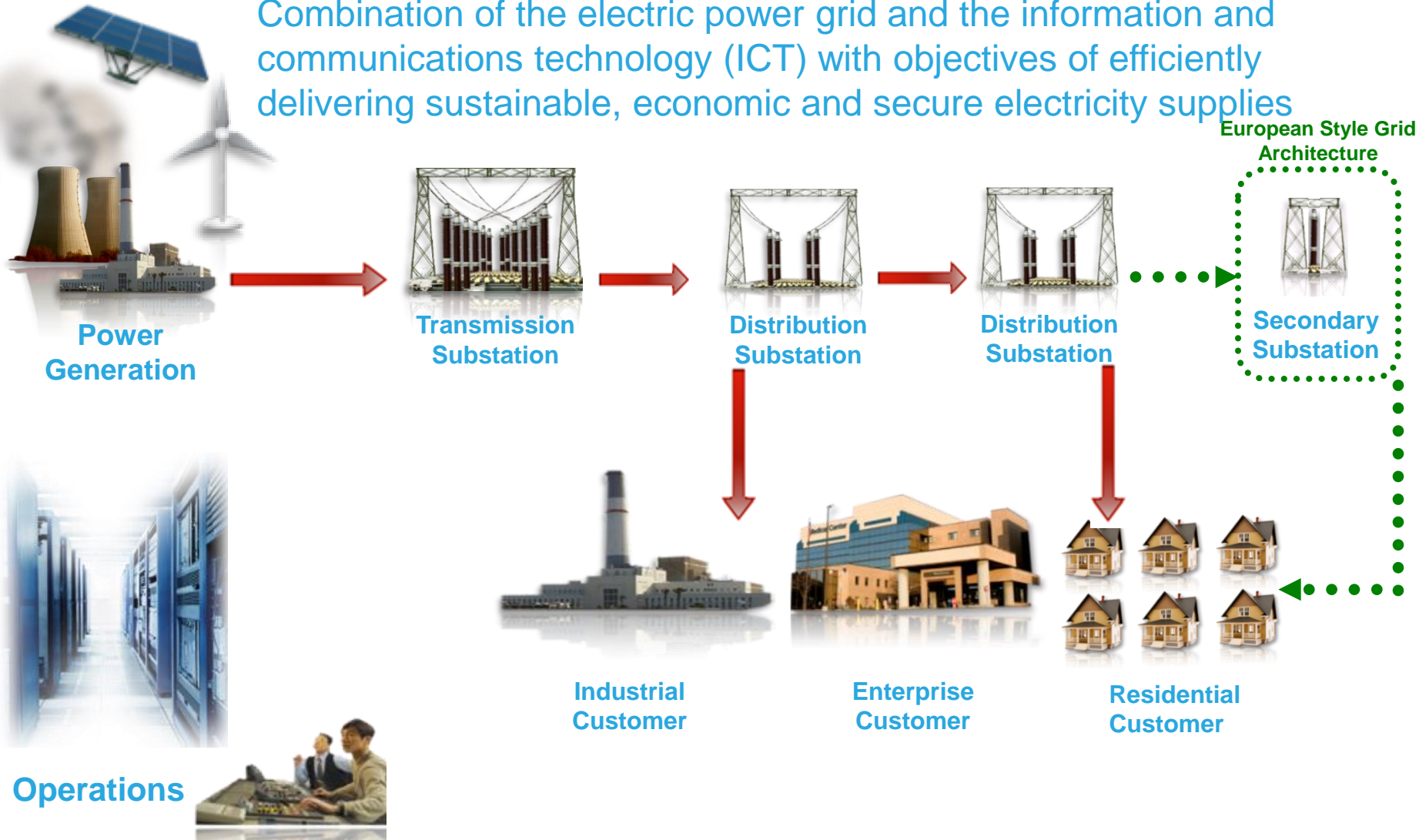
SMART GRID

A vision for the future — a network of integrated microgrids that can monitor and heal itself.

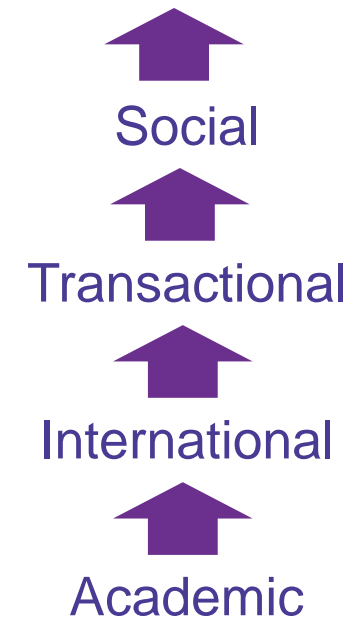
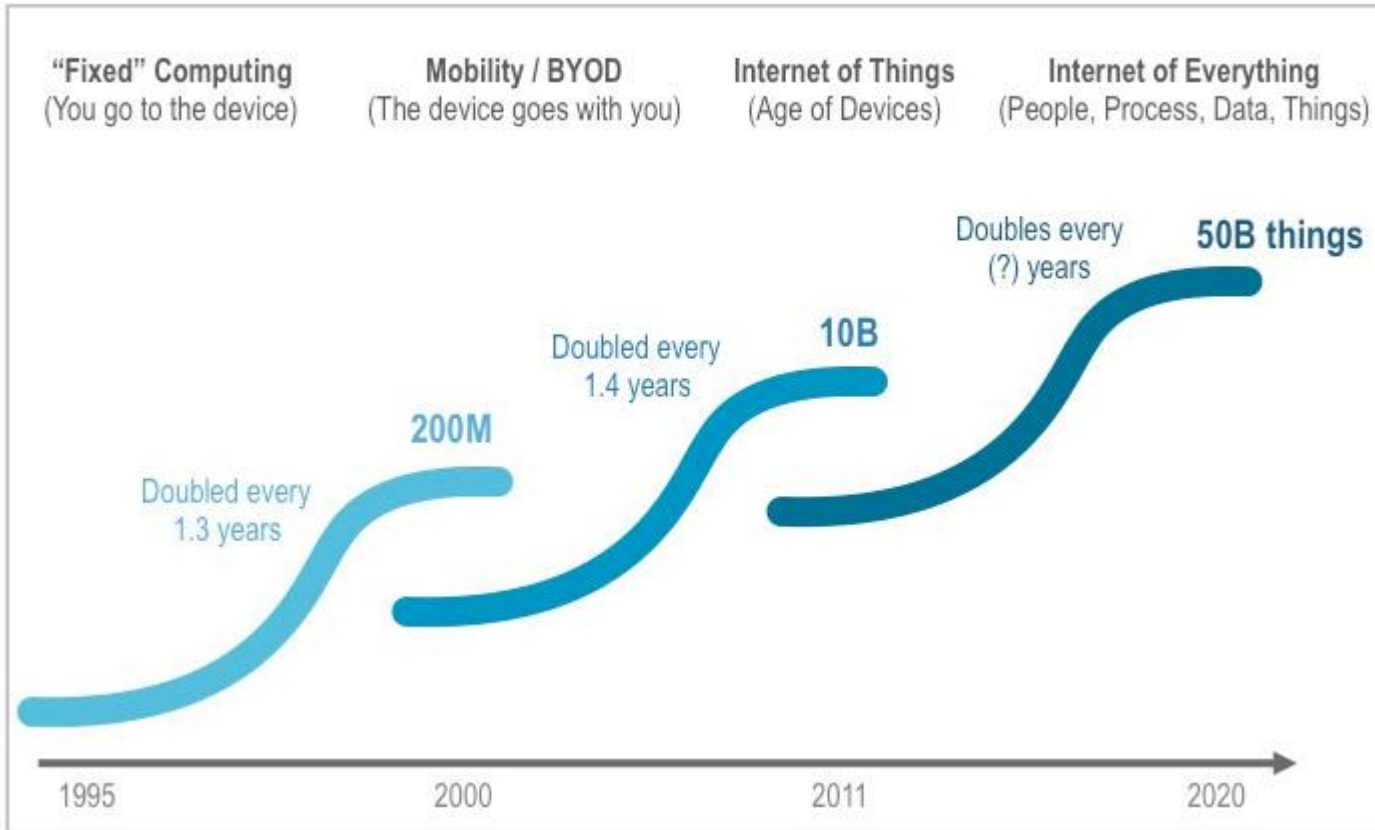


SMART GRID Landscape

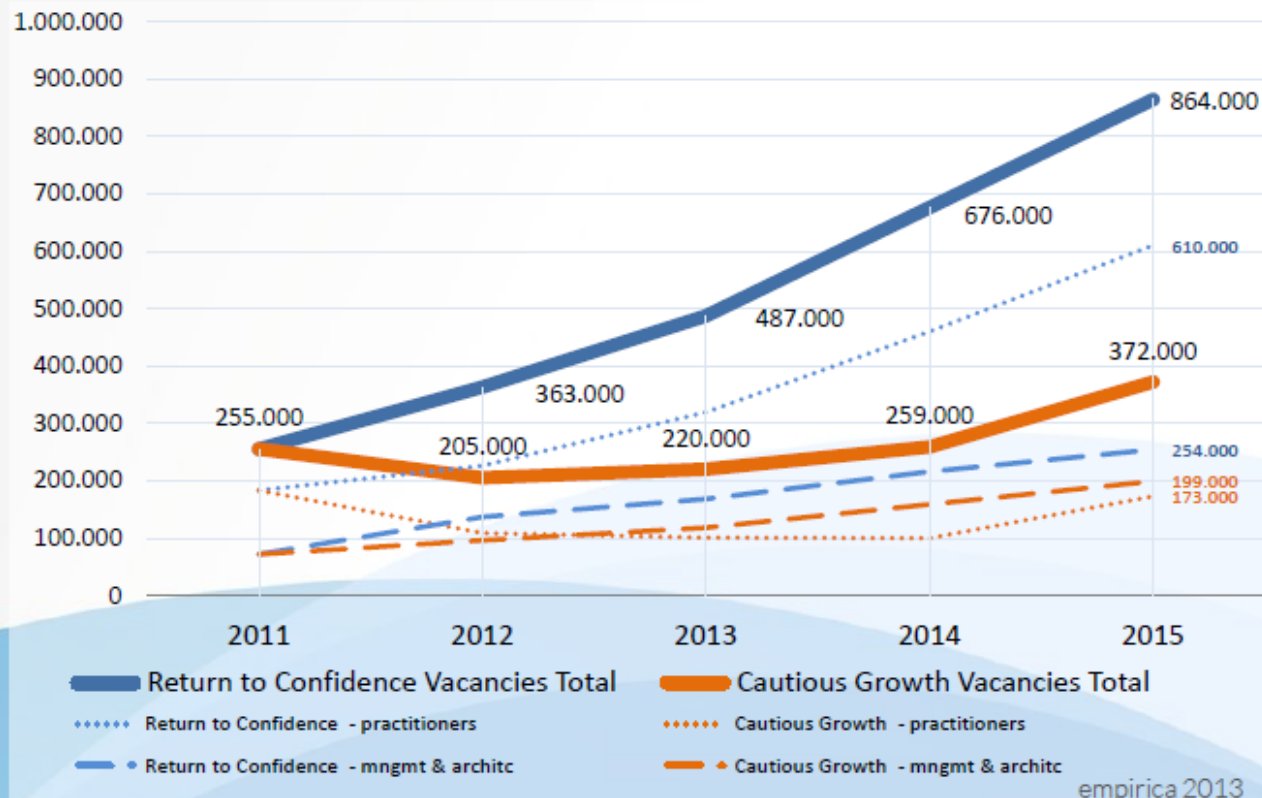
Combination of the electric power grid and the information and communications technology (ICT) with objectives of efficiently delivering sustainable, economic and secure electricity supplies



The demand is growing



Skills shortages: expected vacancies



2013-01-09

8

Skills Gap for SMART GRID Installers

- A specific **skills gap can slow down the roll-out** of the new infrastructure and create the risk that **climate targets will be missed** and **job potential remains unleveraged**:
 - Traditional electricians (crafts sector) lack competences regarding IP networks. But they will be the ones who will install the devices at the customers home
 - IT experts have IP network competences but are not allowed to touch high voltage installations due to regulations and lack of competences



Job Potential SMART GRID

- The evolution of an intelligent energy grid system has an enormous job potential
- The installation of hundreds of millions of smart grid devices in private homes and at the energy producers' infrastructure can create thousands new jobs



European Dimension from the Beginning

The screenshot shows the 'DIGITAL AGENDA FOR EUROPE' website, a Europe 2020 Initiative. The navigation bar includes 'Home', 'Our Goals', 'Life & Work', 'Entrepreneurship & Innovation', 'Science & Technology', 'Telecoms & the Internet', 'Content & Media', and 'DAE & U'. The main content area is titled 'Grand Coalition - Pledge of CISCO'. It describes Cisco's pledges: one for developing education curriculum for smart grid networking skills, and another for aligning Cisco Certification with the e-Competence Framework. The page highlights a 'Training programme for smart-grid professionals' and provides student numbers for EU member states from 2014 to 2018. A sidebar on the left lists 'Skills & Jobs' and 'Life & Work' categories. On the right, there is a search bar and a social media section for '@eSkillsGrowthEU' with a 'Follow' button.

Skills & Jobs

- ▶ About
- ▶ [Digital Jobs](#)
- ▶ [Grand Coalition](#)
 - ▶ Funding
 - ▶ Pledges & Milestones
 - ▶ [Current pledges](#)
 - ▶ National Coalitions
- ▶ Education
- ▶ Research Projects

Life & Work

- Skills & Jobs
- Environment
- Mobility
- Smart Cities
- eHealth and Ageing

Grand Coalition - Pledge of CISCO

CISCO's pledges are manifold: one develops education curriculum addressing smart grid networking skills and enables usage of CISCO Networking Academy programme to train smart grid professionals. A second one, it aligns the Cisco Certification and training matrix with the e-Competence Framework.

Overview of Cisco's pledges

1. Training programme for smart-grid professionals

The installation of hundreds of millions of smart grid devices in private homes in Europe and energy producers' investment in the grid infrastructure can create ten thousands of new jobs. Cisco and its industry and education partners will combine existing and newly developed learning content for electrical installers. The content will qualify employees and young people in initial training for the roll-out of smart meters. The content will be made available on the existing Cisco Networking Academy platform. Teacher training will be supported and can rely on the installed base of Networking Academy structures.

Based on a successful content development project Cisco is expecting the following student numbers in EU member states:

- 1st year: 2,000 to 5,000 students in pilot classes
- 2nd year: 10,000 to 25,000 students
- 3rd year: 20,000 to 50,000 students
- 4th year: 50,000 to 100,000 students

Grand Coalition Pledge
ICT skills
New initiative

@eSkillsGrowthEU

Tweets [Follow](#)

Why SMART GRID Curriculum ?

- IP technologies - important component
- Cisco – strong competence
- NetAcad Community
- Europe – leading market
- Big social and economical impact



SMART GRID Essentials

Overview

- Smart Grid Essentials
(full course with 80h learning work load)
- Community driven content development
conducted by a NetAcad partner in the role
as editor/author
- Target group: Smart Grid installers =
electrical installers
- Embedded in the Grand Coalition for Digital
Jobs initiative of the EU Commission

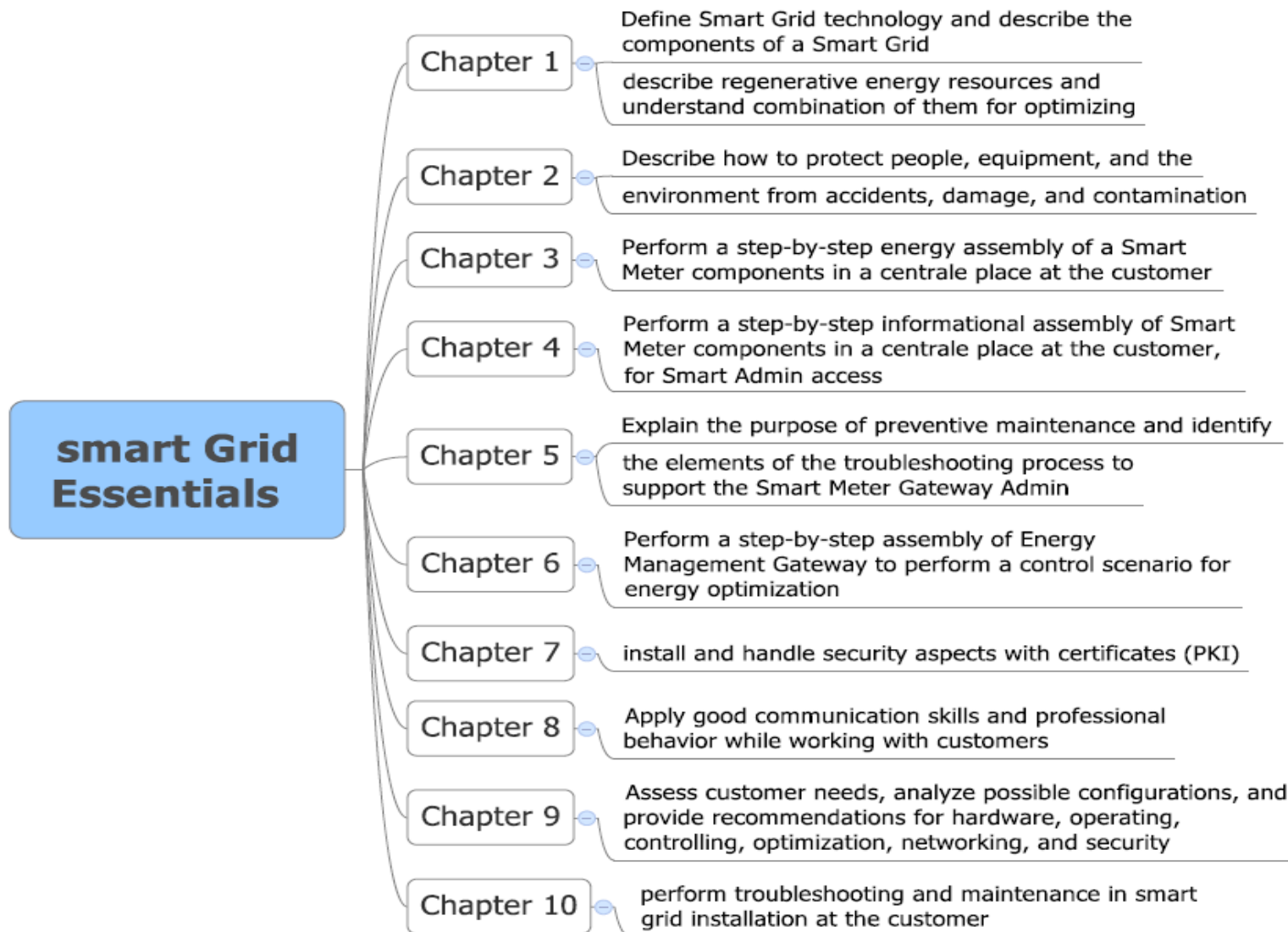


Cisco Investment and Leveraging Funds

- Cisco invests more than 150k EUR cash and numerous internal resources (project management, Academy Manager, content developers, the learning platform NetSpace) in the content development project.
- Content has been defined: 10 chapters identified on smart grid essentials and content lead identified and collaboration contract

Content Overview

Smart Grid Cisco



Smart Grid Curriculum - progress

- Partnership with BFE Oldenburg
- Partnership with IT Bildungsnetz
- NetAcad Community cooperation
- German Curriculum
- International Curriculum



Sneak Preview: NetAcad Partner Summit

Where: Barcelona

When: 22 – 23 October 2014



Thank you.



Cisco Networking Academy
Mind Wide Open