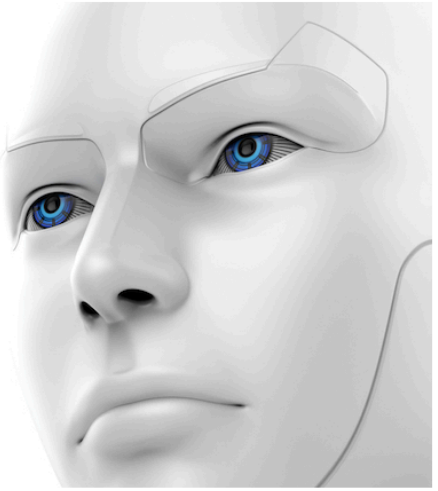
Digital Technology and Railway Security Workshop

4-5 MAY 2016
WASHINGTON WORLD BANK

MODERATING AGENDA

- BIG GAME changers WITH API ECONOMY
- PLATFORM ECONOMY & HR shaping TRUST
- DATA “gold mine”… WHAT ELSE & WHY ?
- IoT - HOW DID we GET THERE
- HOW big IS CYBER ATTACK
- TEMPORARY Conclusion :

WHAT IF @DIGITAL TRANSFORMATION !



NEW LEVERAGES OF TRUST

Platform, API, Standards & Security

TRUST IS PIVOTAL to the development of the digital economy

- Regulating Big data & connected objects is at stake : new scale & new nature of services
  (political debate at country & regional levels vs precaution by principal)

Shared trust with regulation required

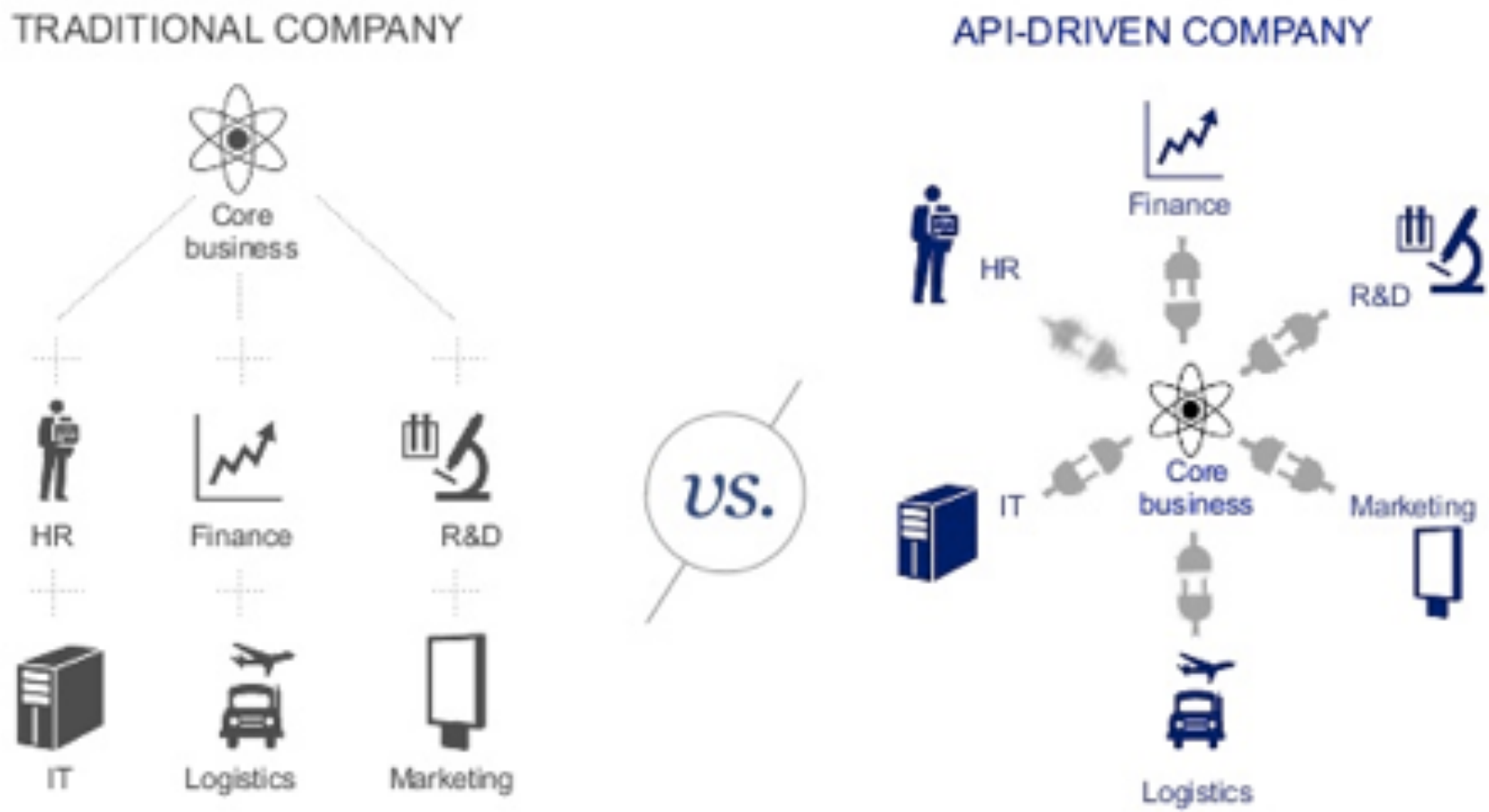
- Creating transparency
- Going beyond sensors invisibility & opacity of the processes dealing with data treatment
- Private & Public sectors need to cooperate
- Standards for encryption (NITS in the USA vs SHA3 &AES for 304 US & 112 DE products)
- Data Ethics & Data Protection Officer (obligation by April 2018)

EU passed the directive/law 28 April 2016

- double opt in enhancing user consent
- Personal Data Protection enforced
- 72h to report data breach on PDP
- unified reporting in Europe for corporate
- privacy by design & right of forgiveness
- security by default & right of data portability
- accountability rules & impact assessment

APIs, an innovative and efficient model allowing companies to manage their core business activities only

Share



In a traditional company, all functions are internalized to support the core business

In an API-driven company, support functions are **externalized** via an **API**, **focus** is on the **core business**

FROM SILLOS...
M Porter

...and also significant revenue

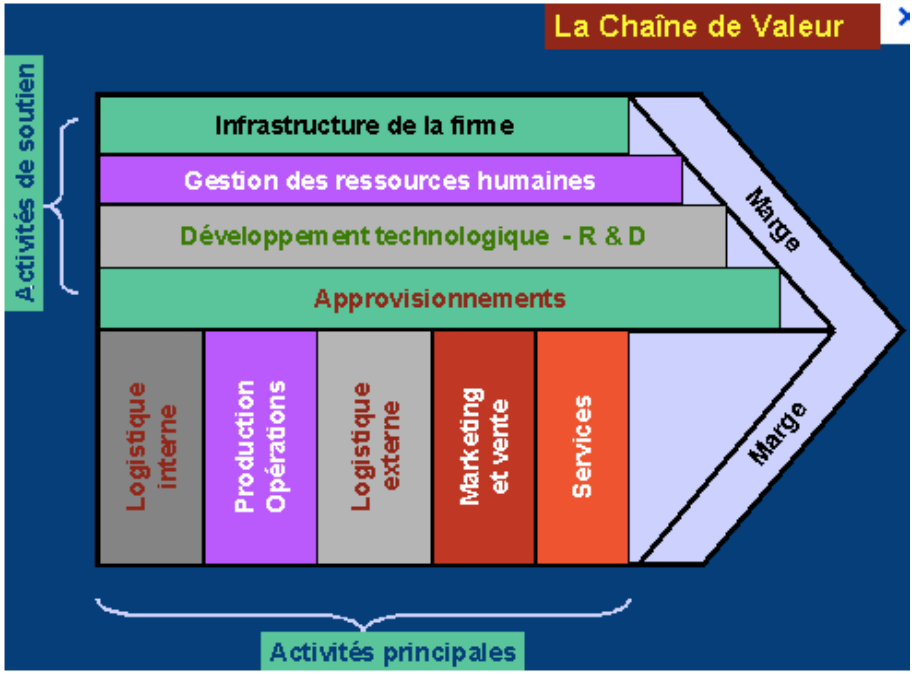
Share

Expedia Affiliate Network = $2 billion/year

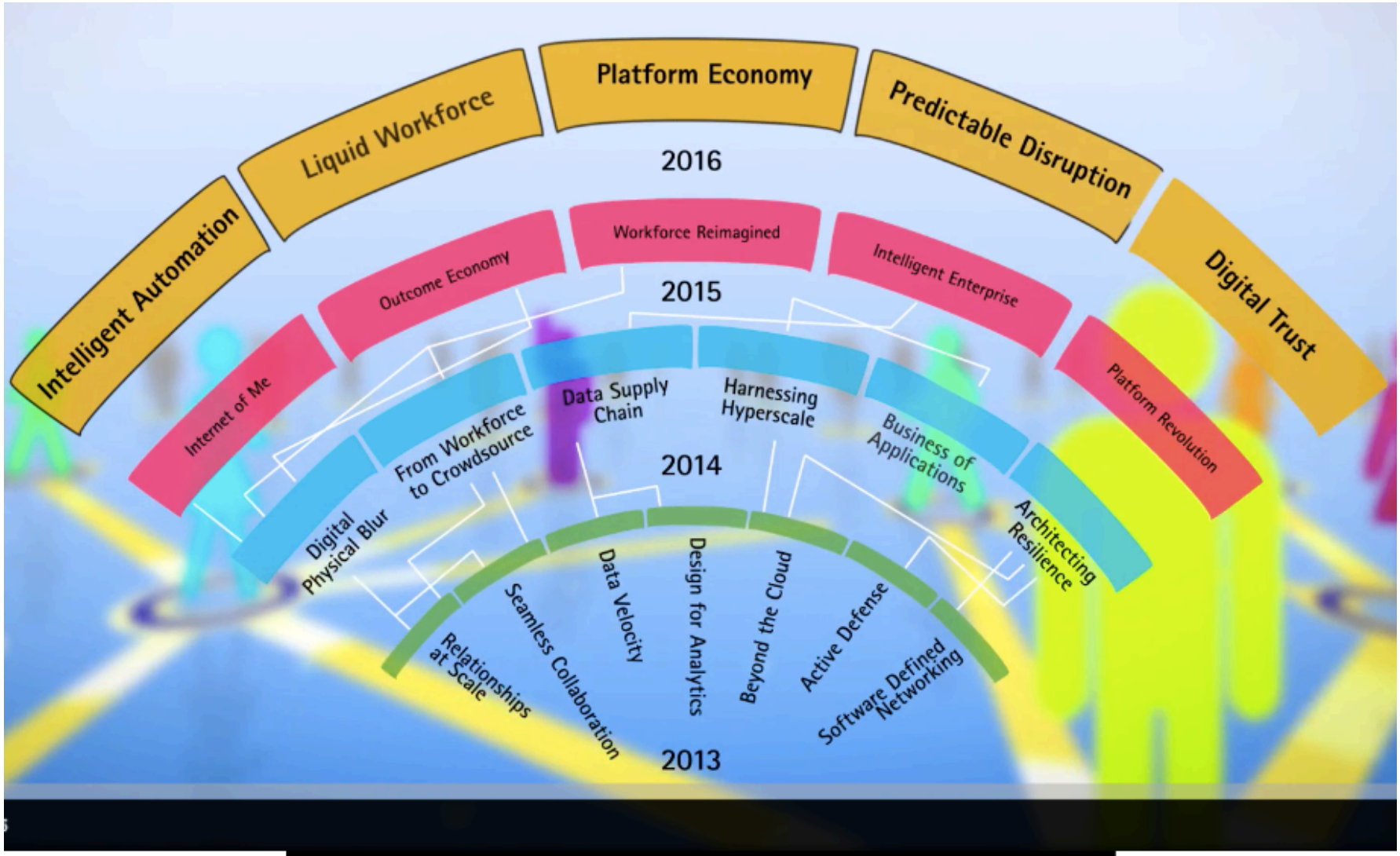
"90% of what we do is business through APIs"

John Watton, Expedia Affiliate Network, Travolution.co.uk, April 2012

Source: John Musser, Open APIs, What's Hot What's Not

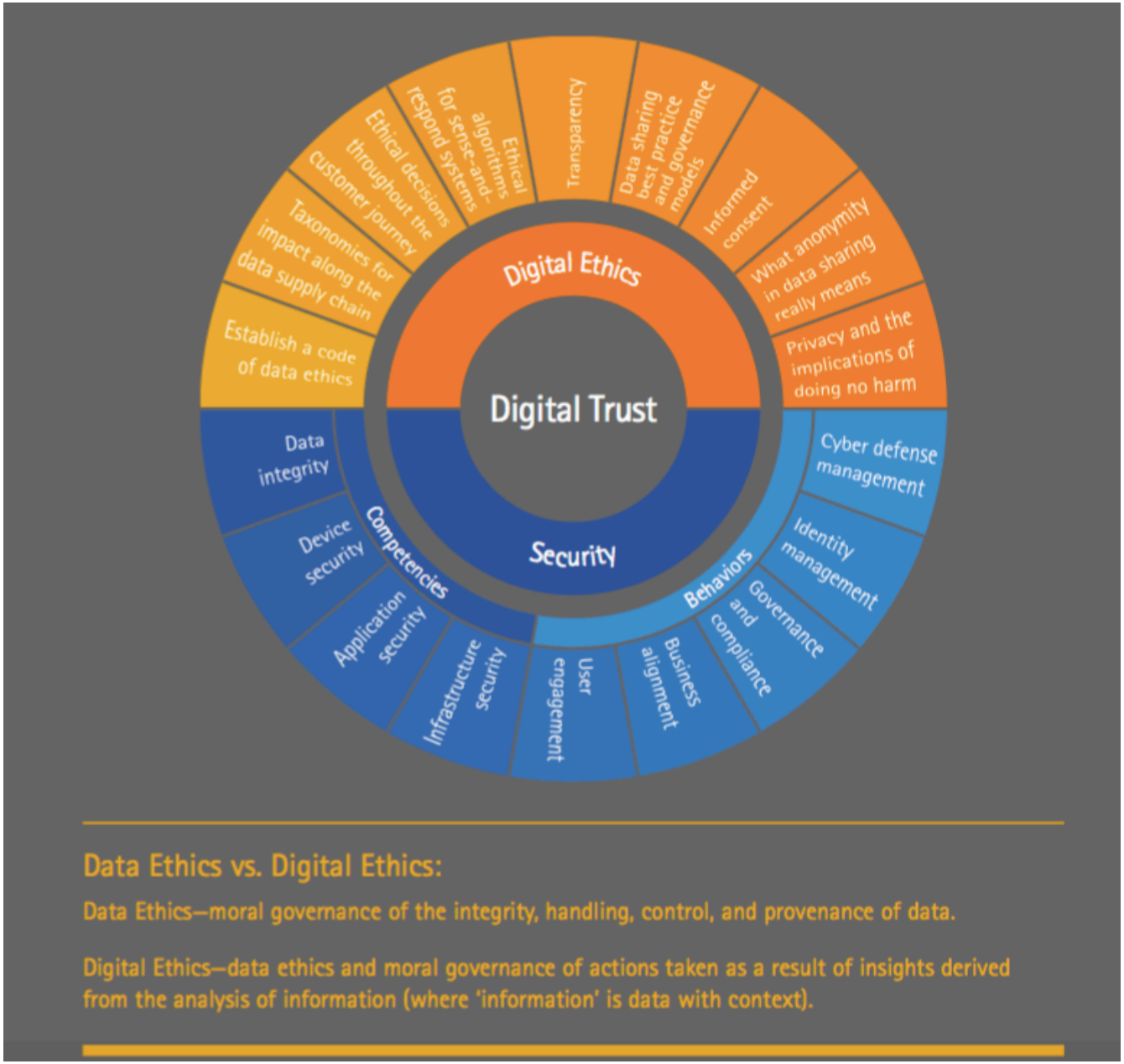


... TO CROSS FERTILIZING ecosystems



5 TECH TRENDS CRITICAL TO DIGITAL SUCCESS

TRUST – *THE NAME OF THE GAME*



The new era of digital globalization

Global flows of trade and finance are flattening, while data flows are soaring

45X
growth in data flows 2005–2014

Digital technologies are changing how business is done across borders and broadening participation

Large multinationals

Attain truly global scale with new markets and suppliers

New strategies for products, assets, organization

SMEs

Use digital platforms to find customers and suppliers abroad

50M on Facebook, 10M on Alibaba, 2M on Amazon

Startups

>80% of tech-based startups are "born global"

Foreign customers, financing, suppliers from day one

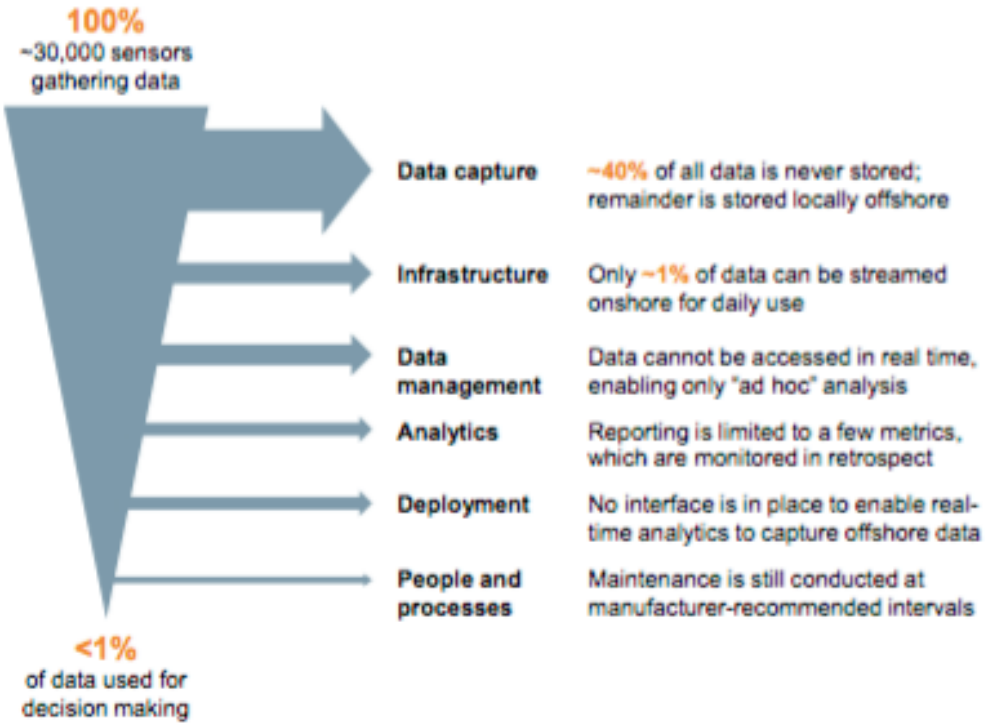
Individuals

New ways to work, learn, and communicate across borders

>900M have international connections on social media

Exhibit 3

99 percent of data collected from 30,000 sensors on an oil rig was lost before reaching operational decision makers

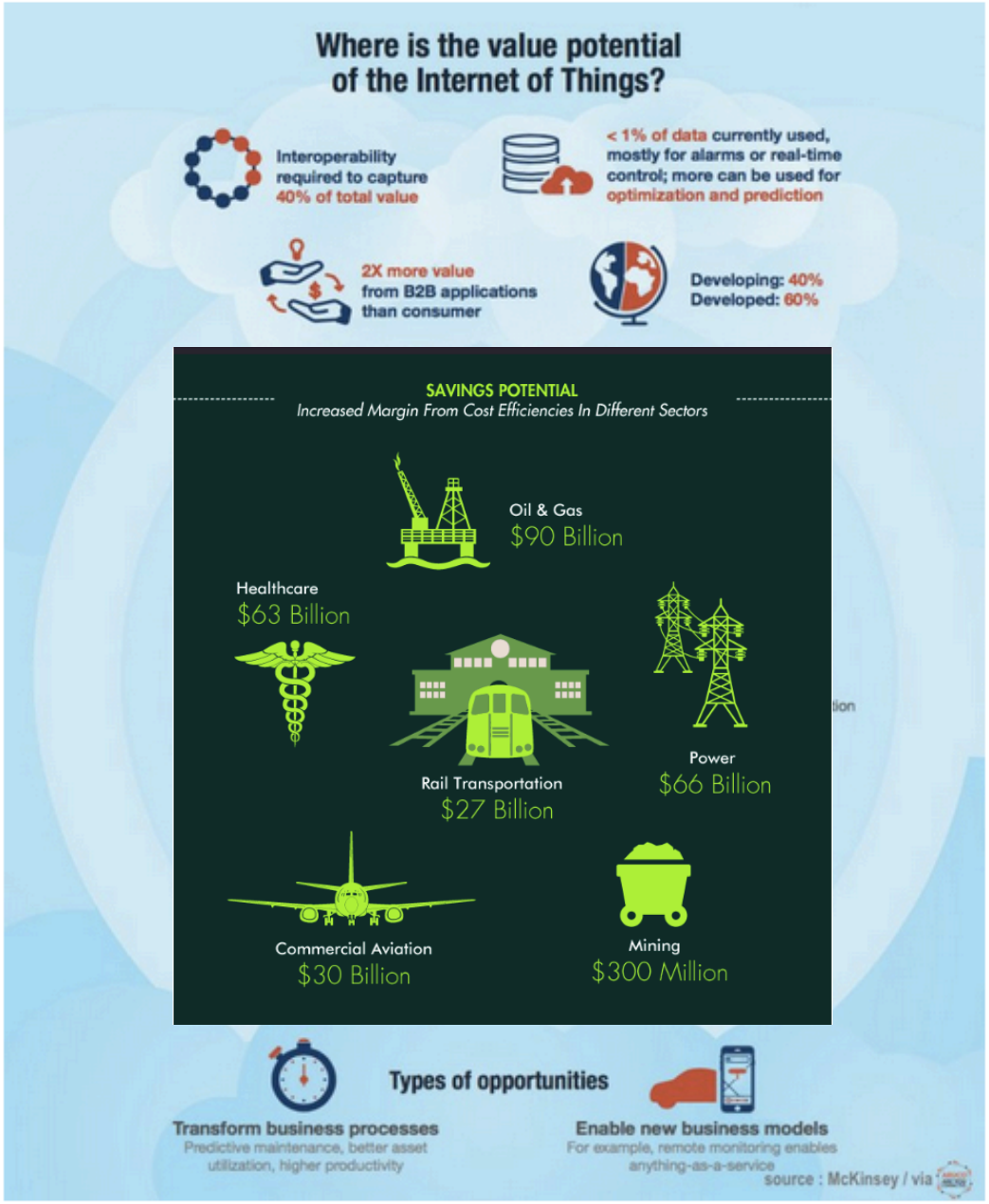


SOURCE: McKinsey Global Institute analysis

[9] The Institute of Electrical and Electronics Engineers defines standards as "published documents that establish specifications and procedures designed to ensure the reliability of the materials, products, methods, and/or services people use every day." http://standards.ieee.org.

[10] See *Big data: The next frontier for innovation, competition, and productivity*, McKinsey Global Institute, May 2011, and *Open data: Unlocking innovation and performance with liquid information*, McKinsey Global Institute, October 2013.

THE 1% CASE IS EVERY WHERE… SO NEW JOBS TO OPERATE / CDO & CHIEF DATA SCIENTISTS



D'ici à 2025, McKinsey estime le marché annuel entre 3.9 et 11.1 trilliards de dollar. Sur les 44 000 Go de données collectées par ces objets connectés, moins de 1% sont exploitées.

IoT 10 Trns $ STAKE

DATA 40 Trn octets

But 1% exploited !

WHEREAS 27 Bn$ potential savings identified for rail

BUT also new revenues Cf ETCS +20% trains/H

IoT How did we get there?

#1 – The connectivity costs have dropped

COST OF SENSORS

$1.30 ↘ .60 AVG. COST

over the past 10 years.

COST OF BANDWIDTH

↓40x

over the past 10 years.

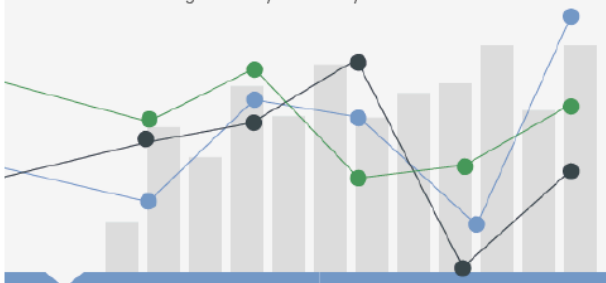
COST OF PROCESSING

↓60x

over the past 10 years.

BIG DATA

As the IoT will by definition generate [illegible]ous amounts of unstructured data, the av[illegible]of big data analytics is a key enabler.



SCALABILITY OF IPv6

IPv6 = 3.4 x 10^{38} IP addresses

Internet Protocol (IP) addresses are the identification and location system for every computer on a network. IPv4, the fourth version of this protocol, allows for 4.3 billion addresses. **IPv6, the newest version, allows for an almost limitless amount.**

WHAT IS DRIVING GROWTH?

The IoT value proposition – **a driver of new product cycles and another leg of cost efficiencies**

REVENUE GENERATION

Companies are focused on the IoT as a driver of incremental revenue streams based on new products and services.

PRODUCTIVITY AND COST SAVINGS

Businesses are also embracing the IoT to improve productivity and save costs.

Consumer demand is also driving IoT adoption as they embrace new technology to improve health, energy savings and safety.