European Railway Agency

An agency of the European Union

Digital Single European Railway Area - How Do We Get There?

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Digital Railways?

From paper, physical indications…

Physical World

…to data, digital (mobile) communication, "Internet of Things"

Digital World

"Data enabled railway"

… applied to processes across the entire value chain (passengers and freight)

Digital Railways as a component of e-transport

(e-transport = one of the digital services required by the Digital Single Market Strategy of the EU)

Digital railways are aimed at increasing:

Competitiveness
Reliability
Efficiency
Effectiveness
Capacity

Availability
Accessibility
Attractiveness
Safety
(Cyber)security

Some Rail Examples

Customer Experience

- Multimodal ticketing
- Connectivity (WLAN)
- Proposals for Improvement

"Big Data"

- Location
- Passenger preferences

Train Control

- ERTMS
- Driverless trains

Environmental Impact

- Energy consumption monitoring

Asset optimisation

- Tracking
- Predictive maintenance

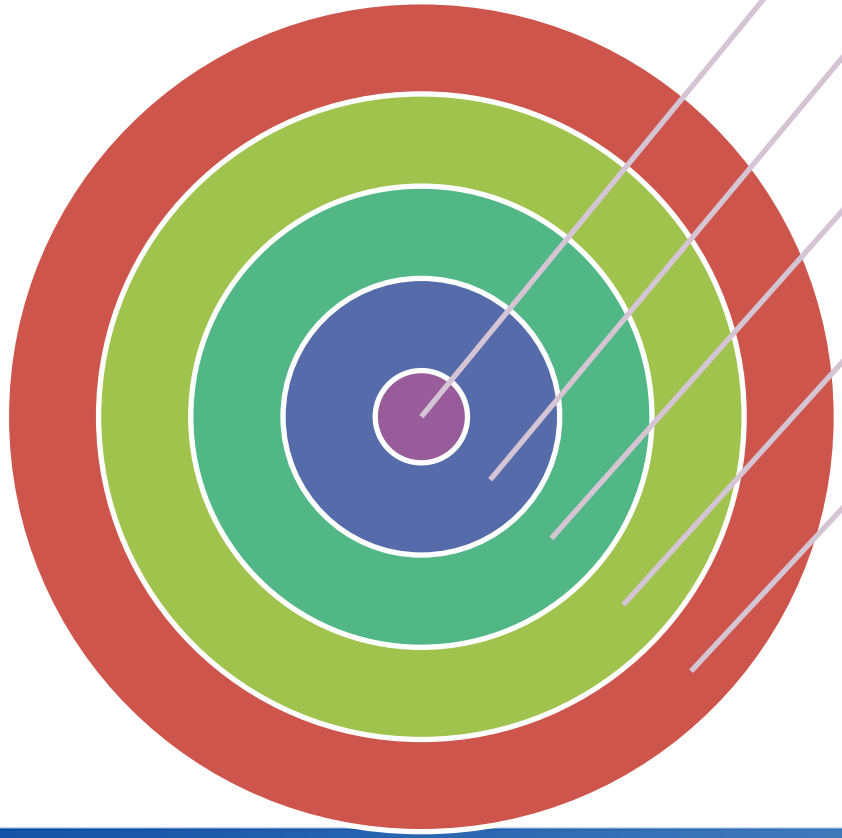
Strategic Considerations

- Customer-oriented
- Removing railway specificities (e.g. for better multimodality)
- Real-time information
- Hyper-connectivity (e.g. broadband)
- Agility
- Mobile devices
- Open data
- Big data

Current Situation

- Some European railway undertakings are investing heavily in digitalization
- Many customer-focused developments are underway
- The focus is on company use and not on a wider EU policy agenda

Challenges



"Digital" = change in mindset, towards more agility

"Future proof" solutions vs. backward compatibility

Data interoperability (format, protocols, etc.)

Data integrity, reliability, availability, maintenance –

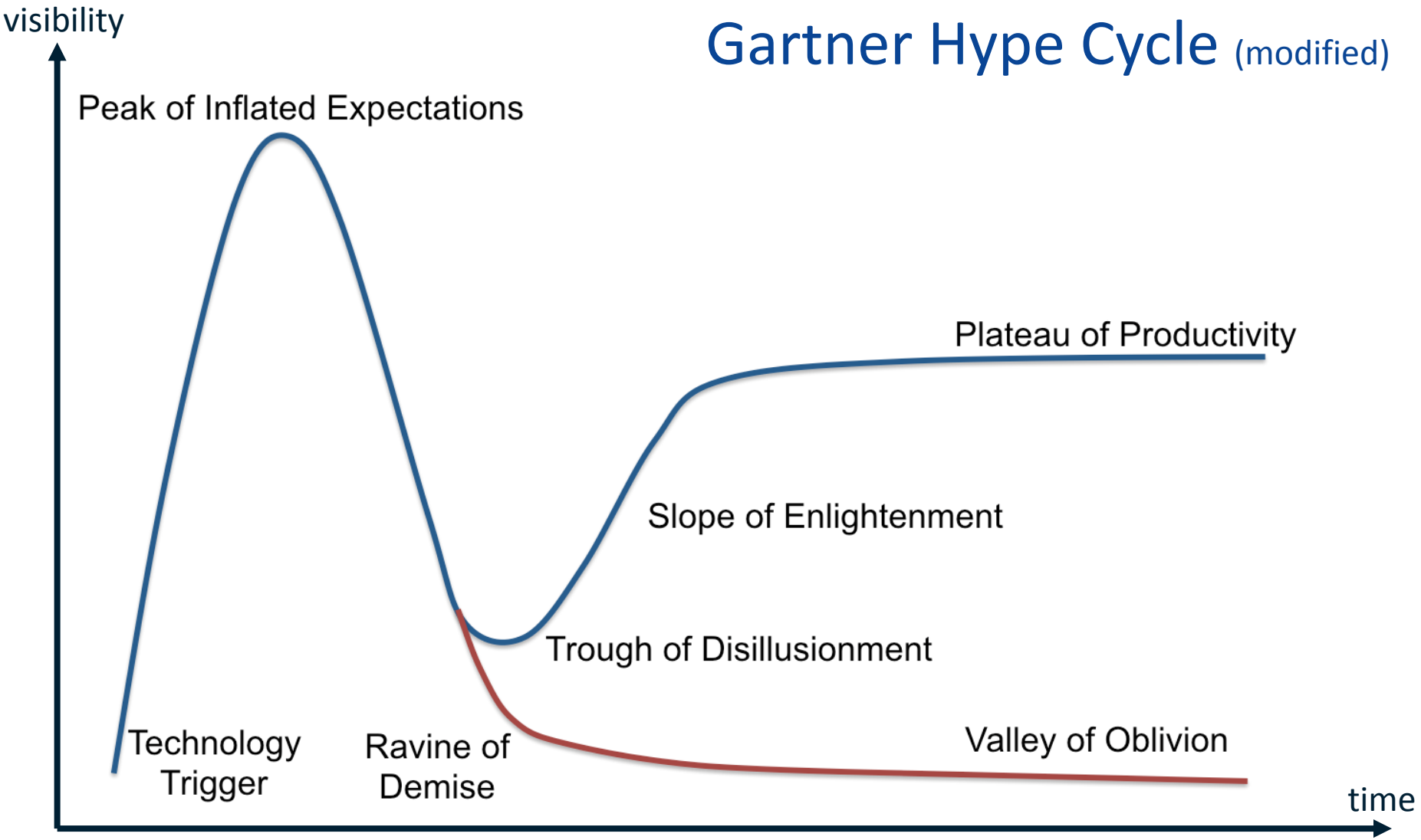
Liability issues

Study and follow-up "hype cycles" to avoid any development which will be obsolete before maturity

For example: hyper connectivity and availability of NFC on mobile phones may supersede the need for paper based ticketing

Attention!

Gartner Hype Cycle (modified)



Enhancing interoperability

Promoting standardisation, by making use of solutions already widely adopted by other (transport) sectors

Use of social data (e.g. for digital commerce)

…

Related current ERA activities

- ERTMS, GSM-R -> ATO
- Registers RINF, NVR, ECVVR, VKMR, ERATV and ERADIS
  (Ensure full transparency of the characteristics of the railway system)
- Reference databases for rules and processes (RDD, NLF, …)
- TSIs on telematic applications (TAP/TAF)
- Dissemination, communication, consultation and working through the ERA website

The ERA Contribution

Short Term

- Registers for RST and INF (today, registers only for administrative and planning purposes)
- Define a possible operational role of registers
- "Curing the symptoms, not the disease", i.e. fixing the bugs in framework of existing legislation
- Rationalization of vehicle-related registers
- ERA guides, e.g. DV29bis, etc.
- ERA has a relatively high technical leeway by direct influence - the political margin of maneuver is limited and proportional to the changes resulting in legislation

Medium/Long Term

- Helping to build up the Single European Railway Area
- Promoting EU know-how worldwide.
- Fundamental role by influencing policy (also outside EU) through technical insight (e.g. Digitalisation in SHIFT²RAIL)
- Stronger role of ERA in education and research

Making the railway system work better for society.

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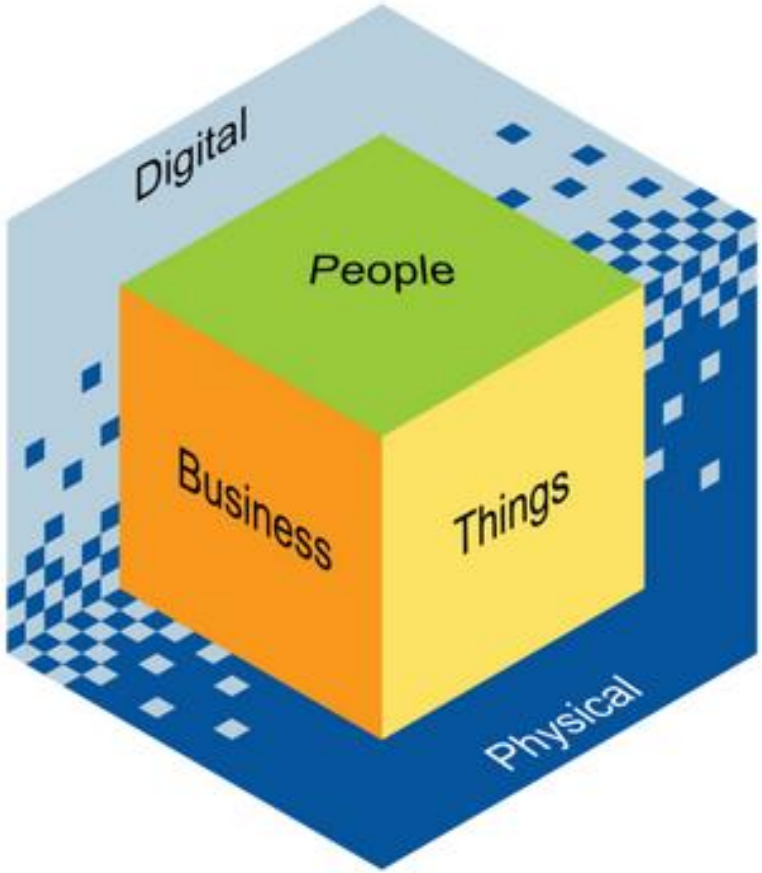
Digital Business World



Prediction: By 2020, more than 7 billion people and businesses, and at least 35 billion devices, will be connected to the Internet.

Source: Gartner (March 2014)