

From Data to Business Opportunities

Aalto, DSB2

25.3.2019

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Jyrki Koskinen 1974 -



NOKIA



ANTTILA



AVAAMO



Agenda

1. Data driven business, success stories
2. Data driven business, DOB - innovation platform and program for new business
3. DOB - Data & analytics for insight
4. DOB - Customer centric design thinking for value creation
5. DOB - lessons learned, experiences & best practises
6. Threats and possibilities?
7. Data driven society
8. Wrap-up

Reflection & reading

1. Data driven business, success stories



RollsRoyce



Makes airplane engines but sells flight hours

Predictive analytics is exploited to maximize utilization and optimize maintenance just-in-time. Data sources: flight hours and sensors.



Photo: Pixabay

Cargotec makes cranes but sells smart harbours



Lähde:
www.cargotec.com

Cargotec analyzes data of machines and parts (data from sensors and usage) and improve **utilization** using predictive analysis

Cargotec knows what will be loaded & unloaded and when and can optimize the harbour operations. **Efficient operations & energy savings**

Cargotec vision is an **optimized logistic chain** from producers to customers.

IBM for Smarter Planet

Solutions for customers - hardware and software as enablers.

Smarter Healthcare



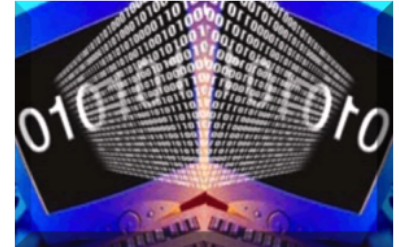
Smarter Retail



Finance



Log Analysis



Security



Traffic Control



Telecom



Search Quality



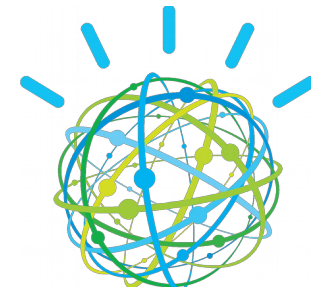
Manufacturing



Trading Analytics



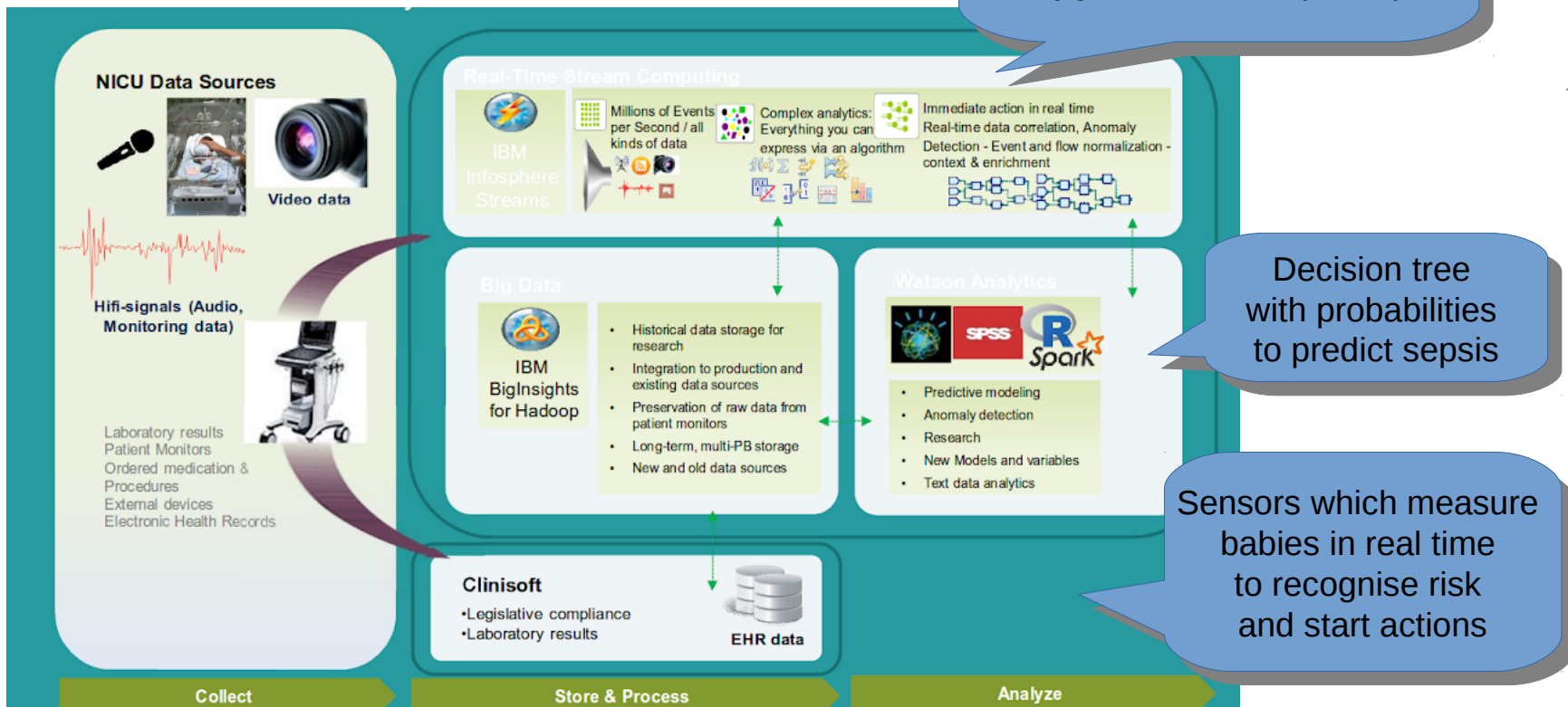
Fraud and Risk



HUS & IBM Watson helping prematurely born babies, to avoid sepsis (blood poisoning)

Analysed factors:

- Heart beat (HR)
- Breathing rate (RESP)
- Oxygen saturation (SaO2)



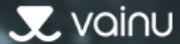
Decision tree with probabilities to predict sepsis

Sensors which measure babies in real time to recognise risk and start actions

Source: Mikko Rotonen, HUS, 19.10.2016

Vainu finds leads

- Vainu knows which companies are:
- in search of savings
 - expanding, where?
 - searching new directions
 - using certain technologies
- ...



PRODUCT CUSTOMERS CAREERS

WE'RE BUILDING A DATABASE OF 100 MILLION COMPANIES

Vainu uses big data analysis to gather company insights into one place. You'll find the most valuable prospects and know the right time to contact them.

GET STARTED

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2. DOB - Data Driven Business

Datasta oivalluksia ja bisnestä - 6Aika program

6Aika



Euroopan unioni
Euroopan aluekehitysrahasto

Vipuvoimaa
EU:lta
2014–2020



Uudenmaan liitto
Nylands förbund



SUOMEN AVOIMIEN
TIETOJÄRJESTELMIEN KESKUS



Liikenne- ja
viestintäministeriö



DOB - innovation platform and program for insights and business

Data is the modern oil for innovation in many ways. But what does it take to exploit data for insights and business?

Design thinking takes over. How to combine data analytics and design thinking into new competencies and business?

The aim of **DOB program** was to help companies

- exploit data analytics and service design to
- create new services and
- help update their competitive edge

DOB innovation platform combining data analytics and customer centric service thinking was customized and piloted in three working packages:

- Aviapolis, services for travellers
- Good, long life for senior citizens
- DOB-training for companies for new competencies



Photo: Pixabay



Photo: Lauea

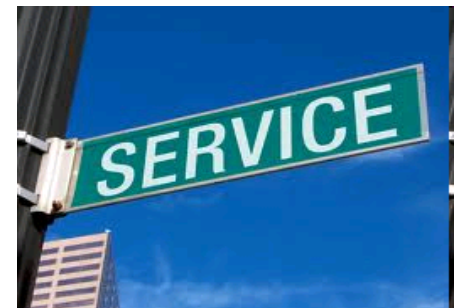
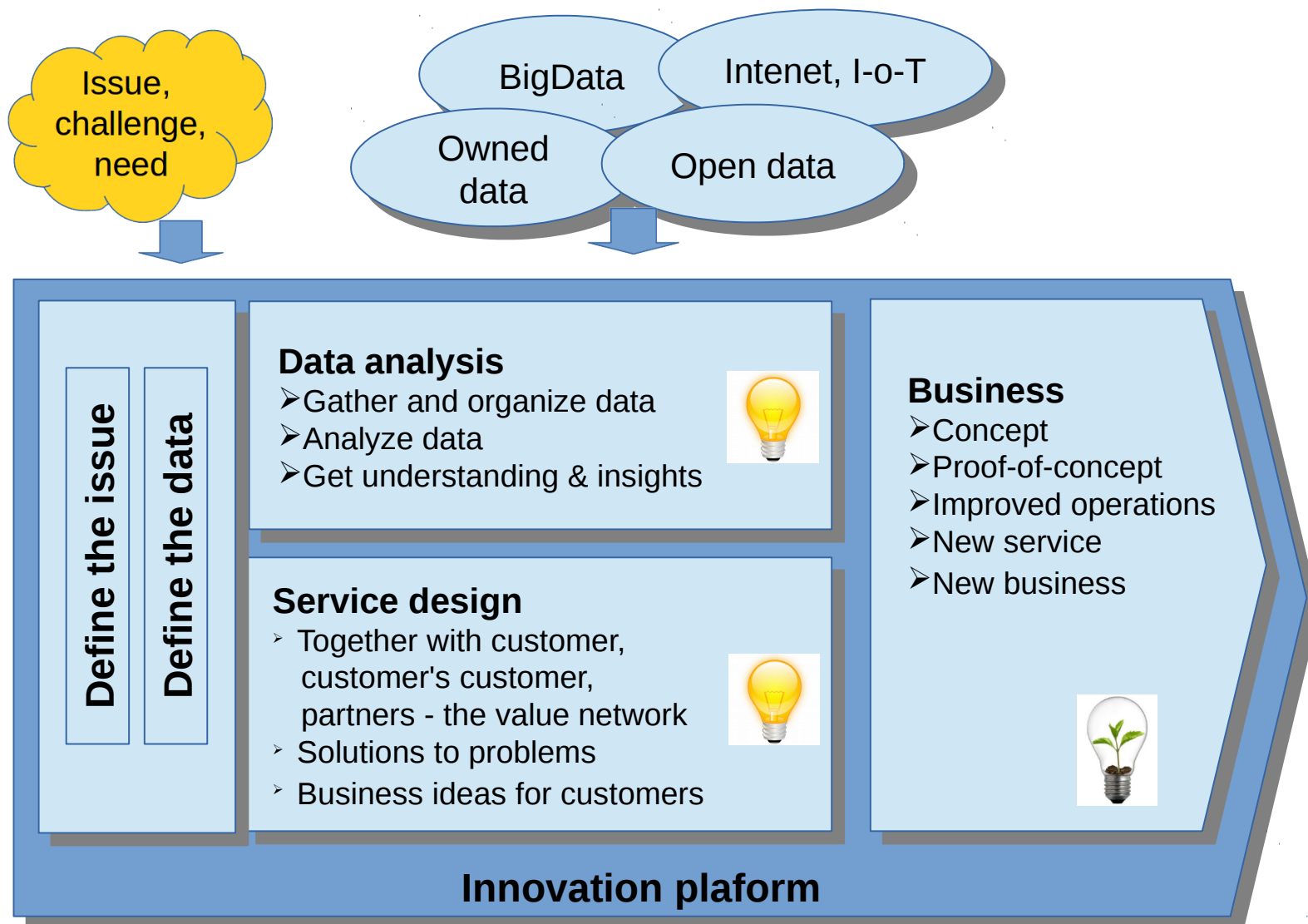


Photo: Eric R. Dahlen

DOB platform for insights, innovation and business



DOB results (until 28.2.2018)

21

organization
supported /
trained
(‘de minimis’)

22 case
projects

10

new / improved
products or
services
(more to come)

1

software
application
exploiting open
data / API
(more to come)

74 trained
data scientists
and service
designers

44

workshops
fasilitated in the
projects

214

companies
participated

12

R&D co-
operation
relationships /
companies and
universities

13

webinars,
599 participants
from 276 different
organizations

12

open
workshops,
hackatons and
other events DOB
inside with 923
participants

7.877

DOB- home
page visits

24.187

FB-clicks

114.383

Twitter-clicks

New products and services - ongoing....



Pilgrim.citynomadi.com



[Digilastu](#)
Document management



[Digital Pulse](#)



[MoveMe](#)

VINCIT

[Leadership-as-a-Service](#)

Enegia

[EnerKey -](#)
Machine learning solution in
quality management

FLOWPLUS

Viimatech Flowbrainer
[Digitized energy evaluation
for pumps](#)



AURORAXPLORER

[Two round trips for Chinese travellers](#)



[Enabling risk free
carsharing](#)



[Scandicode - SIMO](#)
Mobile cognition
assessment for seniors

Agenda

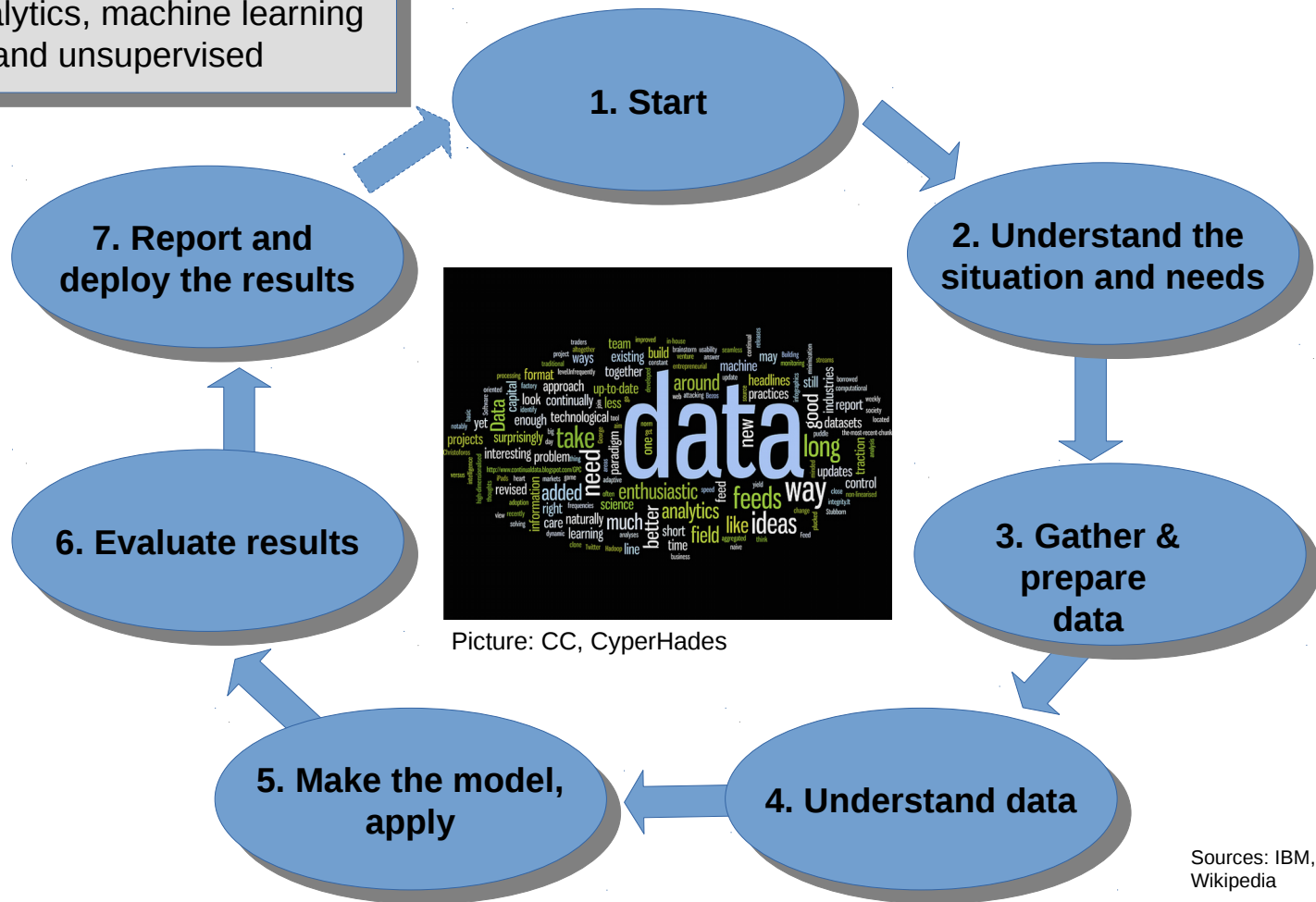
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3. DOB Innovation Platform - Data Analytics method

Methods:

- Descriptive, statistical analytics and visualization
- Predictive analytics, machine learning – supervised and unsupervised



Picture: CC, CyberHades

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Reflection & reading

4. Service thinking

How does a service differ from a product?

Service thinking in services

Vargo & Lusch / 2004:
Service Dominant Logic

Service transaction means value co-creation together **with** the customer.

‘No service provider is able to provide top service to a customer – but only **with** a customer’ /Cristian Grönroos



Photo: FreeStockPhotos, Public Domain

Service thinking & a product?

I do not need a drill.
I need a hole in the wall



Product = a platform for value co-creation. The value is created when the product fulfils a need.

Service thinking = creating value together with a customer and other parties in **all** sectors.



‘Customer Dominant Logic’

Service thinking - two levels of service design

Service design - a service or product

- Goal: overwhelming user experience, a perfect solution for the customer in everyday life, part of the process



Photo: Pexels

Service design – service business

- ‘Service is value co-creation together with the customer and the whole value network – with benefit’

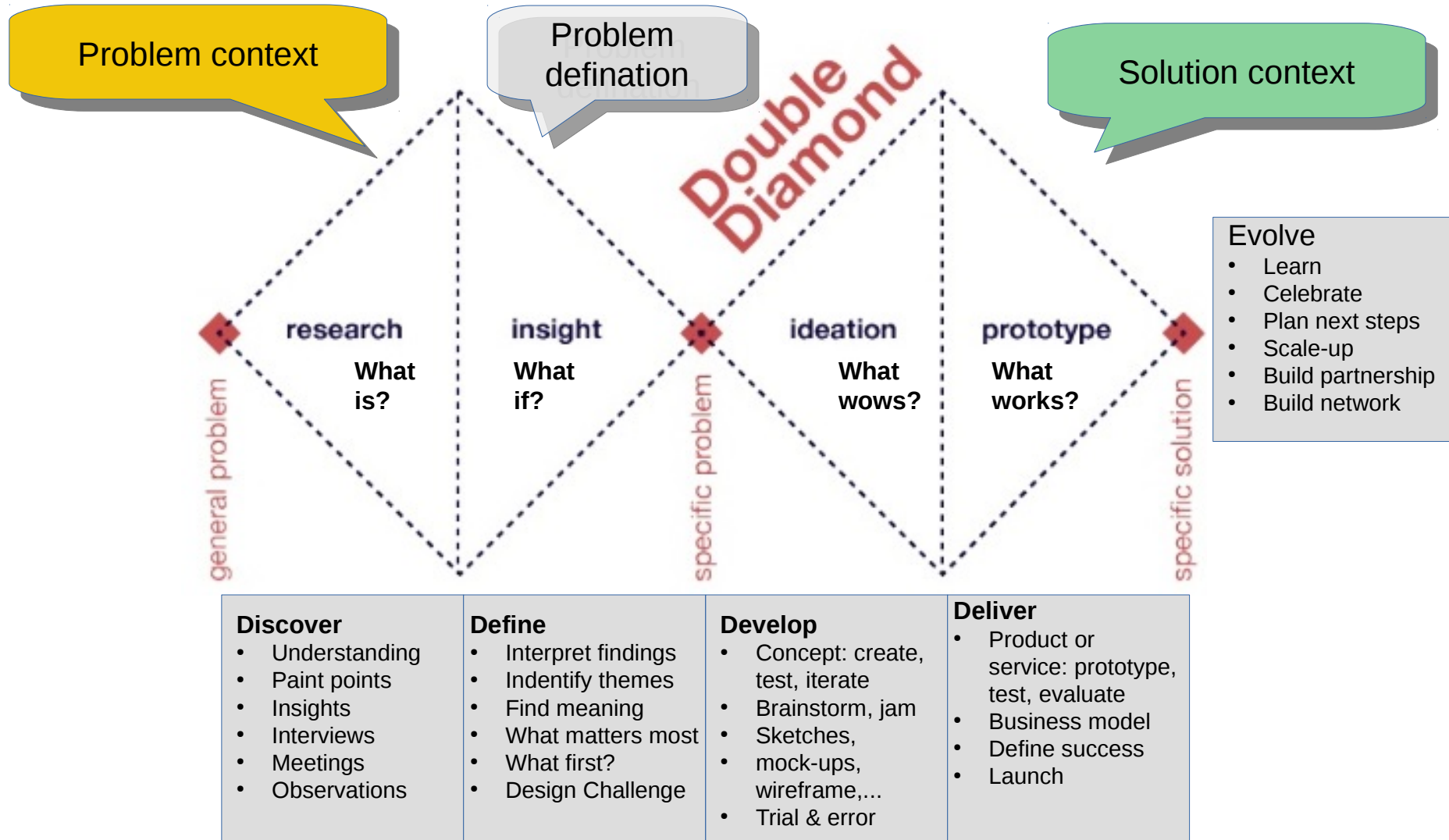


Photo: Flickr

From a useful idea → to profitable business (ref. early Internet)

‘Make things right’ & ‘Make right things’

Design thinking – Double Diamond (*)



*) Design thinking: <https://www.designcouncil.org.uk/>
<http://www.whatisdesignthinking.org/>

Service Design - Methods and tools

CoCoKosmos stakeholder map
with activities, resources, results
and pain points & goals

Ideation for new ideas in different
phases – what if, how to,...

Customer journey to define and
visualize the customer
experience

Prototype – to visualize the user
experience quickly

Blueprint – to define stakeholders'
roles in service / product delivery,
both front and back office

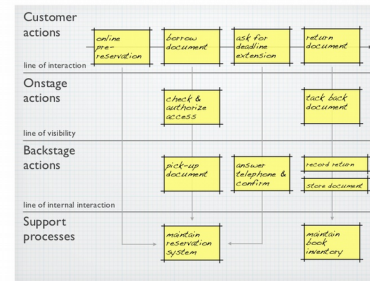
**Service Dominant Logic Business
Model Canvas** – to gather the
business plan: what, how, ...,
what is the business for us?



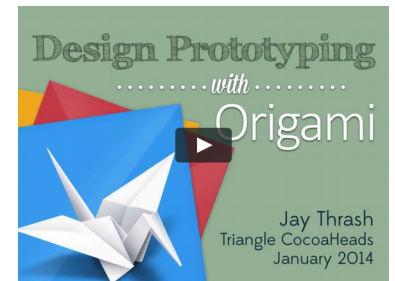
CocoKosmos for co-creation, Photo: Lauea



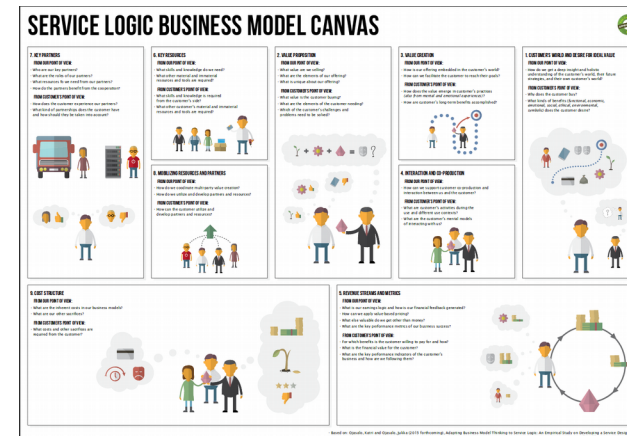
Ideation with post-it stickers, Photo: Flickr



Service Design Blue Print, Source: Wikimedia commons



Prototyping, Photo: Vimeo



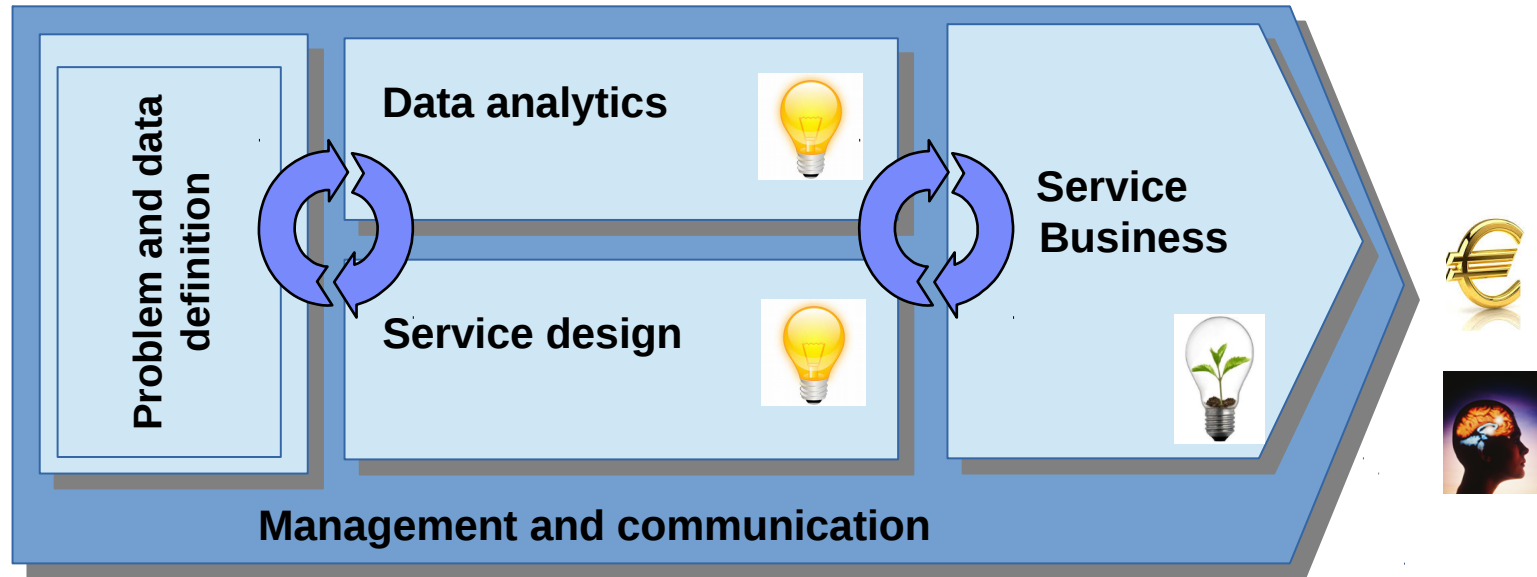
Business modeling:
Service Dominant
Business Model
Canvas.
Source: Ojasalo &
Ojasalo

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Reflection & reading

5. DOB experiences, keys of success, seeds of failure



DOB experiences - keys to success, seeds of failure

Problem and Data Definition	<p>Pick the right challenge ‘Don’t love the solution - do love the problem’.</p>
Data Analytics	<p>Richest data: combination of various sources of raw data related by a joint key. Combining various data sets for analysis is labourous and does not always succeed.</p> <p>‘2% of work data analytics vs 98% of hard work to get the data matrix to be analyzed’.</p> <p>Data protection and privacy requirements have to be met: How to win trust, how to get the data owner assured that analytics is worth effort? (ref. fuzzy legislation)</p>
Service Design	<p>The question is not ‘what do you need ’but ‘what do you do, what is the aim, what are the pain points’?</p> <p>Be agile - fail fast.</p>
Business Acceleration	<p>Transform the business from push to pull, from products to be produced to services helping the customer.</p> <p>The right verb is ‘help’ - not ‘sell’.</p>
Management	<p>All you need is a multidisciplinary team to combine analytics, design thinking, substance and customer understanding. Ask the customer to help you to help him/her!</p> <p>Get out from the ivory tower! Don’t be afraid.</p> <p>Celebrate success – be loud and visible.</p>

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Reflection & reading

6. Clouds & sunshine?



Photo: Pxhere

Data Analytics - GDPR by EU

Breach Notification

- In case of a breach, a notification within 72 hours

Right to Access

- Controller shall provide an electronic copy of the personal data, 0€

Right to be Forgotten

- Data Erasure, the right to be forgotten.

Data Portability

- Right to receive the personal data in a machine readable format and to transmit that data to another controller.

Privacy by Design

- Data protection is vital part of designing systems, not an addition.

Data Protection Officer

- DPO for a organization with critical and massive personal data

GDPR Applies to
Controller & Processor

'Business as
usual – except:

Explicit consent
management, easy

Unless data is stored
based on legislation

Heavy fines
if GDPR
requirements
are not met

Data Analytics - GDPR

In addition:

Limited purpose

- personal data should be collected for specified, explicit, and legitimate purposes and not further processed in a manner that is incompatible with those purposes

Data minimisation

- personal data should be adequate, relevant, and limited to which it is necessary in relation to the purposes for which they are collected

How about Data Analytics combining different data sets for new insights?

Data Analytics - a bill for secondary usage of social & health data

A law for secondary usage of social & health data, 1.7.2018 (*)

The aim of the law is that social and health data could be exploited flexible and safely for the purposes intended by legislation.

A new central authority is to be established to grant all permissions for secondary usage of social and health data (THL / NIHW).

According to the new law personal social and health data could be used for also other purposes than for the initial one once the data was gathered in the first place ie **secondary usage of data**. Currently - under certain preconditions - data may be used for scientific research and statistical purposes as well as planning and reporting by authorities. New proposed fields would be also **education, data management, development and innovation**.



Photo: Pixabay

*) <http://stm.fi/sote-tiedon-hyodyntaminen> (in Finnish)

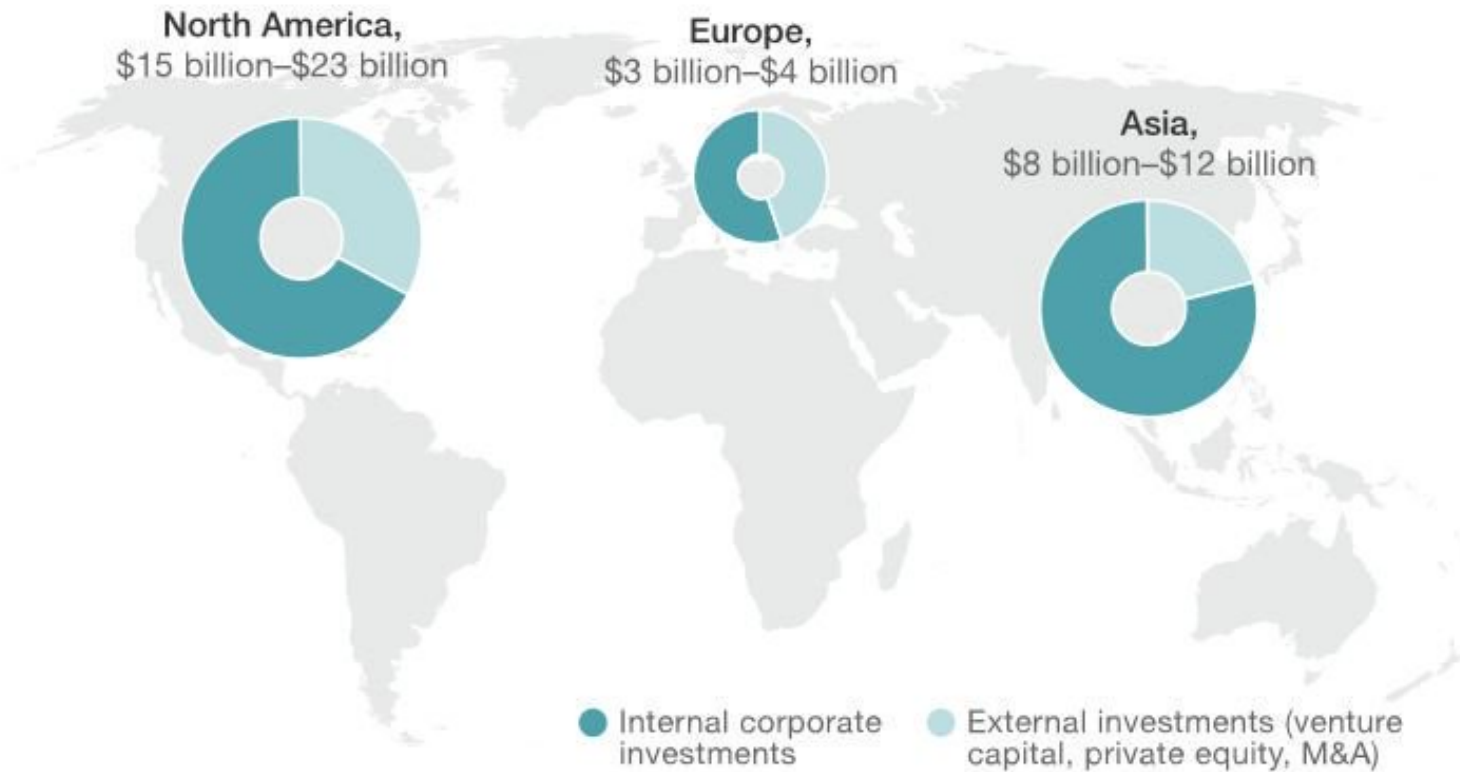
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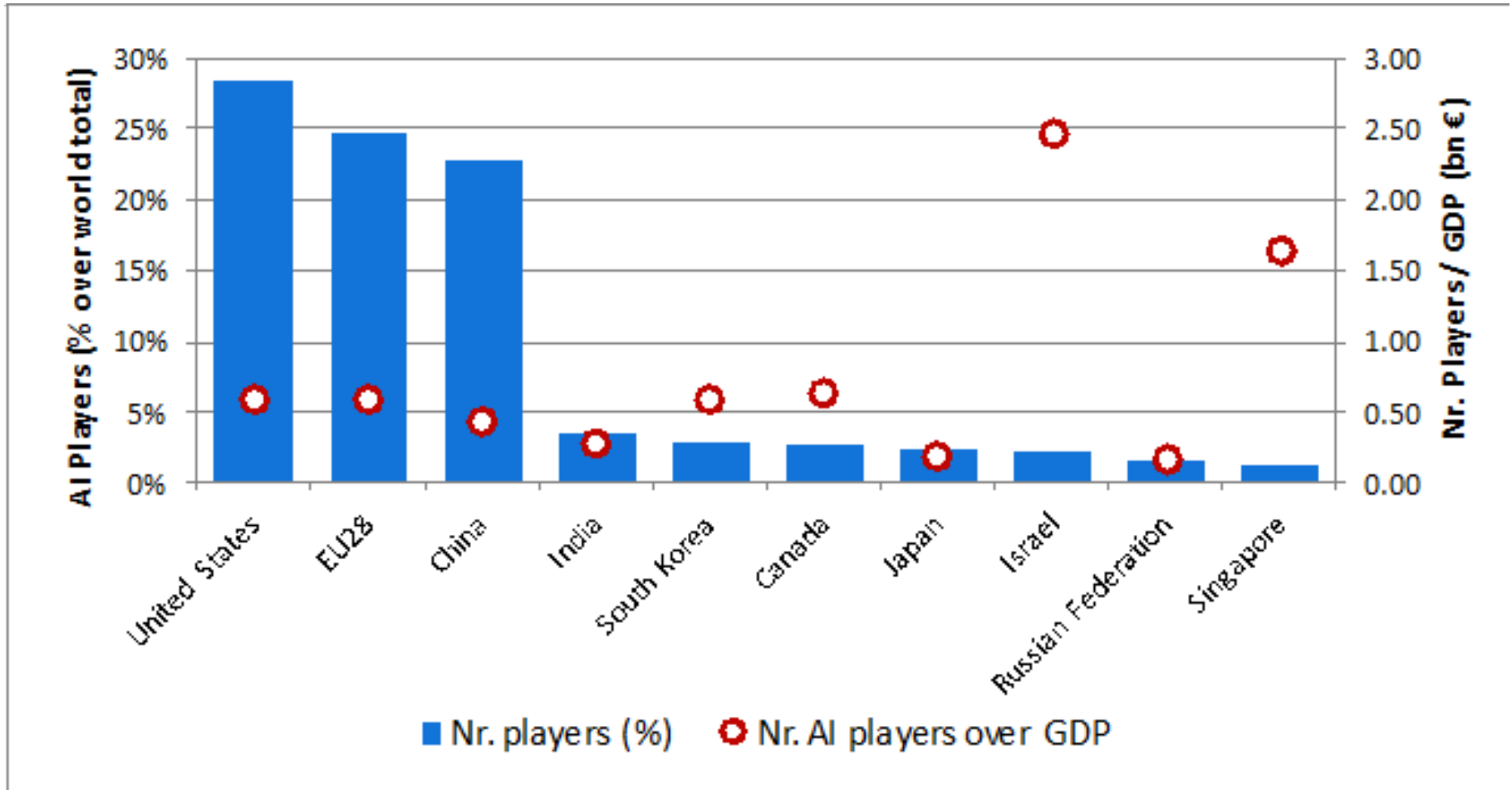
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Reflection & reading

China and the United States dominate investments in artificial intelligence.

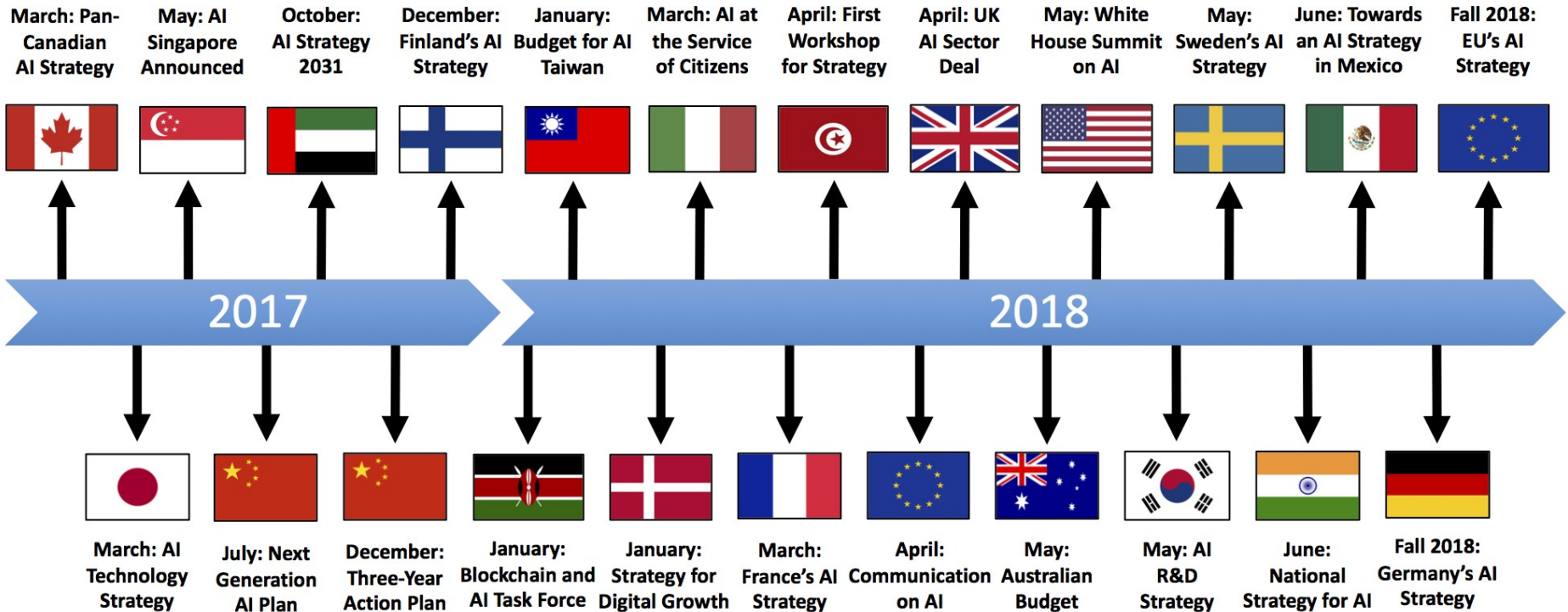
Artificial-intelligence investment, 2016





Source EU: <https://ec.europa.eu/jrc/en/news/future-european-ai-being-written-now>

Artificial Intelligence Strategies



2018-07-13 | Politics + AI | Tim Dutton

'Finland in AI era' - National AI strategy - vision, goal and recommendations

2017 Strategy & plan



Goal

Welfare driven by AI

Action

1. Upgrade companies' competitive edge by AI
2. Exploit data in all sectors
3. Speed-up **deployment of AI**
4. Educate and capture talents needed
5. Make bold choices and investments
6. Develop nr 1 public services
7. Create brand new modes of cooperation
8. Make Finland the vanguard of AI

Aurora AI, implementation of AI strategy in public sector

AuroraAI Concept

- Human centric, ethically sustainable society in the AI era

Service thinking

AuroraAI Service Model

- To create a human centric service market round human or business events

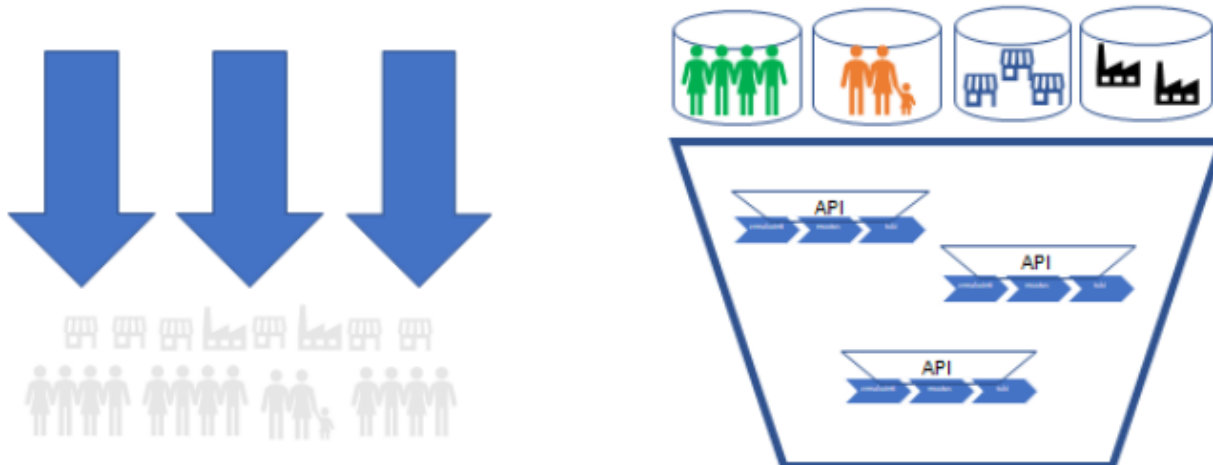
AuroraAI Platform (technical) and Network (organizations)

MyData & DigiMe

API's

Ecosystems

Managing services → **Managing service markets**



Aurora AI, Implementation of AI strategy in public sector

Investment

- 100 m€ in 2020 – 2030

Organization

- Digi* & Population Register Centre (VRK) in charge

Outcomes

- MyData based platform for shared situational picture
- 10 – 20 ecosystems round different living situations
- MyData sandboxes to develop services round life situations
 - Eq Koski for long life education
- Best practises how to exploit secondary usage of data (GDPR compliant)

The hub

The citizen
in the centre

Eq:

- Children: How to prevent anyone to drop out
- Seniors: How to promote good active long life

Mindset:

Focus in value – not in outcomes.

It is important that sick people get cure & nursing = outcomes. Even more important is to keep people healthy all the time.

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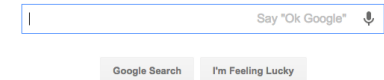
7. Wrap-up



Google™

Case Google – analytics and services thinking

- 1996 Larry Page & Sergey Brin: BackRub **search engine**
- 1997 Google.com
- 2000 Google.com also in Finnish
- 2000 Google **search bar**, a search without going to Google's site
- 2001 Google search of pictures
- 2004 Gmail
- 2004 Google Maps
- 2006 Google acquires YouTube
- 2007 Android was published in **open source**
- 2008 Google Chrome
- 2010 Google starts testing a robot car with a blind driving
- 2012 Google Play and Google Drive
- 2015 Alphabet
- 2016 Android mobile phones #1 in the market
- 2016 Alphabet the **most valuable company** in the world



1. Easy user experience – no ads!

2. Tons of data of searches – no business model yet

3. Analytics service for advertisers = business model



Source : www.vihreakaista.fi /
Google

DOB - Data Driven Business, wrap up

Data Analytics -

hard to do but sometimes you find a diamond.



Photo: TSVANGIRAYI MUKWAZHI/AP/, Press Association Images

Service Design -

easy to do and you always get a fruit.



Photo: Laurea

DOB - Data Driven Business, wrap up



Photo: AF.mil

Service thinking is value creation with the customer and the whole ecosystem – the customer defines the value

‘A good salesman sells what the customer *wants* – a better one what the customer *needs*’



Photo: Pixabay

The right verb is
‘help’ – not ‘sell’ .

Reflections

- How does a good service differ from a poor one?
How to create a perfect user experience?
- Which challenges do data legislation initiatives GDPR & secondary usage of data mean for data analytics – which opportunities?
- Anonymisation of data is a bullet proof solution for data privacy – or is it?
- DSB2 Case study: Your case as a platform for new business:
 - What could be the product / service based on your case?
 - What is the value created?
 - Who could be the customer or customers for the product / service and business?
 - What would be the perfect team for you to develop and launch the product / service and business?

Open elections -
with facts,
without trolls?

Panel of openness.



Source: Pixnio

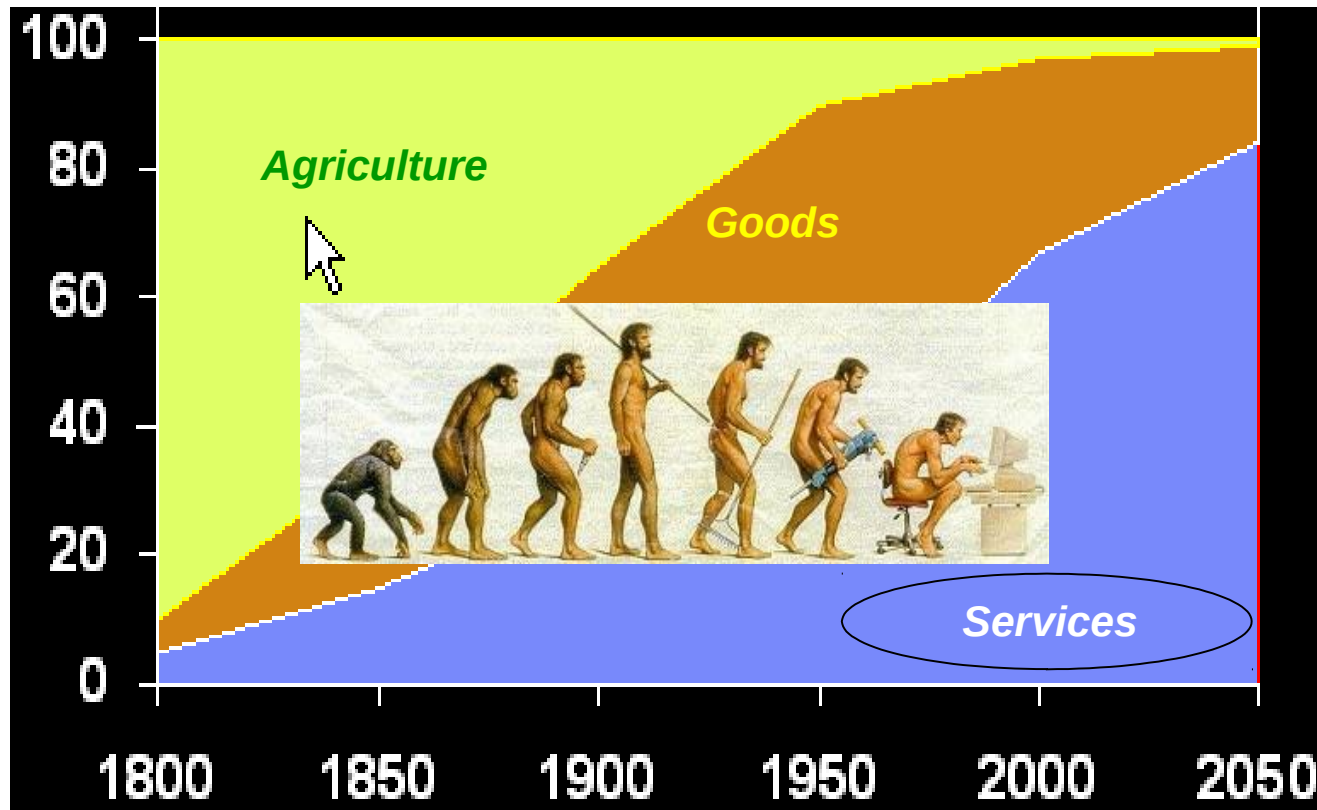
Questions, comments?



Backup and Reading

- How to Build Competencies for a Data Driven Business – keys for success, seeds for failure, [Jyrki Koskinen TIMReview](#)
- Data preparation for data mining, [Dorian Pyle](#)
- Data preprocessing in data mining. [S. Garcia](#), [J Luengo](#) ja [F. Herrera](#)
- Pattern recognition, [Sergios Theodoridis](#), [Konstantinos Koutroumbar](#)
- Pattern classification, [Richard Duda](#), [Peter Hart](#), [David Stork](#)
- Bayesian Reasoning and Machine Learning, [David Barber](#)
- GDPR, [EU](#)
- Anonymisation and pseudonymisation, [EU](#)
-
- Service Dominant Logic, [Vargo & Lusch, 2004](#)
- Designing for the Digital Age, [Kim Goodwin](#)
- Service design, toolkit by [Idean](#)
- Value Proposition Design, [Alex Osterwalder](#)
- Service Logic Business Canvas, [Jukka & Katri Ojasalo](#)
- Service Dominant Business Logic in lean business, [Jukka & Katri Ojasalo](#)
-
- AlgoAware, State of the Art, [Algoaware](#)

Service and service thinking



Picture: IBM

Service = service sector for intangible commodities

Service thinking = creating value within the value network – in all sectors

Service Dominant Logic → Customer Dominant Logic

What is a product, what is a service?

Service (intangible)

Education

Cleaning

Lunch in a restaurant

Taylor made suit

Mobile phone

Car

Sugar

Nail

Product (tangible)



Kuva: Pexels

When
bought =
product



Kuva: Heinolan Auto-Opisto

When
leased
= service

Taxi = service

DOB program to customize and pilot DOB platform



2016

2017

Aviapolis - services for travellers

Goal & data

Analytics

Service design

Workshops for business ideas. New services and products

Business acceleration

Good, long life for seniors

Research, data & analytics

- Depression
- Memory diseases

Service design and business acceleration – seniors in the focus

- Oulu Karjasilta suburb
- Mydata application

Workshops for business ideas. New services and products

DOB training - for new competitive edge

Tampere, pilot

New competencies products and services

Vantaa

Espoo

DOB toolbox

DOB program: concept, methods, tools, communication, dissemination, management

DOB toolbox and DOBit network for data analytics and service design

DOB-työkalupakki



DOB-työkalupakin sisältö

Työkalupakin sisältö tullaan julkaisemaan pian - pysy kuulolla.



Innovaatioalustan kuvaus



Virtuaalikurssi



Kokemukset kiertoon



Webinaarit



Materiaalit ja linkit



Alumnitoiminta

<https://coss.fi/projektit/dob/tyokalupakki/>