



Setting the Standard for Automation™

How the Internet of Things is driving Track & Trace.

- Standards
- Certification
- Education & Training
- Publishing
- Conferences & Exhibits

- Robert Jones
- Over 20 years in the “Track & Trace” related industry.
- 16 of those years as MD of VisionID.
- What do we do? We enable our clients to increase operational efficiency and provide visibility of critical business information and core business assets.
- Typical technologies = Barcode/RFID/Mobile Computing/IoT/Software.



"When wireless is perfectly applied the whole earth will be converted into a huge brain, which in fact it is, all things being particles of a real and rhythmic whole.....and the instruments through which we shall be able to do this will be amazingly simple compared with our present telephone. A man will be able to carry one in his vest pocket., (Nikola Tesla, 1926)*

What is the Internet of Things?

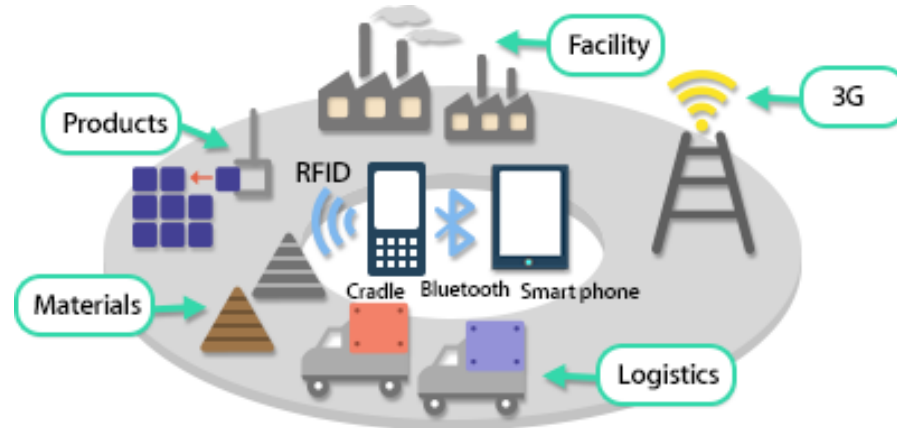
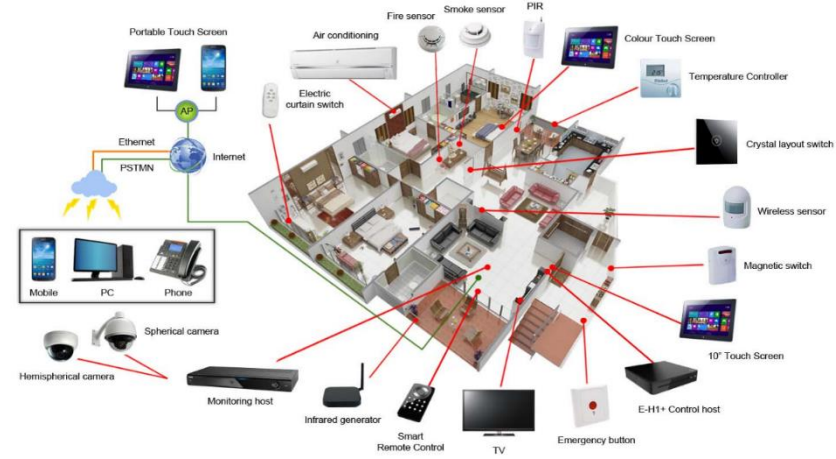
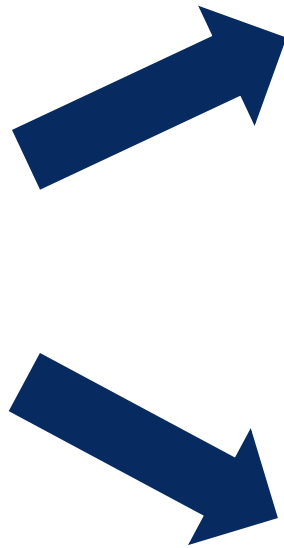
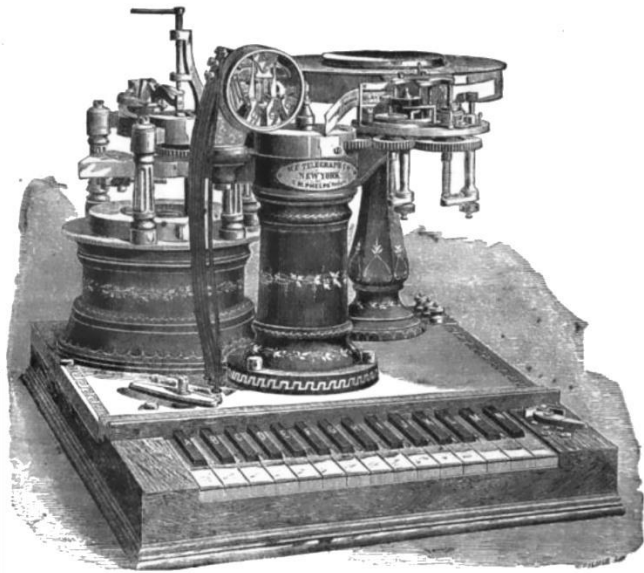
Definition:

System of interrelated devices communicating over a network

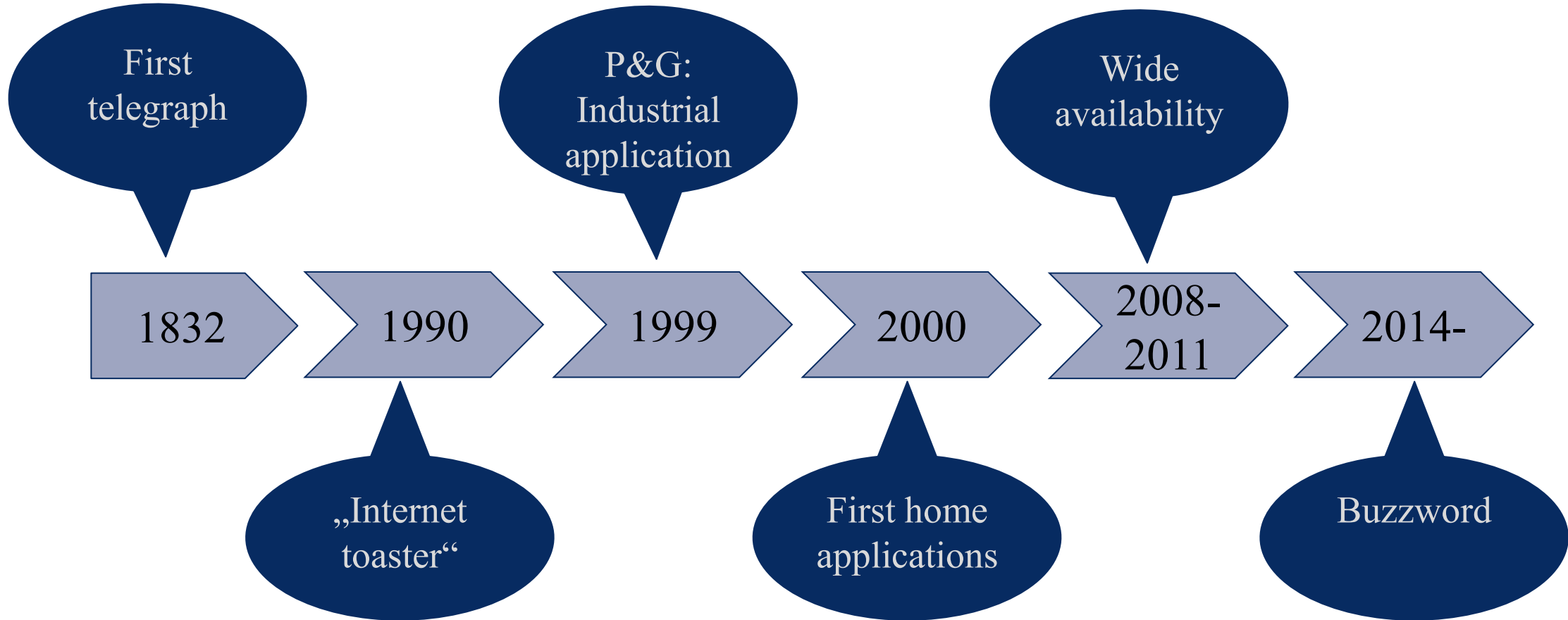
- Improved process efficiency
- Improved human efficiency
- Improved value



History:



History:



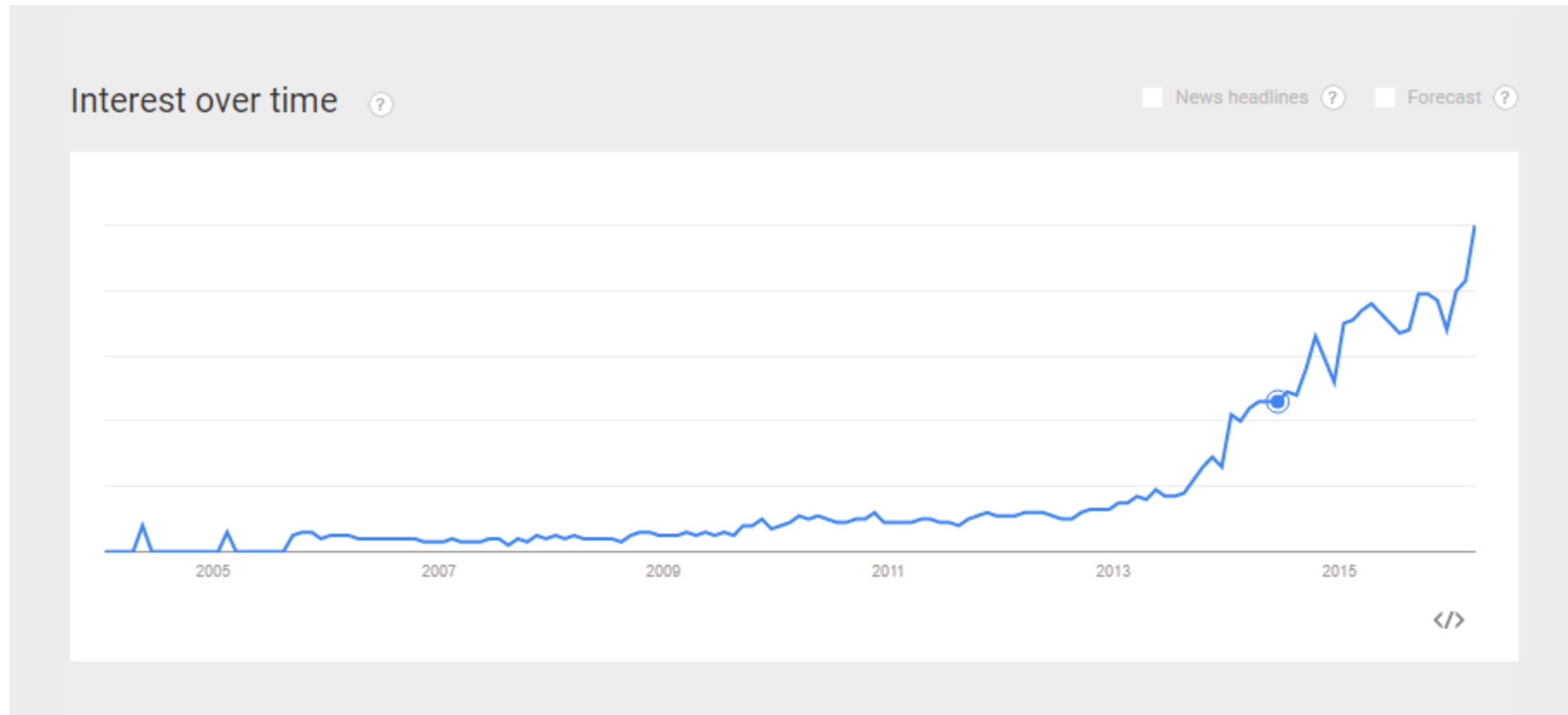
Growing interest in graphs:

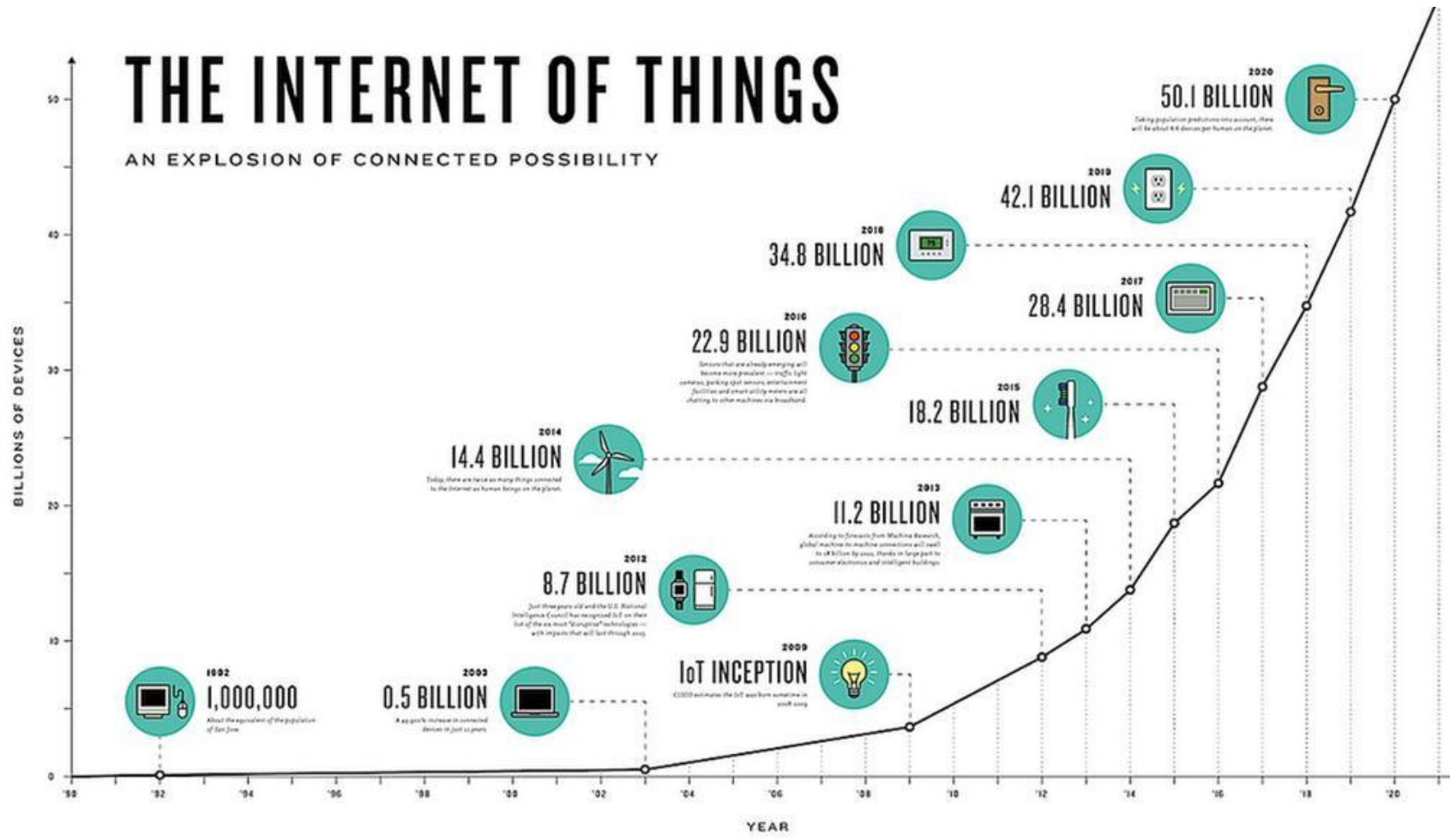
Annual Gartner Hype cycle for emerging technologies 2015



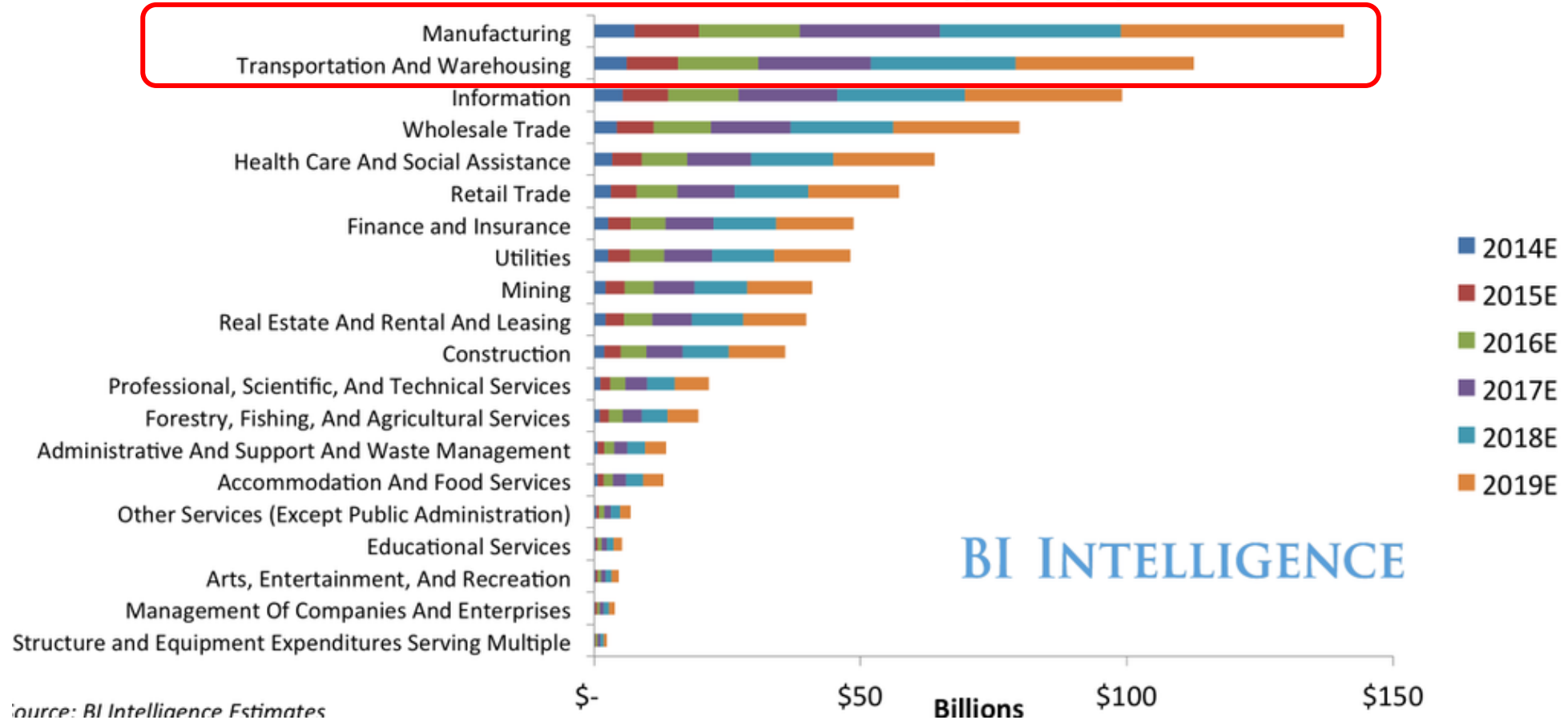
Growing interest in graphs:

- Google search trends 2004-2016





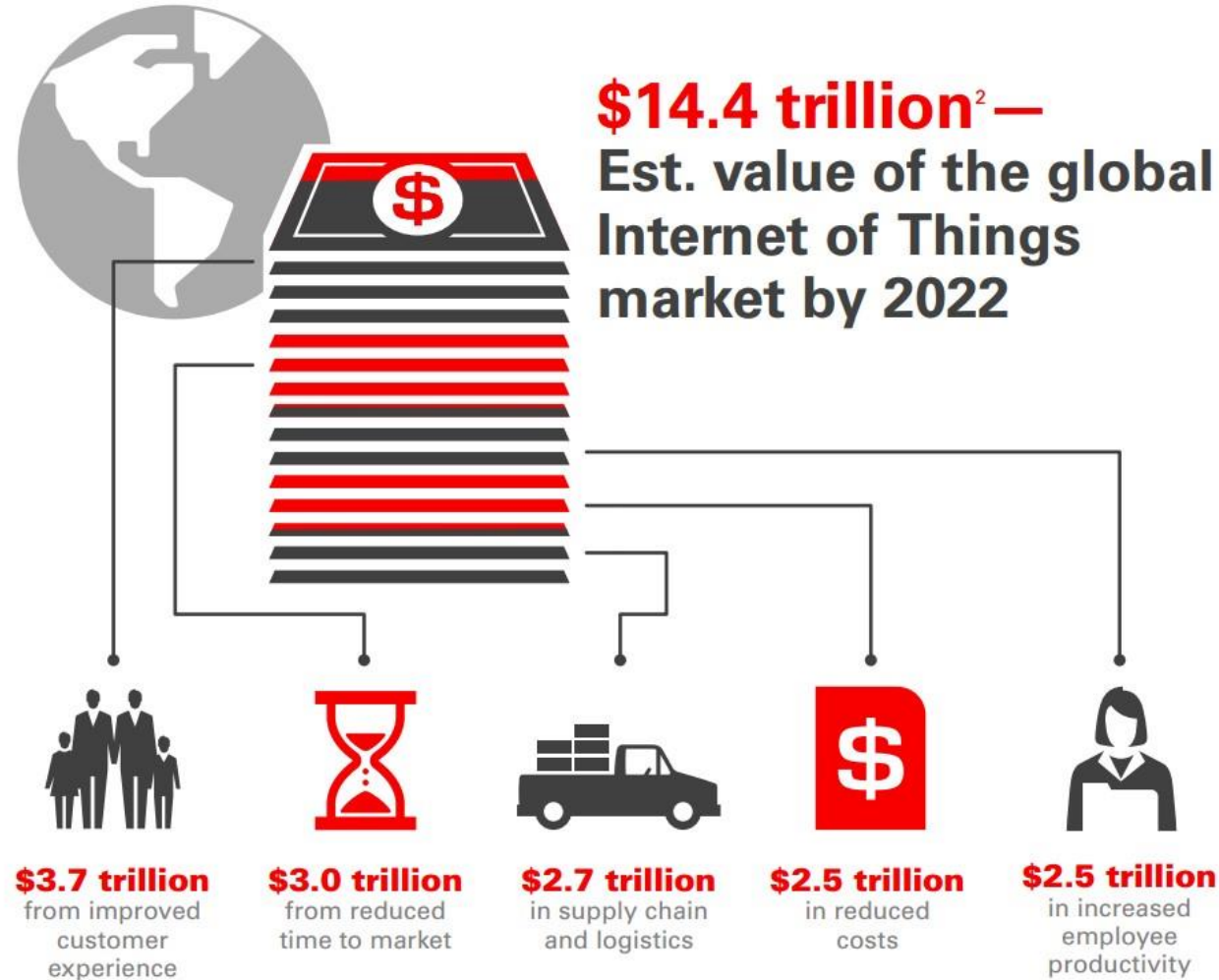
Investments In IoT Solutions By Industry



Source: BI Intelligence Estimates

BI INTELLIGENCE

Predictions:



Source: Louis Columbus, Roundup Of Internet of Things Forecasts And Market Estimates, 2015, Forbes Tech



Advantages of IoT in the Food and Pharmaceutical industries:

Data Acquisition:

- Provide real-time quality control information
- Enable proactive data-driven maintenance
- Enable real-time error handling
- Minimize waste & optimize processes

The key mantra of IoT is CONNECT EVERYTHING.

Advantages of IoT in the Food and Pharmaceutical industries:

Remote access to devices and to the entire system:

- Continuous monitoring without physical contact:
 - Preventative Maintenance
 - Avoid or reduce downtime
 - Reduce risks of human errors and injuries
- Information from inside and outside of the factory can be integrated
 - Quick Response can be given
 - Enable Agile Manufacturing

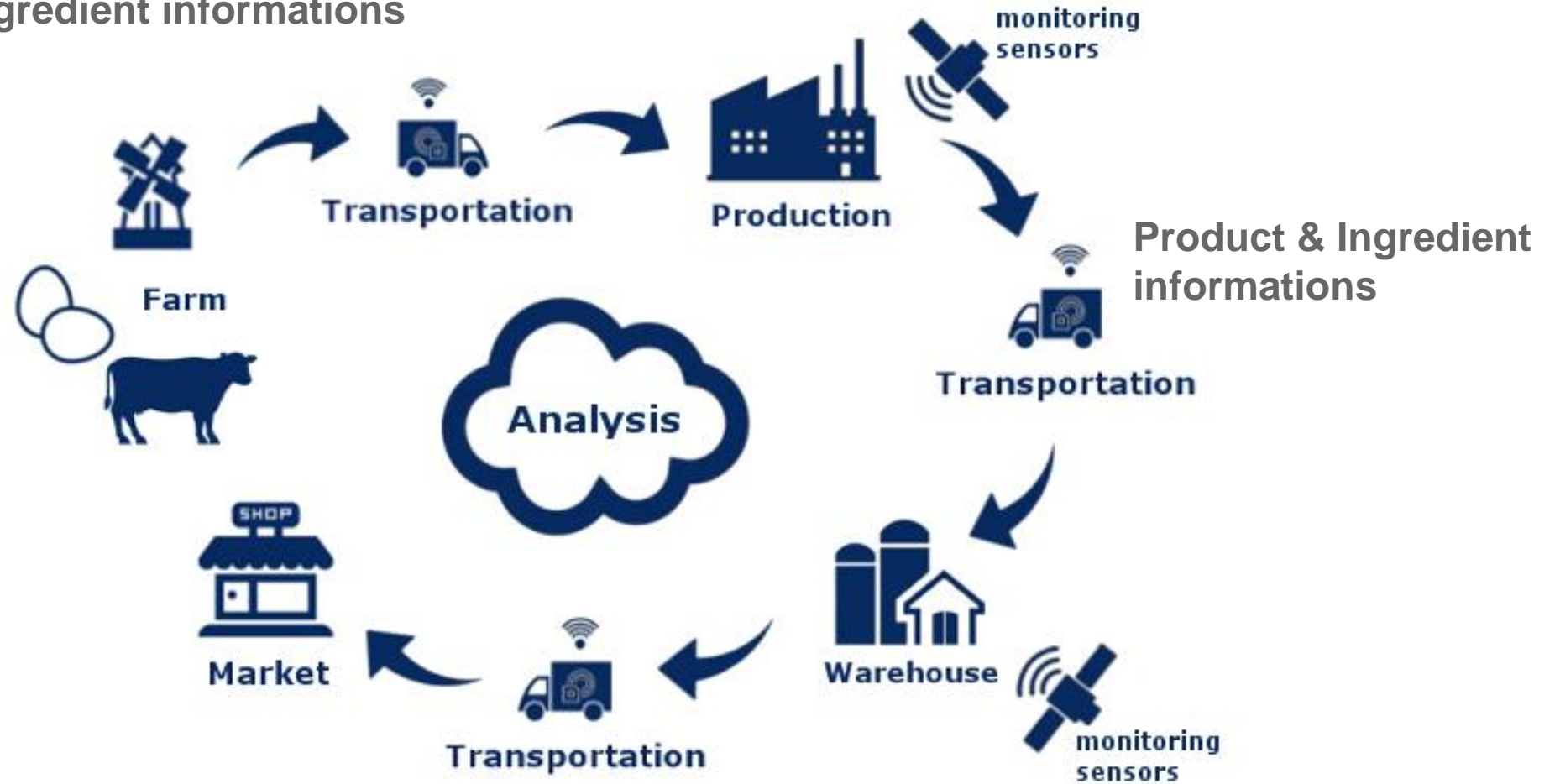
Why Trace & Trace?

Example Case: The horse meat scandal

- How did horse meat enter the complex meat supply-chain?
 - Slaughtering: Romania
 - Butchering/Processing: Italy
 - Turned into frozen lasagne: Luxembourg
 - Sold: 15 countries
- Results
 - Strict EU regulation about origin labelling
 - Increased usage of technology against food fraud

Food Supply Chain:

Ingredient informations



Freshness, Physical Conditions,
Product&ingredient informations

Track & Trace technology in the Food Industry:



- Raw materials: tracking import and export elements
- Warehouse management
 - Cost efficiency
 - Freshness
 - Pinpointing contamination
- Finished product: chain of custody
- Integration with food safety and other processing systems
- Document product history from manufacturing to the customer

- **“Strawberry Grower Deploys RFID to Fix Temperature Troubles” (2009)**
- **Problem:**
 - Temperature fluctuation
- **Tracking from Spain to Germany**
 - Ambient's SmartPoint tags on top of the trays of fruit
 - Determining positions
 - Measuring temperatures
 - Storing in Memory
 - Transmitting in every 15 minutes
 - Cool chain monitor software
 - Monitoring the process
 - Shelf-life expectations

Why Track & Trace: Pharmaceutical Counterfeit Facts:

- Global product revenue: \$880 billion
- Percentage of counterfeits in the global drug market:
 - 15% (WHO estimate)
 - Global sale of counterfeit drugs:
 - \$75 billion (Interpol evaluation)

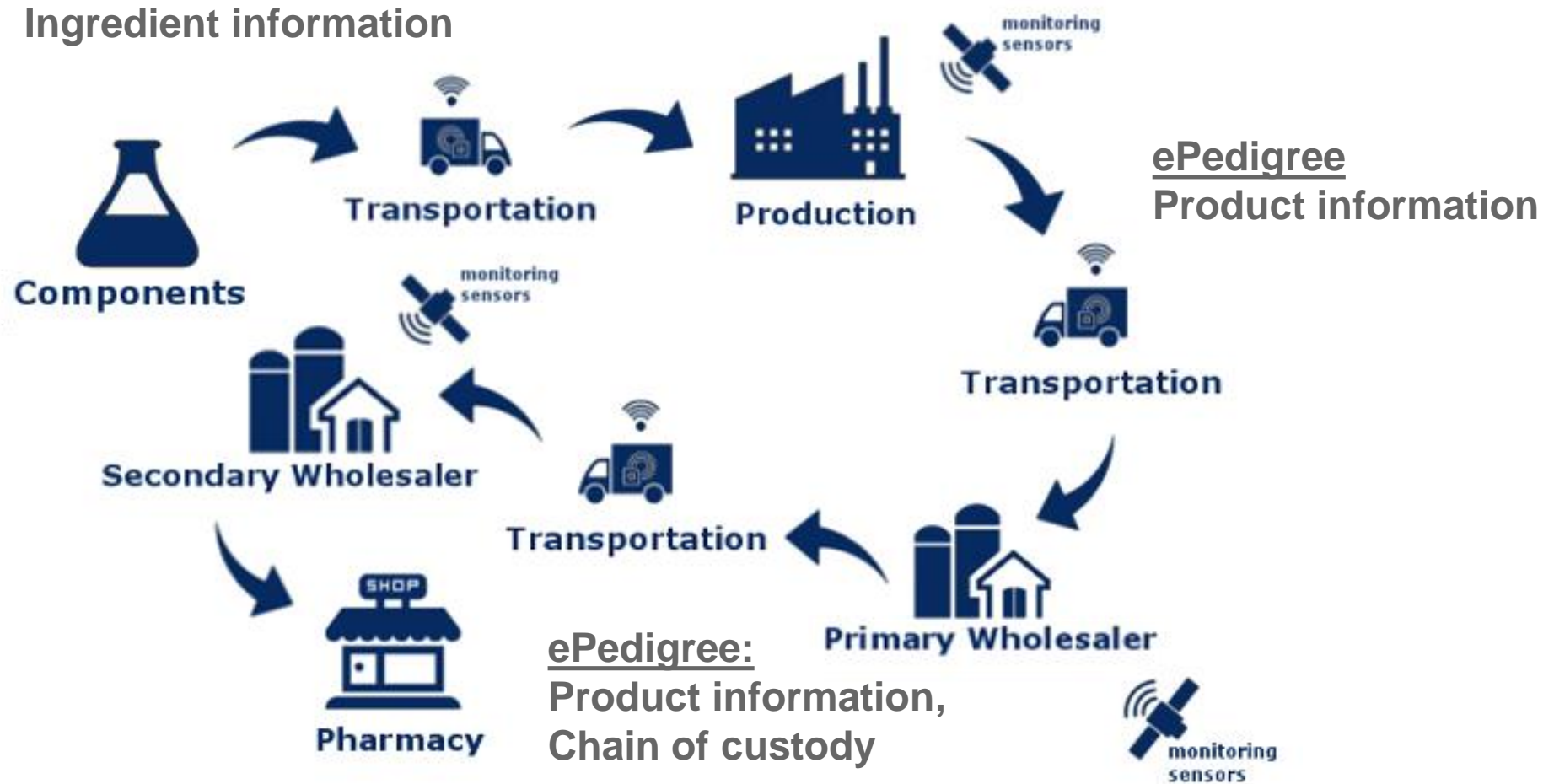


Drug Serialization Regulations:



- USA
 - The Drug Quality and Security Act (DQSA) of 2013
 - unique serial number by November 27, 2017
 - information exchange system by November 27, 2023.
- EU
 - Serialization requirements by early 2018
- China
 - All drug products needed to be serialized by December 31, 2015

Pharmaceutical Supply Chain:



- Fighting counterfeits
 - Identifying origin
 - Verifying authenticity
- Help combat product diversion
 - Authentic products entering the gray market
 - Tracking the chain of custody
- Improve patient safety
 - Efficient product recalls

- **Purdue Pharma Uses RFID to Combat Counterfeiting (first to adopt)**
 - Putting RFID tags on bottles of painkillers
 - Unique identification
 - Ingredient informations

- **Blood product transport in Mallorca**
 - Avoid unnecessary unpacking
 - Avoid exposure to hot temperature

In Summary:



- Track & Trace requirements will continue to rise.
- We need to look beyond Track & Trace being a “mandate” type requirement and start viewing it as a business enabler.
- IoT technology will scale rapidly over the next few years. With this scale the costs will reduce and the ROI case will improve.
- My advice – start reviewing your operation and look where you can:
 - Connect
 - Capture
 - Analyse
 - Act

Thank You.

Robert Jones

VisionID Ltd.

rjones@visionid.ie