



Fortum City Solutions

Transforming old business and service models to new digital business

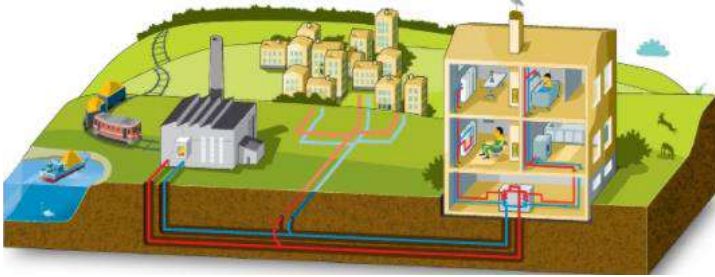
Ville Koivumäki / Head of City Solutions IT / 18.9.2018



This is Fortum



City Solutions snapshot



Heating and Cooling

- 2017 netsales: EUR 689m (incl. Oslo)
- District heating and cooling; production and networks
- Finland, Poland, Baltics



Fortum Oslo Varme

- 2017 net sales: NOK 1216m
- Oslo area; district heating and cooling (WtE and other sources)
- 50/50 with the City of Oslo, Board actively involved in steering



Recycling and Waste Solutions

- 2017 net sales: EUR 293m
- Detoxification, Recycling & energy, Environmental construction
- Finland, Sweden, Denmark (Norway)



Power Solutions

- 2017 sales: EUR 40m
- Nordics and global
- International O&M, Performance Solutions, TGS (IT)

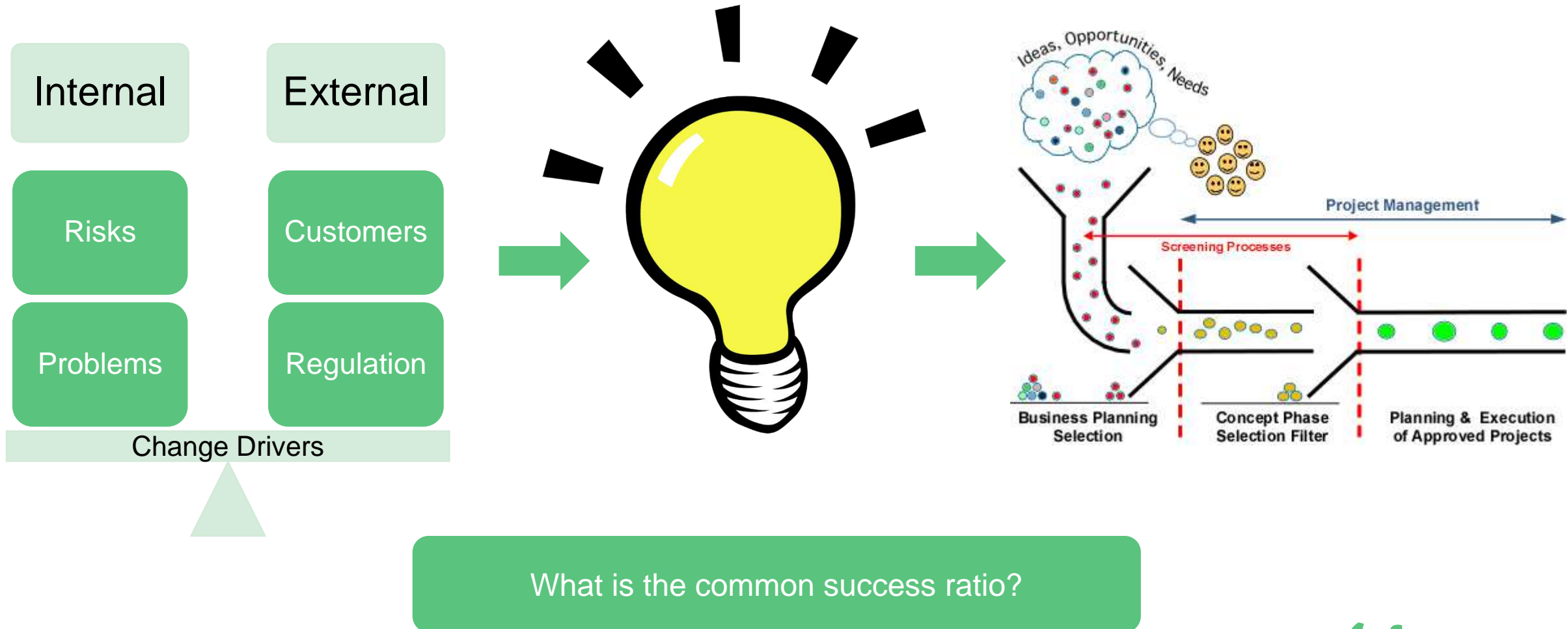
Fortum Värme

Fortum Värme

- 2017 net sales: EUR 689m
- Stockholm; district heating and cooling
- 50/50 with the city of Stockholm, governed through the Board
- Co-operation on "market terms"

Development

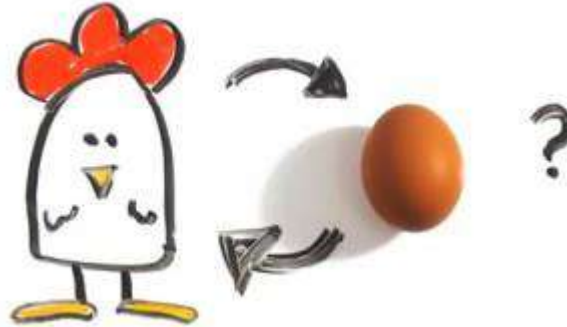
How Development Happens?



Prerequisites for Successful Development

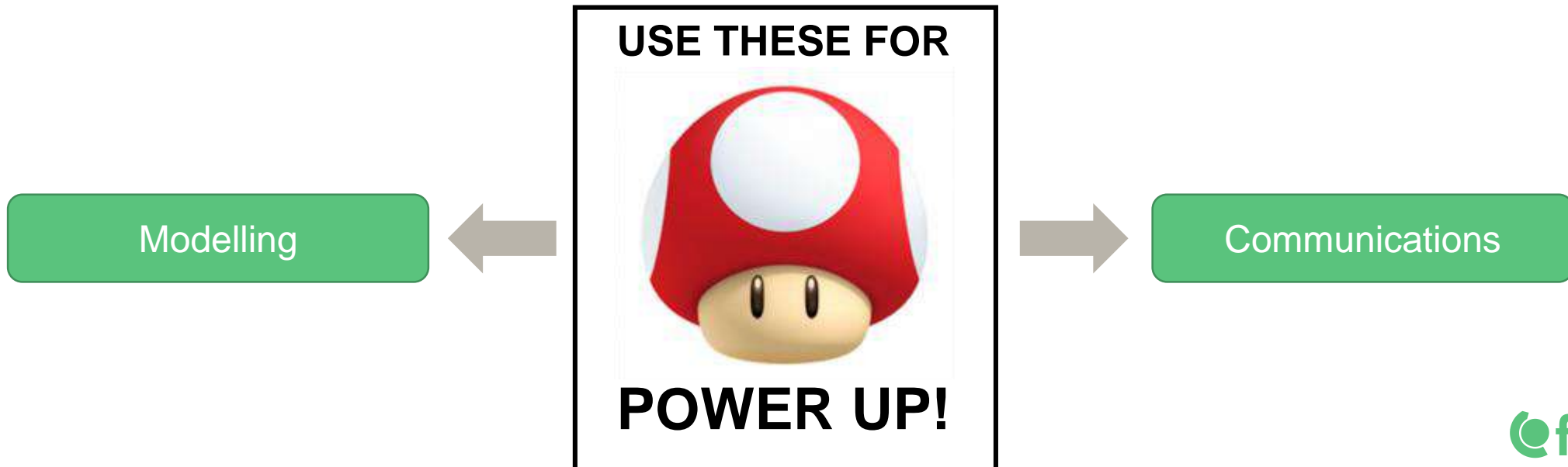
UNDERSTANDING

through thinking
(and testing...)



COMMITMENT

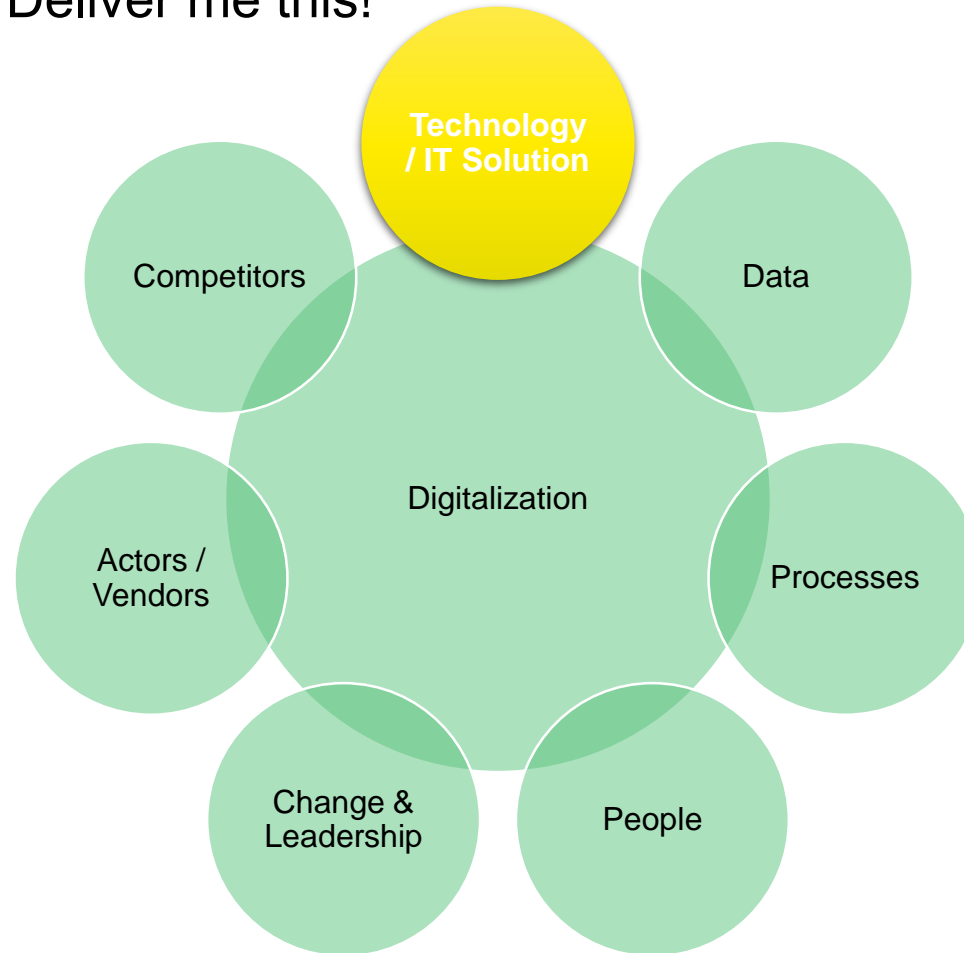
through understanding
(or strong believe...)



Understanding

Digitalization is more than just *technology*

"Deliver me this!"

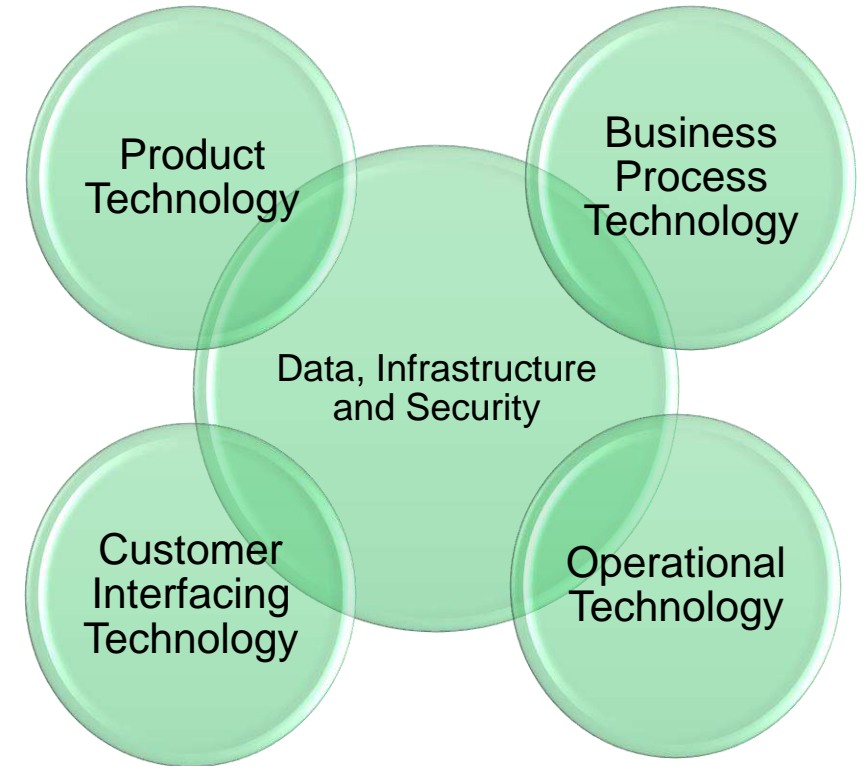


"How you are you going to use it?"

Business Technology concept / framework

(by Sofigate)

- Understood well by the business as it is simple enough
- Explains the technology use cases in common language
- Explains why things might get complicated!



Business process technology | Systems that support day-to-day business processes
Operational technology | Systems to manage and operate automation
Product technology | Information technology in products
Customer interfacing technology | Digitalization of customer interfacing processes and services

Development areas in Heating & Cooling

Smart City heating system

Customer offerings

Smart building solutions



Smart Living
(premium)



Building optimization
(basic)



Heating control
(lite)

Main products



Heating &
cooling products

Other solutions and services



Other building
related services



Maintenance
services



Monitoring
service



Leasing
services



Customer
interfaces



Other value
added products



Energy efficiency
services



Individual
settlements



Customer
service

Heat System

Operational efficiency



Predictive
maintenance



Autonomous
heat systems



Demand side
response (DSR)



System
Optimization



Centralized
control rooms



Logistics



Fuel hubs

Flexible supply of H&C



Open district
heating



Waste heat



Power to heat



Smart grid



Data centers



Ground
heating



Heat storages



CHP (security
of supply)



HOB (bio,
waste, multi)



Two way
communication



Data storage

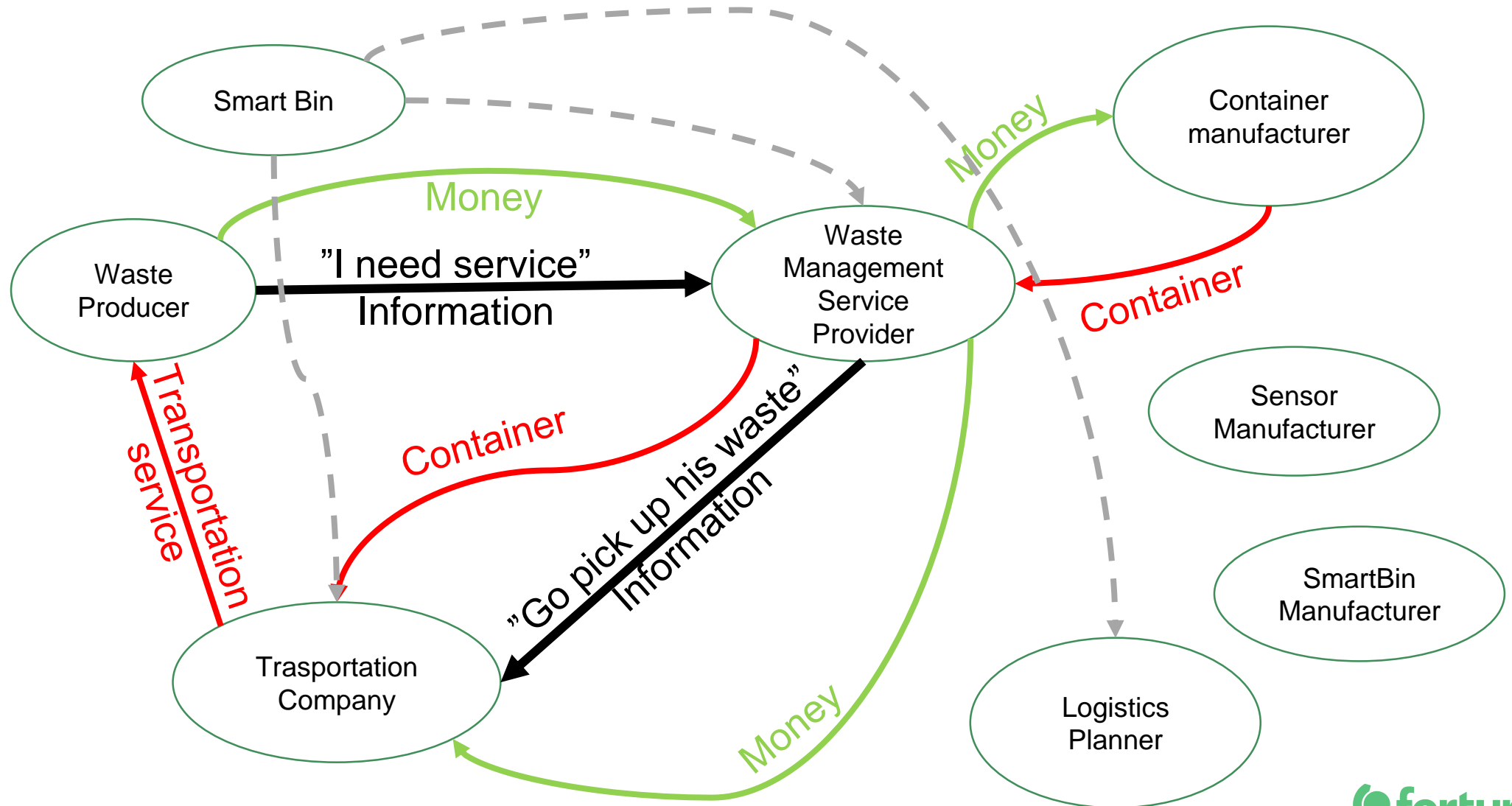


Settlement
& invoicing



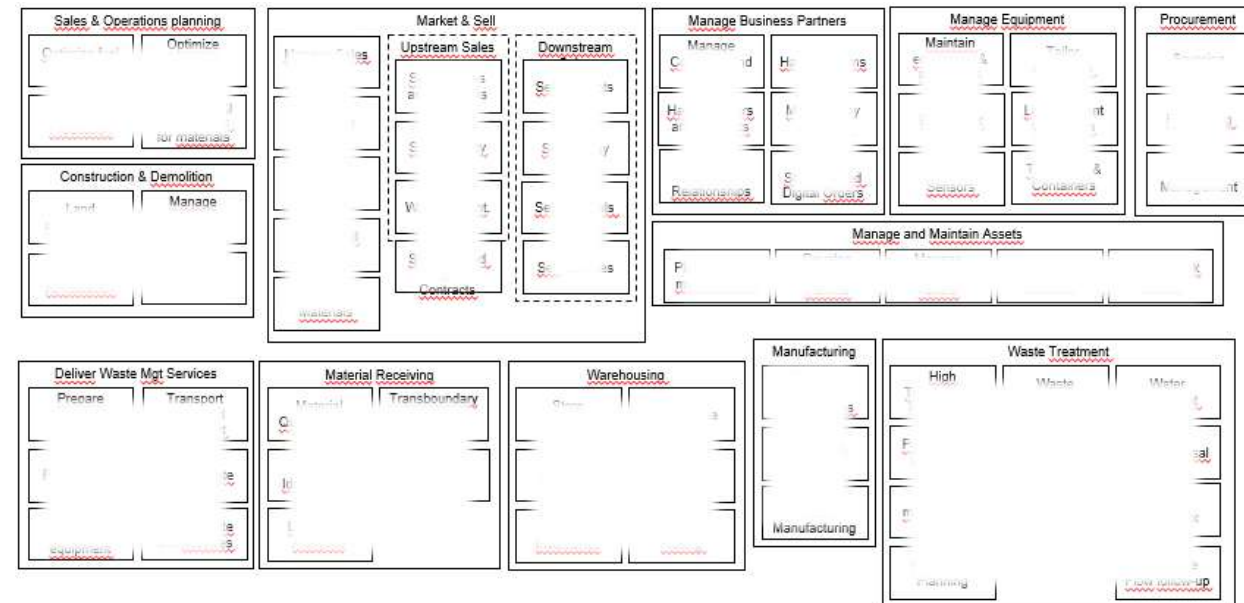
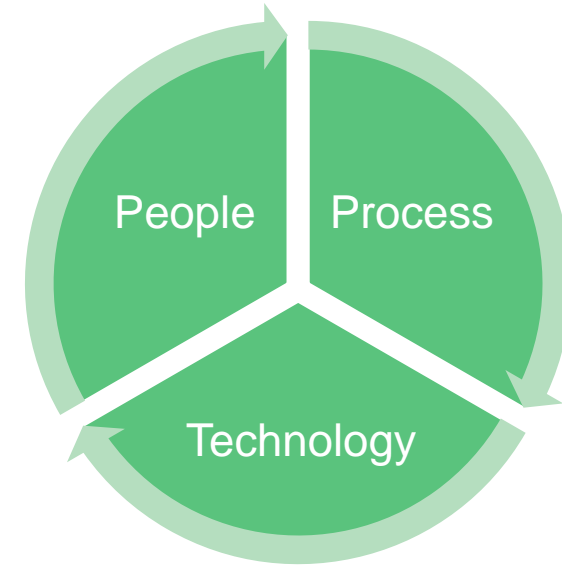
CRM

Business Ecosystem Modelling



Business Capability Mapping

- *What* instead of *How*
- Business language
- Many Use Cases
 - Business Development
 - Competence Development
 - Investments
 - Pace-Layering (Gartner)
 - Etc...
- The journey is almost as important as the destination
- Gets interesting when developing new Business Capabilities 😊



Select the tools that you need

- Business Capabilities / Processes
- Business Capabilities / Applications
- Processes / Roles
- Processes / Applications
- Data Entities / Business Capabilities
- Etc...
- Be agnostic and use only when needed!
- Use and forget?
- 20/80?



**Mix
&
Match**

Understanding Data

data is the new **oil**

we need to find it, extract it, refine it, distribute it and monetize it.

David Buckingham

Data is the new oil.

We see in data the same transformative, wealth-creating power that 19th-century visionaries once sensed in the crude black ooze trapped underground.

If "crude" data can be extracted, refined, and piped to where it can impact decisions in real time, its value will soar. And if data can be properly shared across an entire ecosystem and made accessible in the places where analytics are most useful, then it will become a true game changer, altering the way we live, work, learn, and play.

Source: Cisco IBSG, 2012. #DataInMotion

FREE YOUR DATA

**IF DATA IS THE NEW OIL
WHY AREN'T WE THE NEW SHEIKHS?**

WHO OWNS YOUR DATA?
TIME FOR CHANGE!
FREEYOURDATA.ORG

"DATA IS THE NEW OIL."

From the beginning of recorded time, we've created 5 exabytes of data.

In 2013, it's expected that the time will double to 10 exabytes.

By 2015, it's expected that the time will double to 20 exabytes.

Every day, we create enough internet traffic to fill 7 billion DVDs.

That's why, now, that's what's called the "data deluge".

There are nearly as many bits of information in the digital universe as there are stars in our galaxy.

There are 133 million BLOGS on the web.

As of August 2011, there were 4 million photos in the digital universe.

These specialized algorithms make up the difference between a good search and a great one.

With new fiber-optic cables, the round-trip time between New York and London will be 10.6 milliseconds.

How they save 5 milliseconds: The depth of the Atlantic Ocean varies. The new cable will be an area of the ocean floor that is 100 feet deeper than the current cable. By taking a different route, the new cable is able to save 5 milliseconds.

50% of all photos were taken in 2011.

60% of all photos were taken in 2011.

10% of all photos were taken in 2011.

247 billion EMAILS are sent every day.

English is the most common language in the digital universe.

Chinese is the second most common language in the digital universe.

Spanish is the third most common language in the digital universe.

Portuguese is the fourth most common language in the digital universe.

Japanese is the fifth most common language in the digital universe.

Arabic is the sixth most common language in the digital universe.

Russian is the seventh most common language in the digital universe.

German is the eighth most common language in the digital universe.

French is the ninth most common language in the digital universe.

Italian is the tenth most common language in the digital universe.

Spanish is the eleventh most common language in the digital universe.

Portuguese is the twelfth most common language in the digital universe.

Japanese is the thirteenth most common language in the digital universe.

Arabic is the fourteenth most common language in the digital universe.

Russian is the fifteenth most common language in the digital universe.

German is the sixteenth most common language in the digital universe.

French is the seventeenth most common language in the digital universe.

Italian is the eighteenth most common language in the digital universe.

Spanish is the nineteenth most common language in the digital universe.

Portuguese is the twentieth most common language in the digital universe.

Japanese is the twenty-first most common language in the digital universe.

Arabic is the twenty-second most common language in the digital universe.

Russian is the twenty-third most common language in the digital universe.

German is the twenty-fourth most common language in the digital universe.

French is the twenty-fifth most common language in the digital universe.

Italian is the twenty-sixth most common language in the digital universe.

Spanish is the twenty-seventh most common language in the digital universe.

Portuguese is the twenty-eighth most common language in the digital universe.

Japanese is the twenty-ninth most common language in the digital universe.

Arabic is the thirtieth most common language in the digital universe.

Russian is the thirty-first most common language in the digital universe.

German is the thirty-second most common language in the digital universe.

French is the thirty-third most common language in the digital universe.

Italian is the thirty-fourth most common language in the digital universe.

Spanish is the thirty-fifth most common language in the digital universe.

Portuguese is the thirty-sixth most common language in the digital universe.

Japanese is the thirty-seventh most common language in the digital universe.

Arabic is the thirty-eighth most common language in the digital universe.

Russian is the thirty-ninth most common language in the digital universe.

German is the fortieth most common language in the digital universe.

French is the forty-first most common language in the digital universe.

Italian is the forty-second most common language in the digital universe.

Spanish is the forty-third most common language in the digital universe.

Portuguese is the forty-fourth most common language in the digital universe.

Japanese is the forty-fifth most common language in the digital universe.

Arabic is the forty-sixth most common language in the digital universe.

Russian is the forty-seventh most common language in the digital universe.

German is the forty-eighth most common language in the digital universe.

French is the forty-ninth most common language in the digital universe.

Italian is the fiftieth most common language in the digital universe.

Spanish is the fifty-first most common language in the digital universe.

Portuguese is the fifty-second most common language in the digital universe.

Japanese is the fifty-third most common language in the digital universe.

Arabic is the fifty-fourth most common language in the digital universe.

Russian is the fifty-fifth most common language in the digital universe.

German is the fifty-sixth most common language in the digital universe.

French is the fifty-seventh most common language in the digital universe.

Italian is the fifty-eighth most common language in the digital universe.

Spanish is the fifty-ninth most common language in the digital universe.

Portuguese is the sixtieth most common language in the digital universe.

Japanese is the sixty-first most common language in the digital universe.

Arabic is the sixty-second most common language in the digital universe.

Russian is the sixty-third most common language in the digital universe.

German is the sixty-fourth most common language in the digital universe.

French is the sixty-fifth most common language in the digital universe.

Italian is the sixty-sixth most common language in the digital universe.

Spanish is the sixty-seventh most common language in the digital universe.

Portuguese is the sixty-eighth most common language in the digital universe.

Japanese is the sixty-ninth most common language in the digital universe.

Arabic is the seventieth most common language in the digital universe.

Russian is the seventy-first most common language in the digital universe.

German is the seventy-second most common language in the digital universe.

French is the seventy-third most common language in the digital universe.

Italian is the seventy-fourth most common language in the digital universe.

Spanish is the seventy-fifth most common language in the digital universe.

Portuguese is the seventy-sixth most common language in the digital universe.

Japanese is the seventy-seventh most common language in the digital universe.

Arabic is the seventy-eighth most common language in the digital universe.

Russian is the seventy-ninth most common language in the digital universe.

German is the eighty-first most common language in the digital universe.

French is the eighty-second most common language in the digital universe.

Italian is the eighty-third most common language in the digital universe.

Spanish is the eighty-fourth most common language in the digital universe.

Portuguese is the eighty-fifth most common language in the digital universe.

Japanese is the eighty-sixth most common language in the digital universe.

Arabic is the eighty-seventh most common language in the digital universe.

Russian is the eighty-eighth most common language in the digital universe.

German is the eighty-ninth most common language in the digital universe.

French is the ninety-first most common language in the digital universe.

Italian is the ninety-second most common language in the digital universe.

Spanish is the ninety-third most common language in the digital universe.

Portuguese is the ninety-fourth most common language in the digital universe.

Japanese is the ninety-fifth most common language in the digital universe.

Arabic is the ninety-sixth most common language in the digital universe.

Russian is the ninety-seventh most common language in the digital universe.

German is the ninety-eighth most common language in the digital universe.

French is the ninety-ninth most common language in the digital universe.

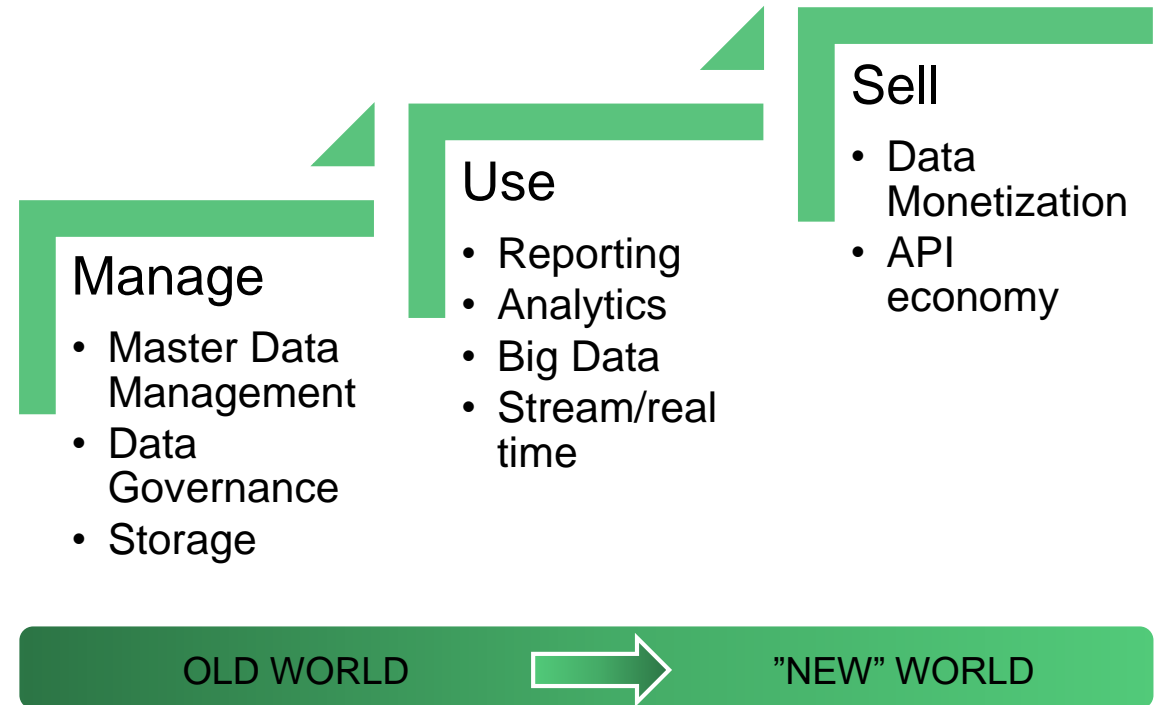
Italian is the hundredth most common language in the digital universe.

DATA

is the new **Oil**

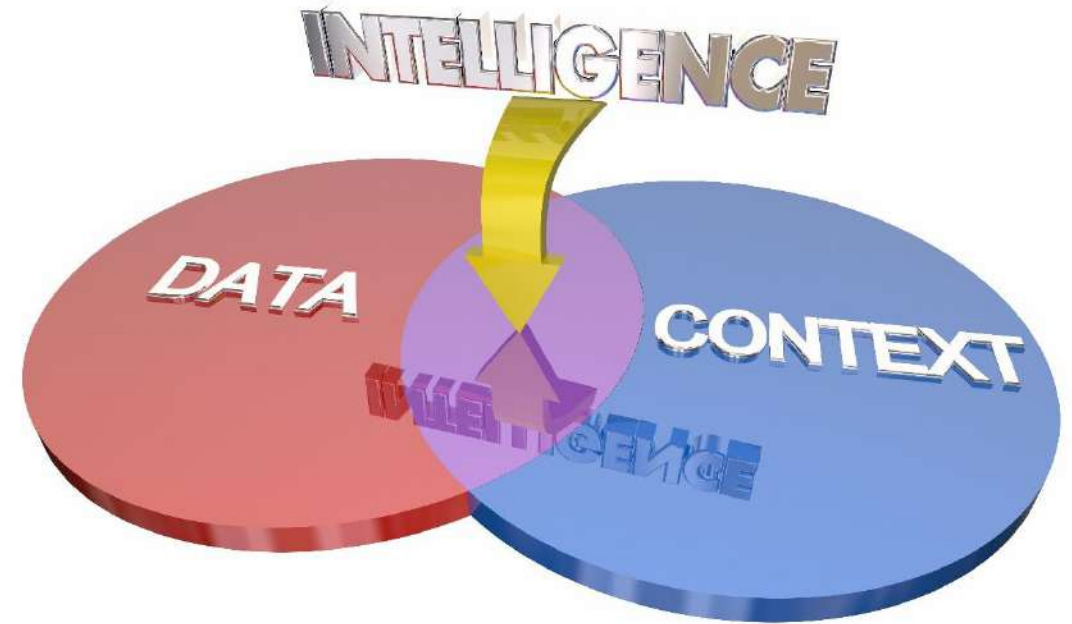
Your Data is an Asset

- What is *your* Vision and Strategy over Data and/or Information Management?
 - How you are going to utilize Data and Technology in your Business Strategy?
- Understand your Data
 - Define and document
 - ER modelling!
 - Assess your data
- Care for your Data!
 - Makes your life easier in new world



When speaking of data...

- Contextualize your data
 - "I need an customer profitability report"
 - "Our data quality is not good"
 - Pre-/postfix
- Have your definitions available
 - What/Who is a Customer?
- Use your common Business Vocabulary
 - Outside In vs. Inside Out?
 - Communications!
- Use examples from other companies/industries
 - How to put in your business context?



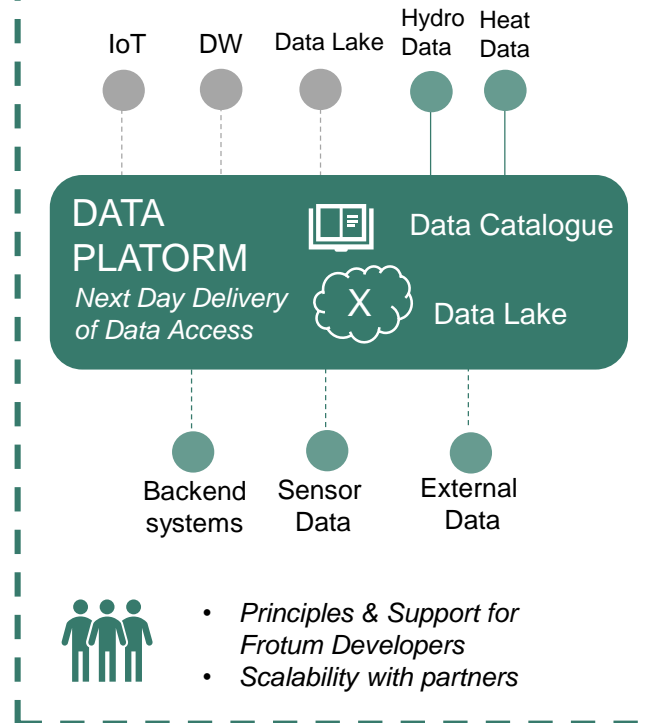
Fortum Data Platform Technology Strategy



2018: Easy Data Access

Data Lake based on technology X

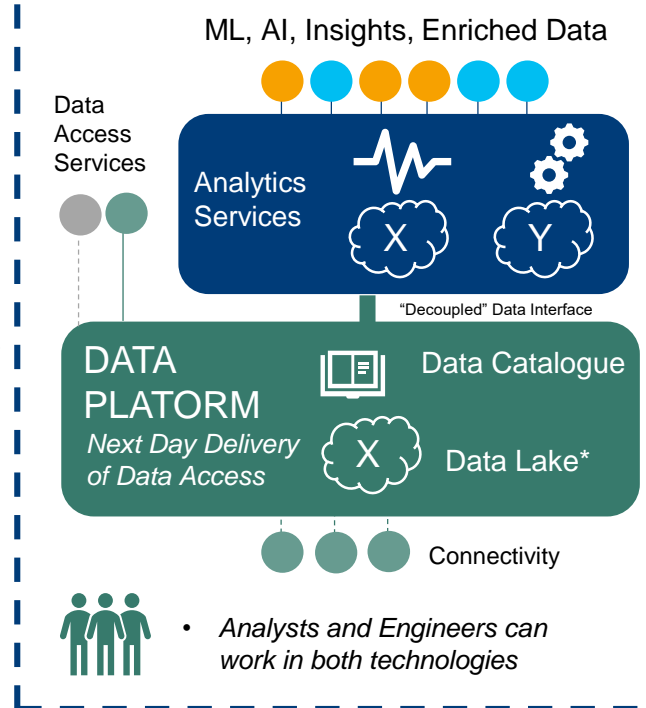
- Fast time to market for planned uses cases
- Gathered competence
- Non-X based business solutions OK.



2019: Modern Analytics

Evolving Data Analytics Capabilities

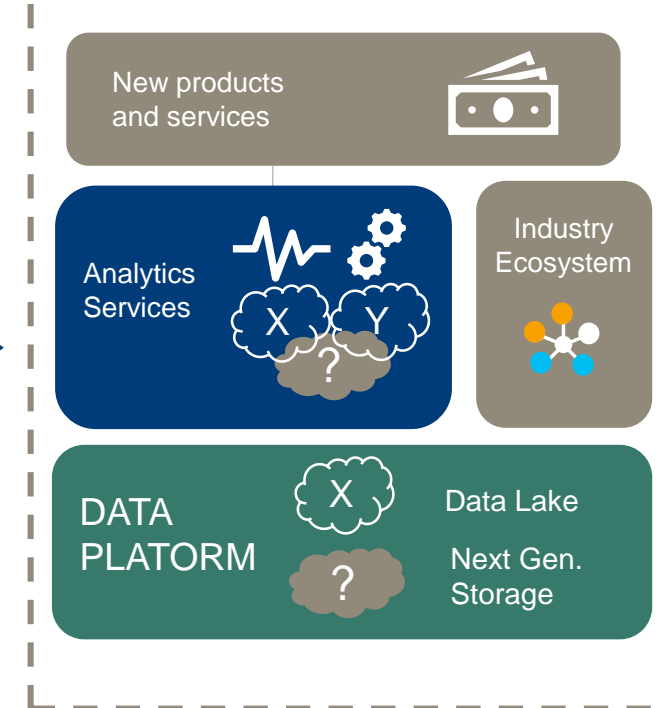
- Best of breed analytical capabilities for applications and analysts
- Best practices develop as technologies evolve
- May or may not develop into preferred technology



2020: On the Cutting Edge

Following new trends in Data & Analytics

- Ability to adapt to new inventions and lead development on the market
- Fortum part of the global data eco-system with multiple technologies



Commitment

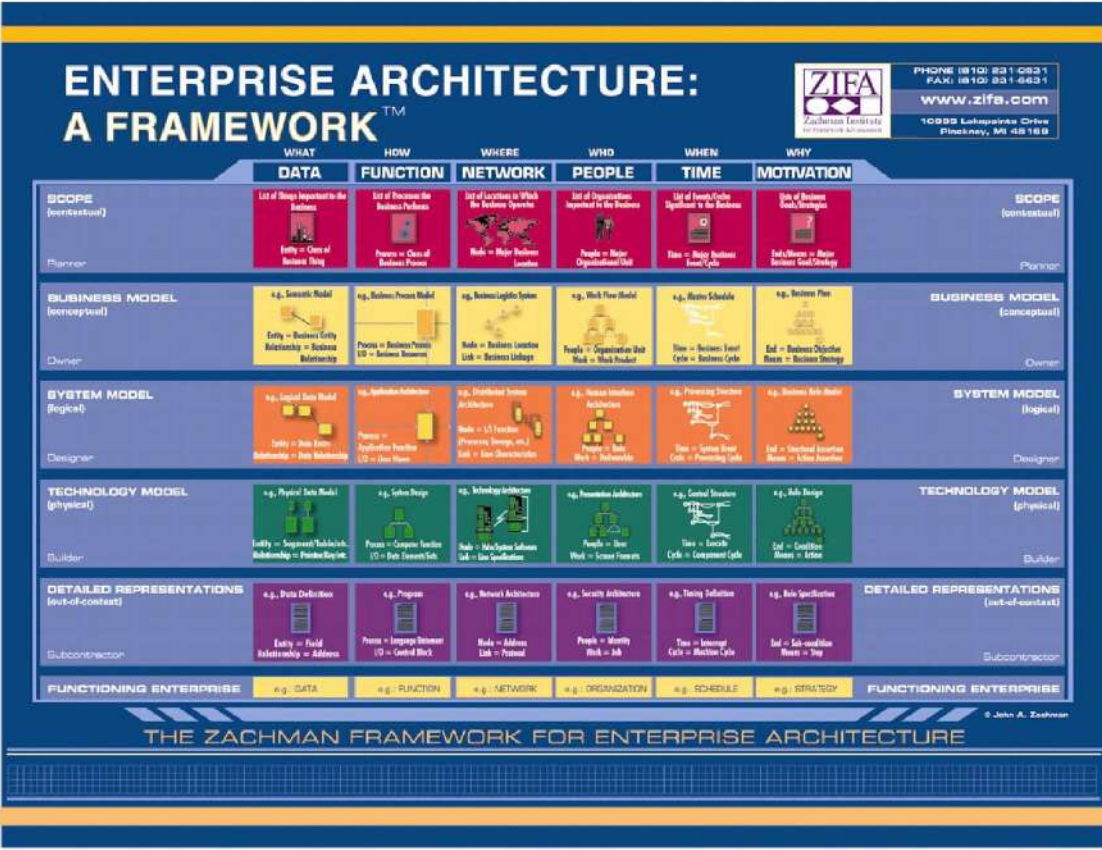
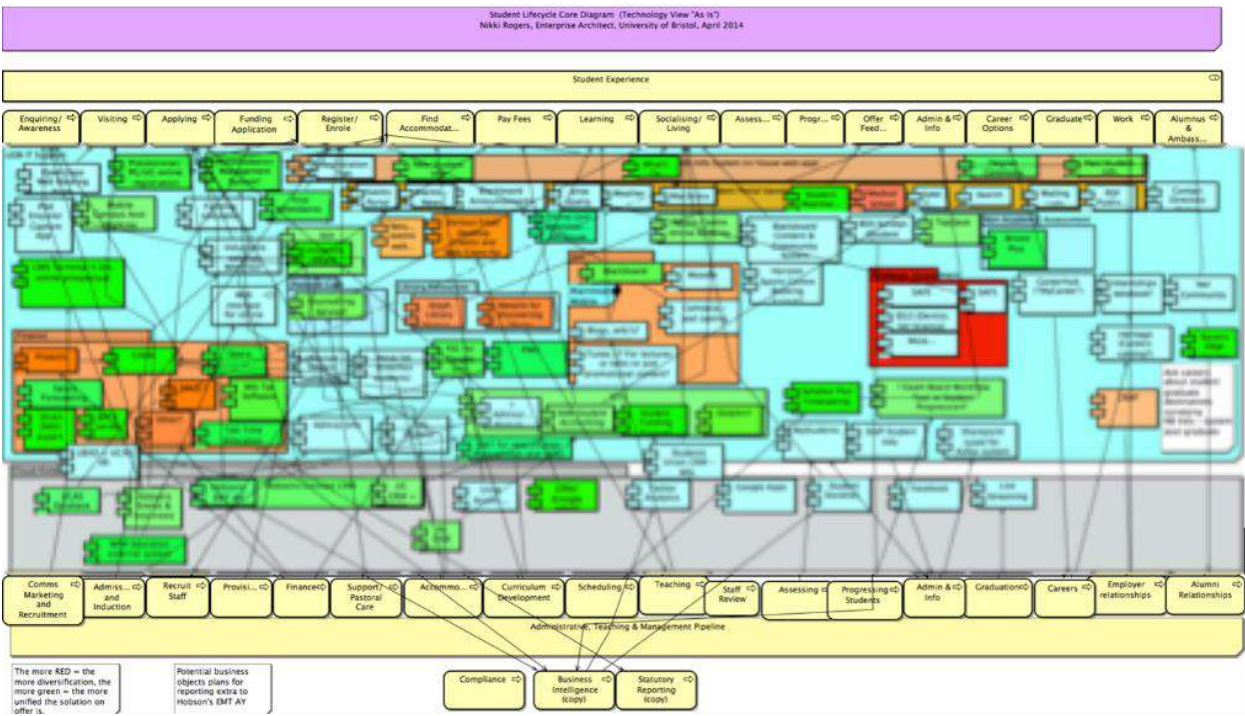
Commitment is the key!

- Proper development cannot happen if there is no commitment
- Commitment cannot happen without understanding (or super strong believing)
- Commitment requires good *communications*
 - Works Top-Down & Bottom-up



SIMPLICITY
IS THE ULTIMATE FORM OF
SOPHISTICATION
————— LEONARDO DA VINCI —————

Don't explain how brilliant you are...



...but get the outcomes that you are after!

- What is your message?
 - Simplify, simplify, simplify!
 - Outcomes over actions!
- Who you are talking to?
 - Adjust your message to your audience
- Repetition is the mother of learning!



Conclusions

Conclusions

- Ownership, Commitment and Understanding
- Technology is just a tool
- Be curious
- Don't over-engineer
- Communications!



Thank You!

Questions & Answers

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