



Innovation - the contribution of industry in the e-Navigation domain

Presented at e-Navigation Underway Conference 2013

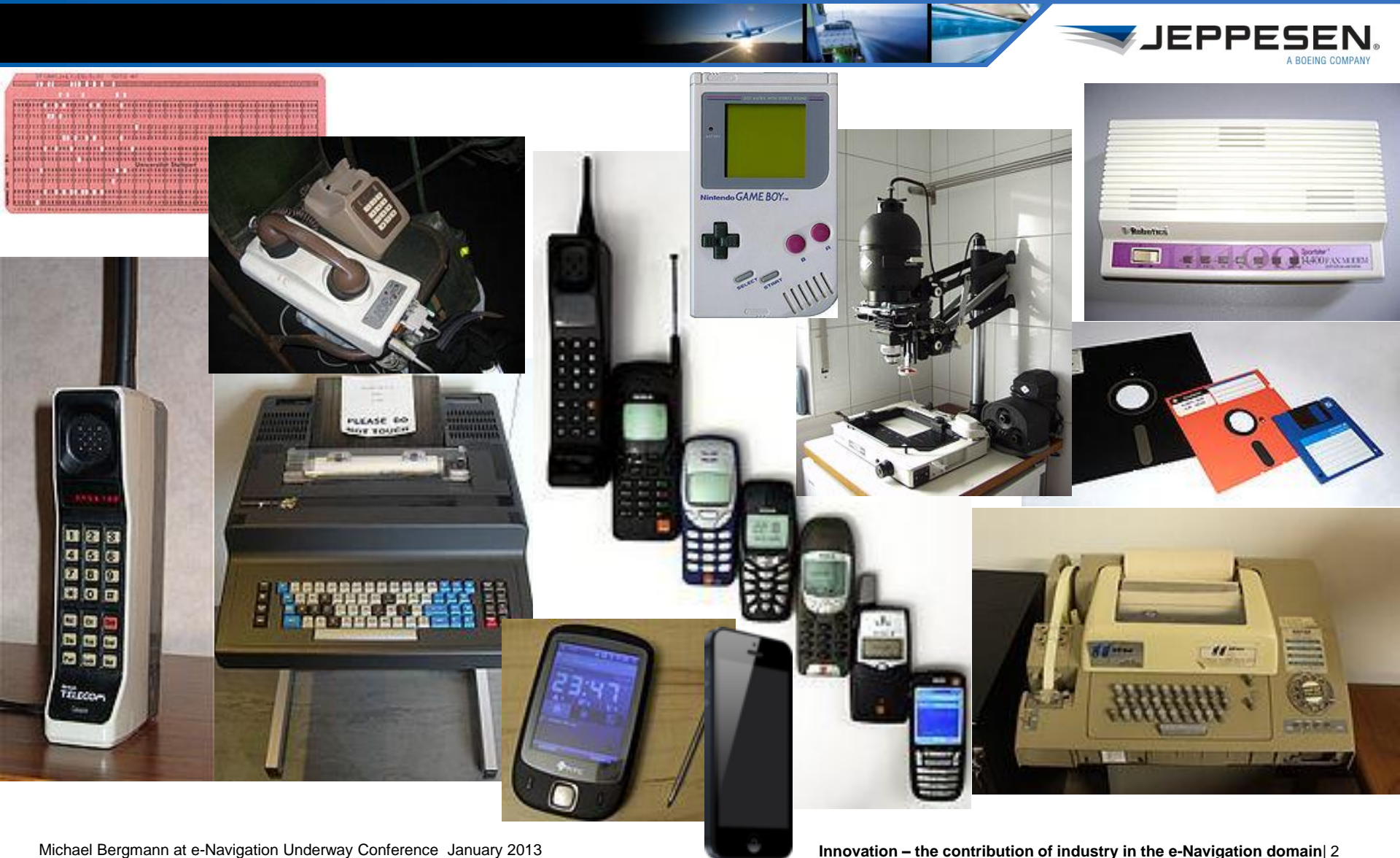
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When have you last used...



The World is changing



- **What is nowadays called “ Age of Modern Man” started around 150,000 years ago.**
- **The Agricultural Age started 10,000 years ago**
- **The Industrial Age manifested 300 years ago**
- **The Information Age began almost 40 years ago**
- **What is called the “Threshold Decades” (1985-2005) was the timeframe when the developed countries fully transitioned from Industrial to Information Age.**

A changing world



Number (world)	1950	1975	1985	1995	2005
Computers	60	650,000	50,000,000	200,000,000	822,150,000
Cell Phone Subscribers			700,000	89,000,000	2,065,000,000
People using the Internet			21,000	45,100,000	1,081,000,000

Number	1950	1975	1985	1995	2005
Car manufacturers (U.S.)	22	16	13	11	8
Radio stations	2232	4463	8593	11,987	13,499
Web sites					71,000,000
Published books	11,022	39,372	75,452	113,589	350,250
TV channels (avg)	2	3	18	41	102

Source: David Houle – The Shift Age

Speed of Change



Agricultural Age

speed of change barely noticeable within a lifetime

Industrial Age

speed of change accelerated, noticeable within a lifetime change was sequential and was slowly acceleration

Information Age

speed of change accelerated greatly, change perceived and felt within a decade, change started to be simultaneous in different sectors
“Future Shock”

Shift Age

speed of change now part of our environment, it is constantly accelerating

Source: David Houle – The Shift Age

What to do?



“We should try to be the parents of our future rather than the offspring of our past”

Miguel de Unamuno (1864-1936)
Spanish essayist, novelist, poet, playwright, and philosopher

Innovation - An Industry Approach



- **Focus on User needs:**
 - Clearly expressed User Needs (Requirements document)
 - Not yet realized User Needs (Human Factor Design)
- **Modular System Approach**
 - Phased implementation capability
 - Chances for implementation of future needs
- **System Encapsulation Approach**
 - Modules not negatively affecting existing system behaviors
 - Three “Application Categories”
 - Cat 1: Not integrated
 - Cat 2: “Read Only” integration
 - Cat 3: Fully integrated

The Data Quality Aspect – Data Supply Chain Certification



- 1. Accuracy**
- 2. Resolution**
- 3. Assurance Level**
- 4. Traceability**
- 5. Timeliness**
- 6. Completeness**
- 7. Format**

The System Quality Aspect



- Software quality systems through Process Certification (e.g. CMMI)
- System quality certification (e.g. learn from aviation D-178B, IEC standards)
- Service Provider certification (e.g. ISO or “Letter of Acceptance - Lol)

Context: e-Navigation Framework



Existing ECDIS Regulations
*Detail Performance Standards including
"What and How"*

General e-Navigation Specifications
*(Policies, Collaborations, Architecture,
Communication, Portrayal...)*

Regulatory Frame on

WHAT

Innovative Space for Industry on

HOW

Regulatory Frame on
WHAT

Drivers for implementing e-Navigation

From Presentation Andreas Nordseth, Director General, Danish Maritime Authority,
e-Navigation Underway 2012



Drivers for implementing e-Navigation



**We need to push for solutions
in close partnerships with industry**



PPP and PPC



Public-private partnership (PPP) describes a government service or private business venture which is funded and operated through a partnership of government and one or more private sector companies. These schemes are sometimes referred to as PPP or P3

(Wikipedia – 2008)

The term “Private-Public Cooperation” (PPC) builds on the P3 definition and expands it to any type of cooperation, including those, which do not need funding.

Conditions for a successful partnership



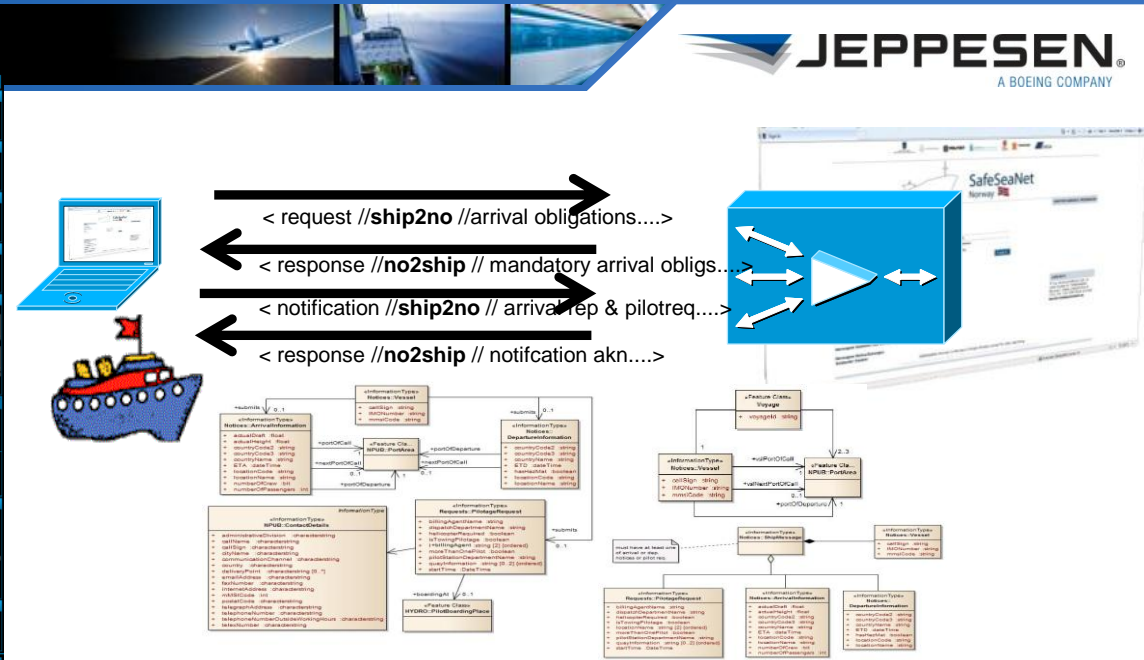
- Knowing Clearly define each other's role and responsibility
- Accepting strengths and limitations and allowing the partner to fill the gap for greater success of the defined outcome
- Communicate regularly to building and maintaining full trust on the agreed topic
- Communicate any information regarding the partnership subject without limitations

PPC as a method to master the dilemma



- **Public Sector Organizations – key competence is creating and issuing data, defining regulations, inspecting and advising...**
- **Private Sector Organizations are well equipped to develop innovative product and manage product lifecycle**
- **PPC allows both partners to focus on core competence and perfect the delivery in those areas**
- **Clear definition on roles and responsibilities, acknowledging the competence of the partner, allows full concentration on success of the common goal**
- **PPC can utilize innovations, created by PPC or public sector, to drive adaption of existing standards or creation of new ones – i.e. foster and channel innovation**

Conclusion



Innovation can not be stopped and will increase in speed.

Industry is able and willing to collaborate with the public sector to ensure quality and usability of future systems to ensure the goal is reached: Safe and Efficient transportation at sea



THANK YOU !

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