

IBM Connect

> WIECZOREK Jacques





- 1 Goal
- 2 NRB Group
- 3 A digital context
- 4 Advanced analytics & Big Data
- 5 Big Data own experience
- 6 Risks & Statistics
- 7 Conclusions

Agenda






> The Goal

Concret set of activities related to Big Data

> The NRB Group








Who we are...

THE NRB GROUP

					
Turnover	146,7 m€	23,4 m€	26,6 m€	30,0 m€ 4,9 m€	1,7 m€
FTE	544	149	188	201	17
	Finance & Insurance Public & Social, (Reg. & Fed.) Utilities Industry	Health care	Public & Social (Prov. & Loc) Brussels & South	Public & Social (Prov. & Loc) North	B2B Mobile & Web Development

2014 - turnover : 222,3 millions € - FTE : 1100 employees

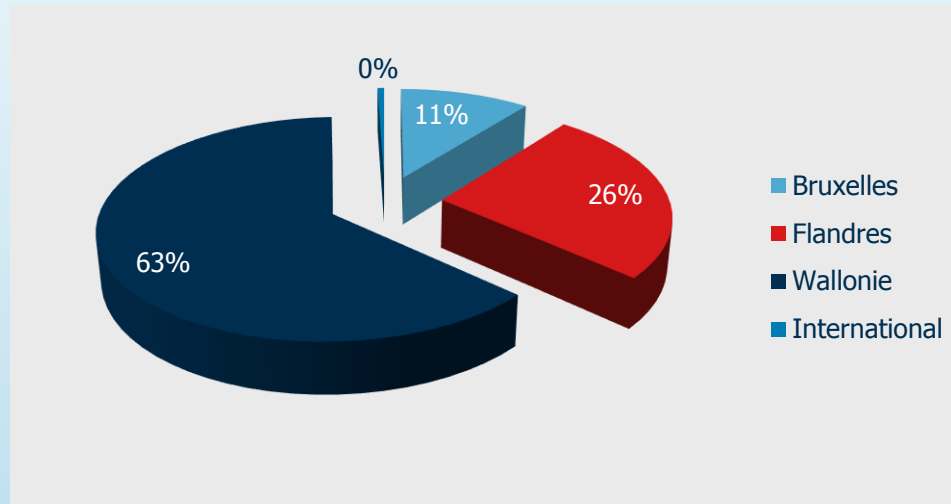
Covering all the needs of your organization

 Web Experience Management	 Outbound Document Workflows
 Enterprise Mobility	<div style="display: flex; gap: 10px;"> <div>B2E</div> <div>B2B</div> <div>B2C</div> </div>
 Advanced Analytics	<div style="display: flex; gap: 10px;"> <div>Business Intelligence</div> <div>Big Data</div> </div>
 Core Business Applications	HR, Planning, Finance, Sales...
 Enterprise Content Management	 Enterprise Collaboration

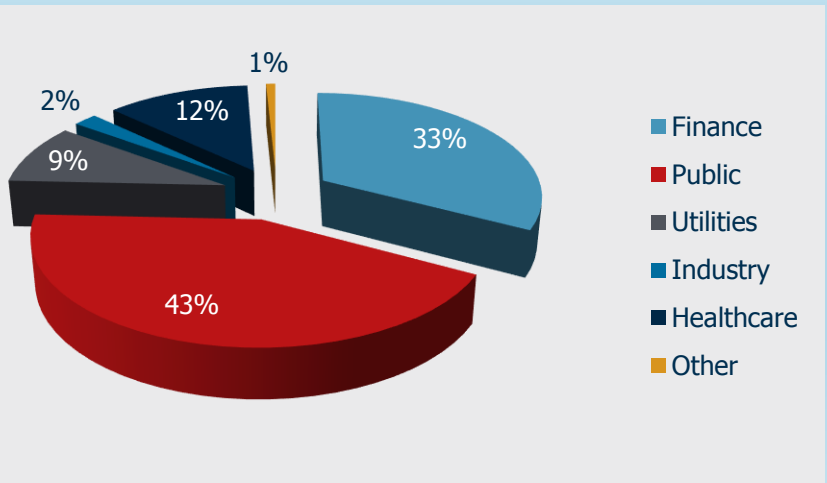


- > **Mainframe**
 - > IBM z/OS: 7 500+ MIPS, 800+ million transactions/year
 - > Bull GCOS8
- > **Distributed systems**
 - > Windows, Linux, UNIX and AS/400
- > **Storage & Back up**
 - > Storage capacity: > 1 PB (Petabyte) disk space
 - > Automated backup management
- > **Workplace services**
 - > 12 000+ work stations (including VoIP)
- > **Network**
 - > Dedicated inter data center optical fiber connectivity
 - > Multiple broadband suppliers in place with dedicated fibers

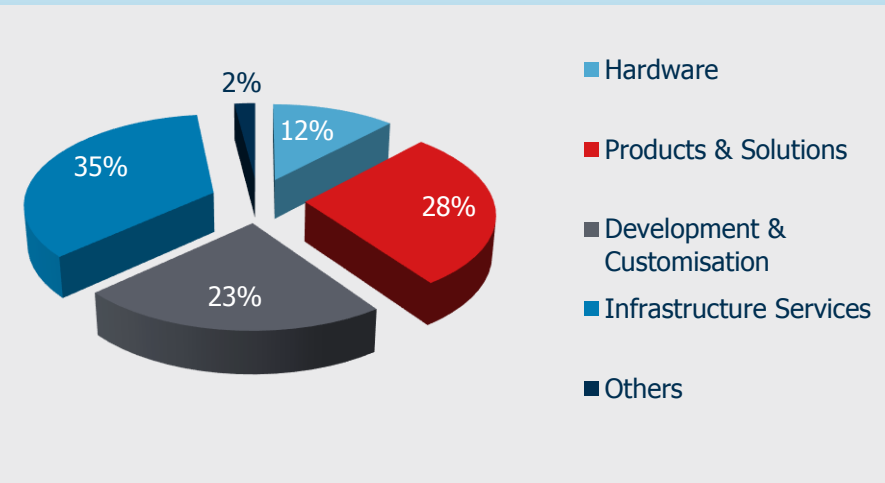
Distribution of sales figures by region



Distribution of sales figures by sector



Distribution of sales figures by services



Finance & Insurance



Public & Social Fed. & Reg.



Utilities



Industry



The NRB Group

Our main customers (xperthis, Civadis, Cevi & logins)

Health care



Public & Social Loc. South



Public & Social Loc. North



> A digital context

Digital transformation : we are all learning



A product/ a service experience

Use of Technology is exploding

- Moore Law
- Improvement of Data access through expansion of physical network
- Web 2.0 & participative collaboration



Power of the Mass



- Always connected
- Always sharing
- Always aware
- UGC
- yesterday < sharing < today

The customer decides

- More options
- More access
- More influence

Scope of the customer experience

We carry our consumers habits and expectations into any workplace !



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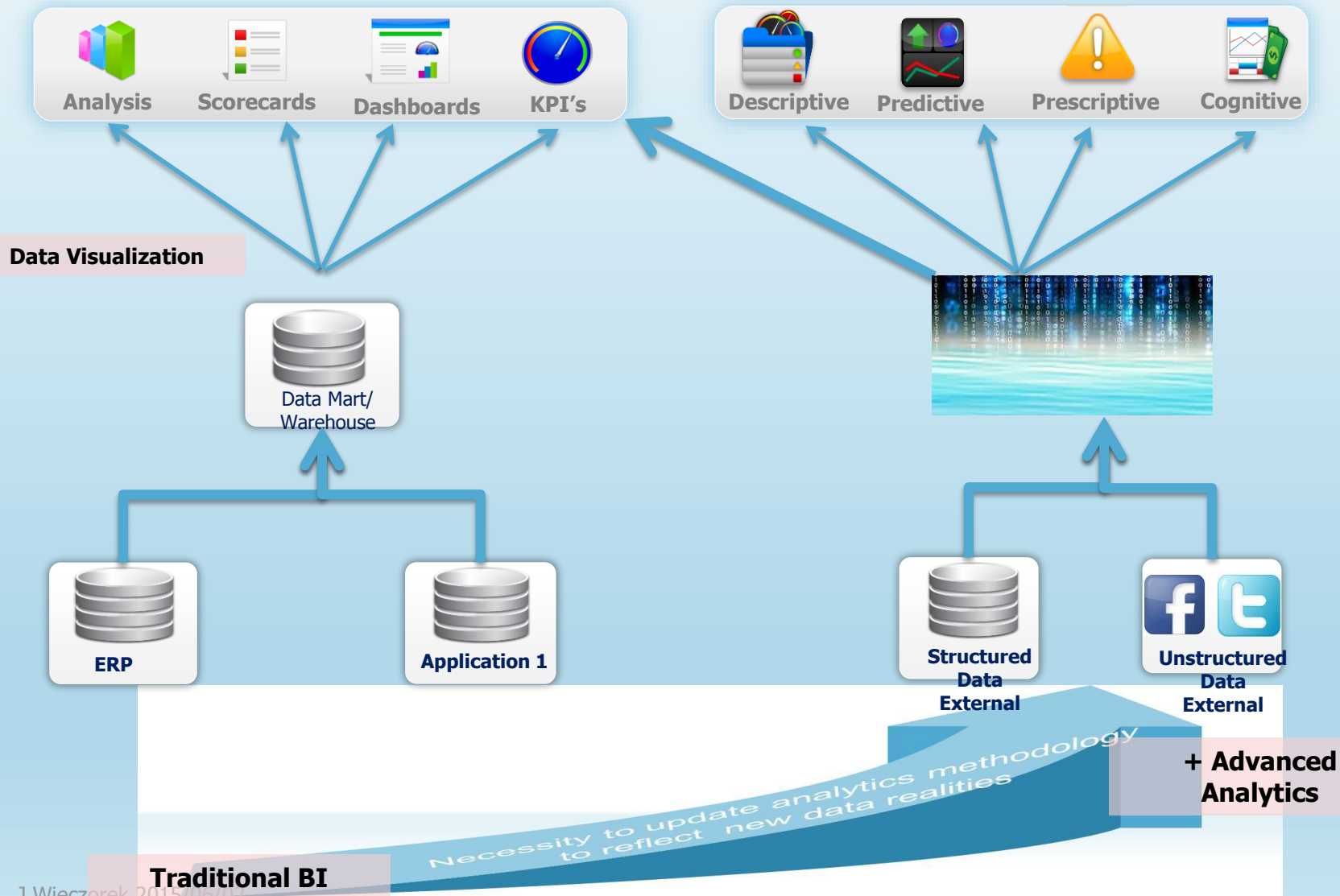


The customer decides

- More options
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> Advanced Analytics & Big Data

BI but Advanced Analytics looming on the horizon



Getting the 6 competitiveness Clusters ahead competition

- Master Global Information
 - Local Data
 - Open Data

Securing Data Privacy for some specific sectors
Healthcare & Industries

- Private Cloud
- Local Storage
 - 2 Data Centers

Retaining Human Capital

- High potential jobs
 - Data Scientist
 - Business Scenario Modeler (BSM)

Turning R&D outcomes into production

- Research Centers
- Universities
- IT Companies

***Expectation from NRB :
To drive the process as major ICT
company***

NRB's Big Data Hub

NRB



Innovative
Platform



Consortium



**Added Value
through
Big Data**

**Increase
Cash Flow**

**Asset
Efficiency**

Governance

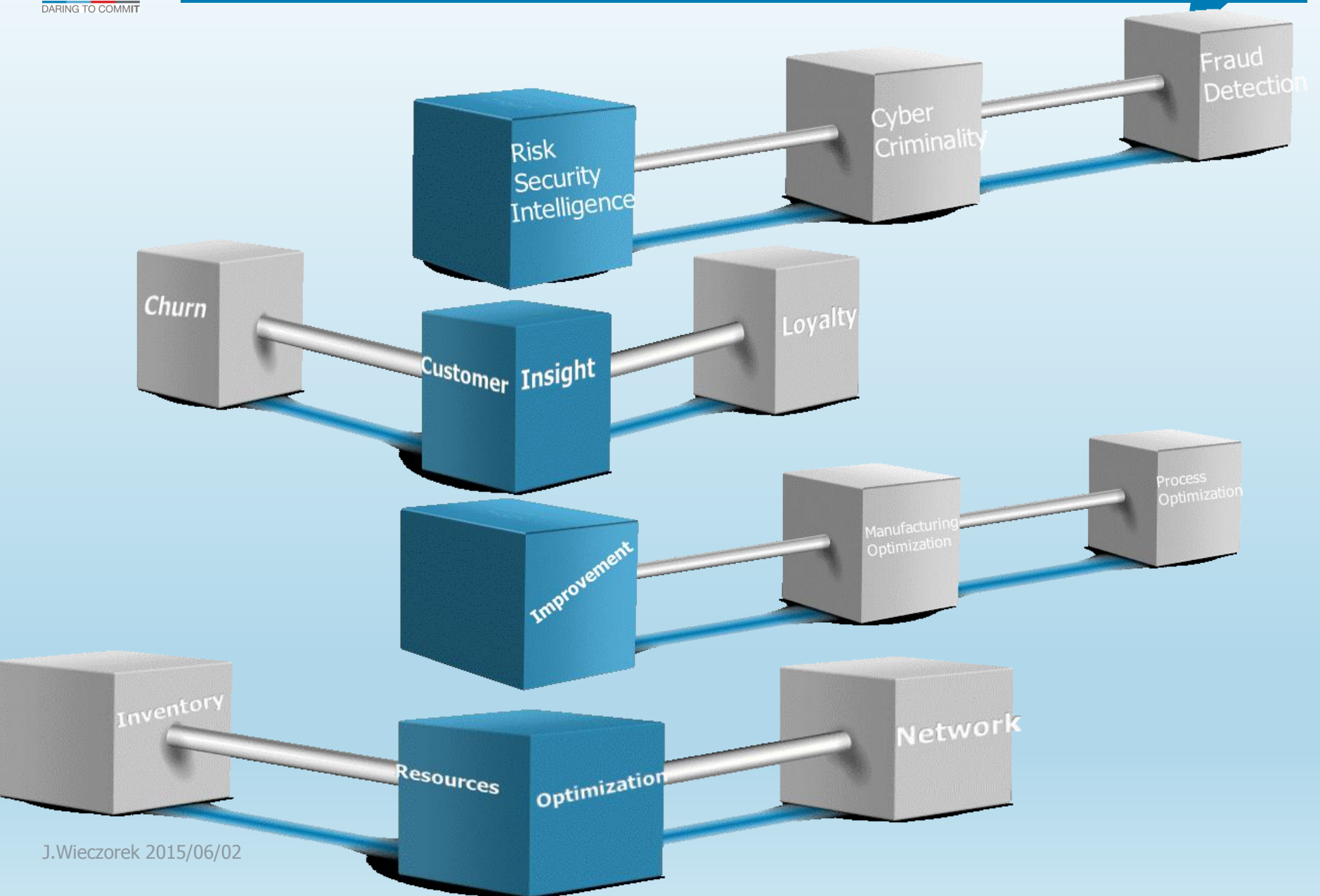
**Customer
Insight**

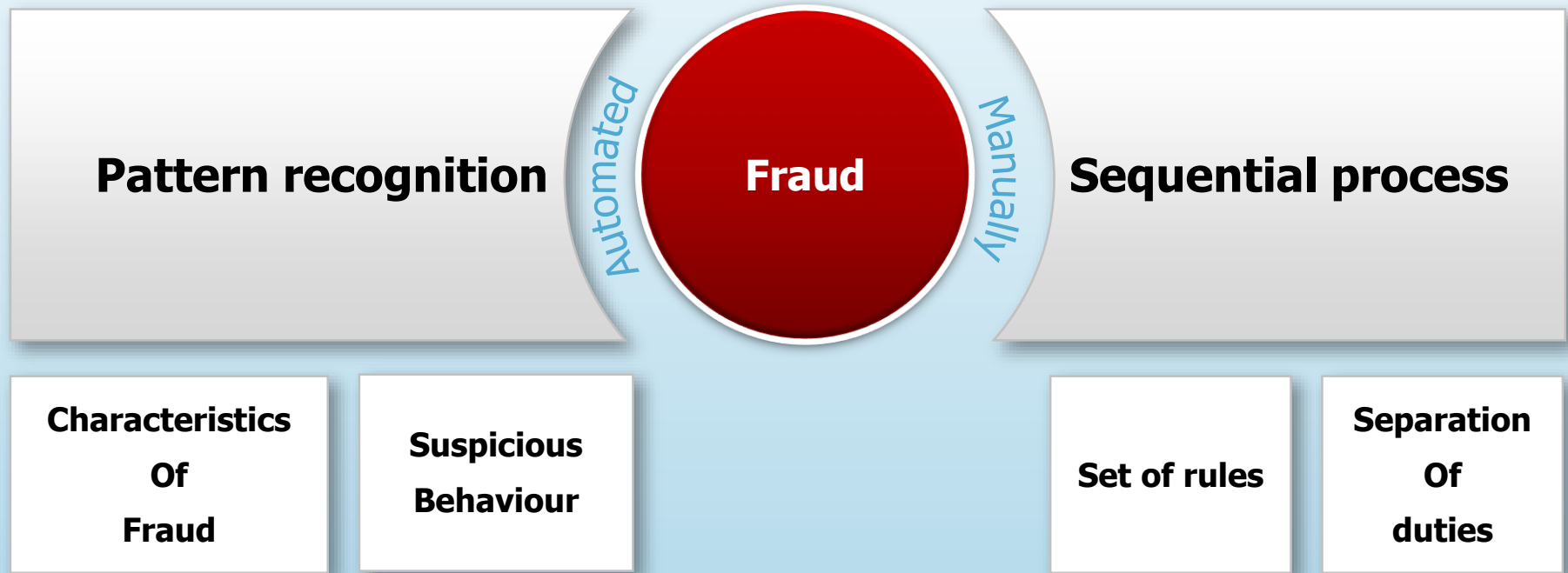
**Resources
Optimization**

**Process
Productivity
Improvement**

**Risk
Security
Intelligence**

Detailed added value through Big Data

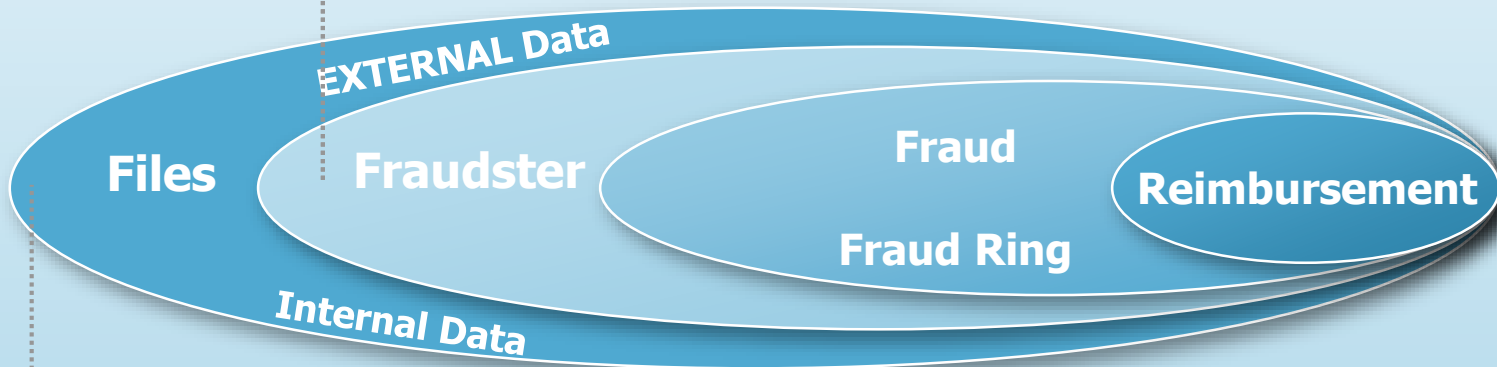




Governance and fraud Risk management

Fraudster

- Average offender (random and /or occasional dishonest behavior)
- Professional fraudster : organized / group crime offender



Availability problem

- Obtaining real data to legal and competitive reasons
- Alternative :
 - Create synthetic data which matches closely to actual data (data generation)

Fraud is :
Once-Off
Occasional
Seasonal
Regular

Consultancy

- Scope definition (choice of the service analytics)
- Business experts
 - Business scenario modeller

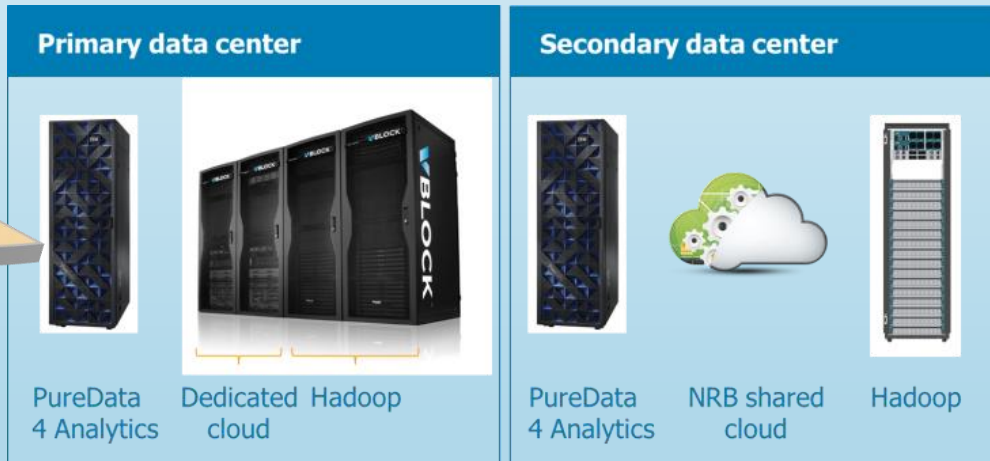
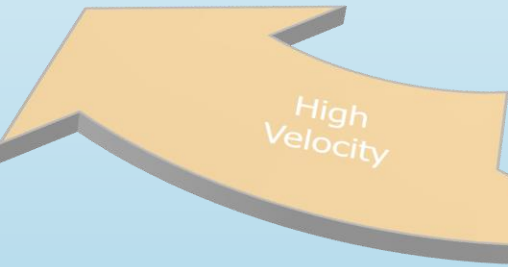
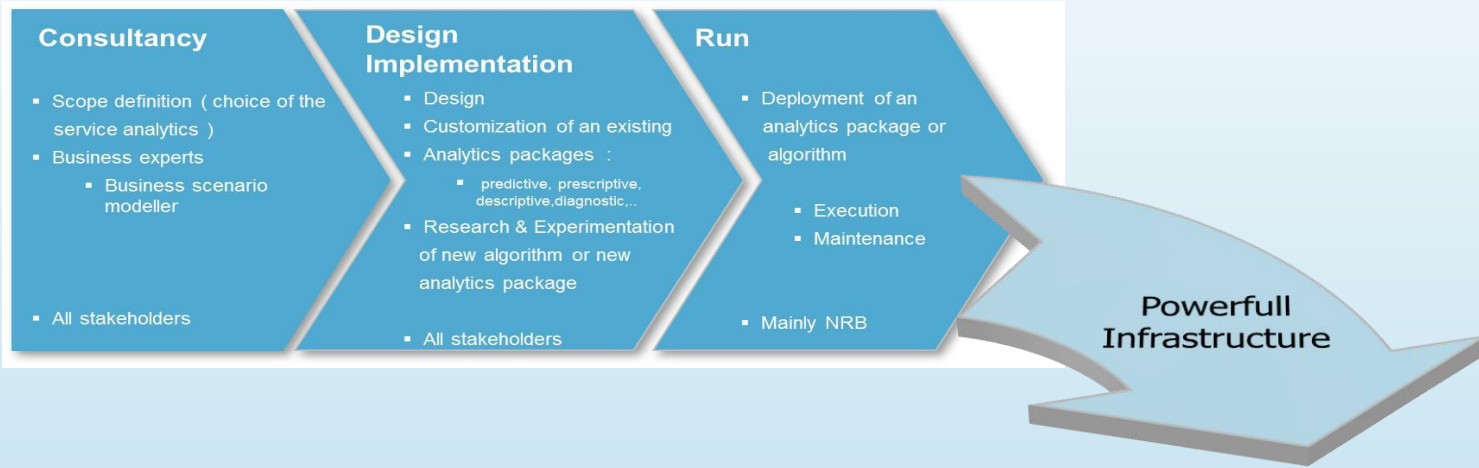
Design Implementation

- Design
- Customization of an existing
- Analytics packages :
 - predictive, prescriptive, descriptive, diagnostic,..
- Research & Experimentation of new algorithm or new analytics package

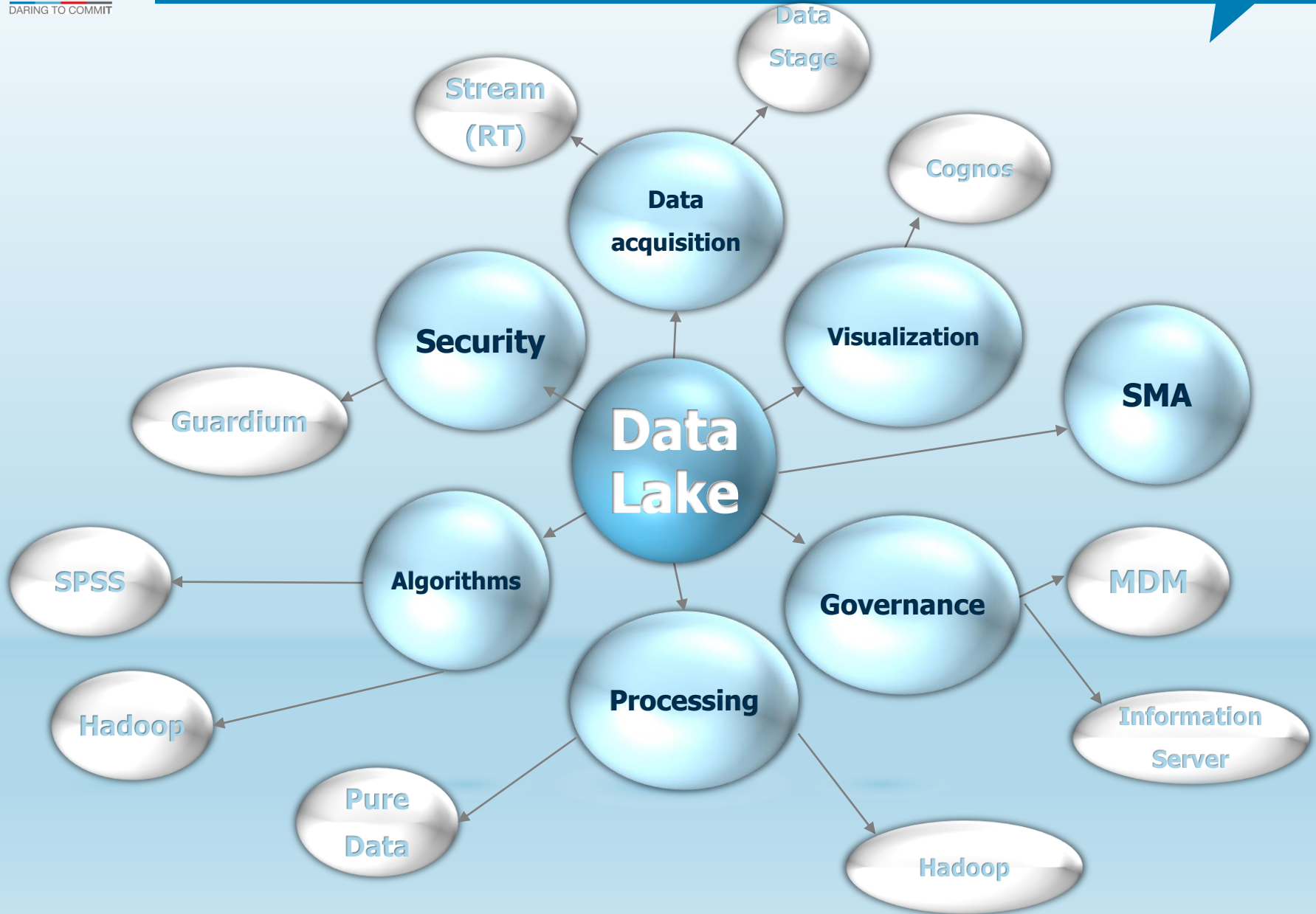
Run

- Deployment of an analytics package or algorithm
 - Execution
 - Maintenance

A powerfull end to end service



- Computation cloud based on dedicated Vblock
- Two dedicated infrastructures for Hadoop service
- Shared infrastructure in secondary data center



The value of having a Social Media Strategy

Tailoring product and services to specific needs



The goal is to increase interactions with customers

TRENDS

BEHAVIOR

**BUYING
PATTERN**

**Product
satisfaction**

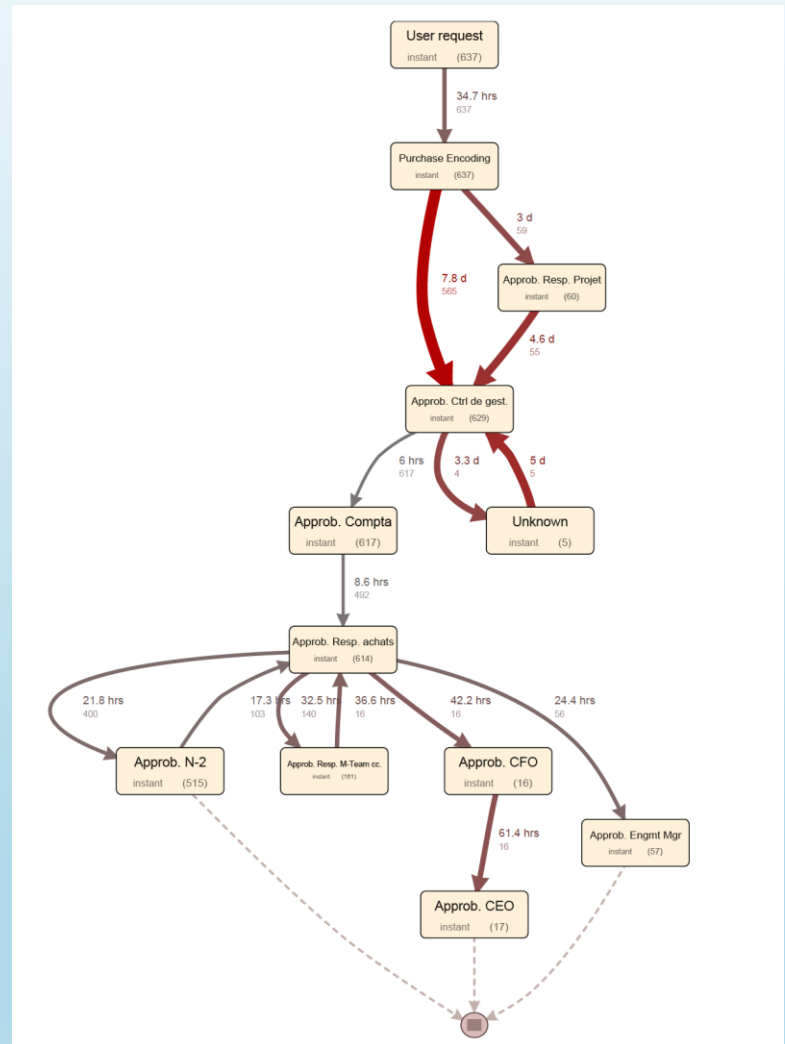
- ❑ Understand attitudes, opinions and evolving trends;
- ❑ Correct structural claims faster than competitors;
- ❑ Create customized campaigns;
- ❑ Understand what customers like but also don't like;
- ❑ Can be an early warning system when customers are turning against;
- ❑ Managing reputational risks.

> Big Data own experience

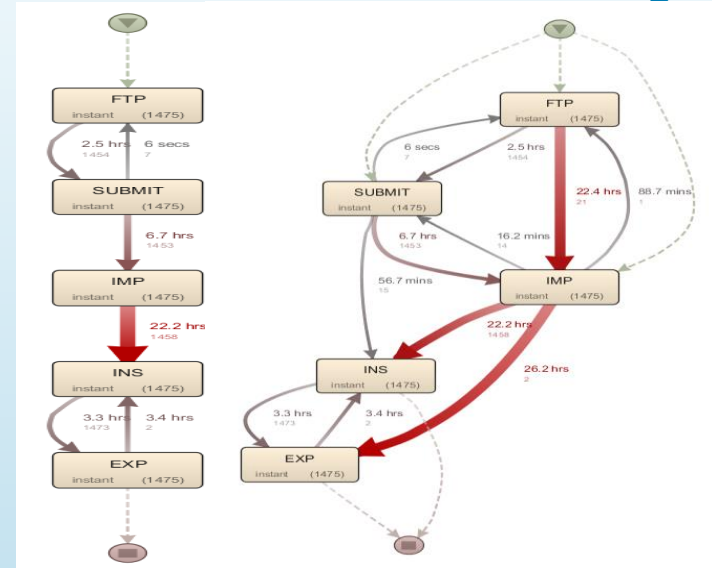
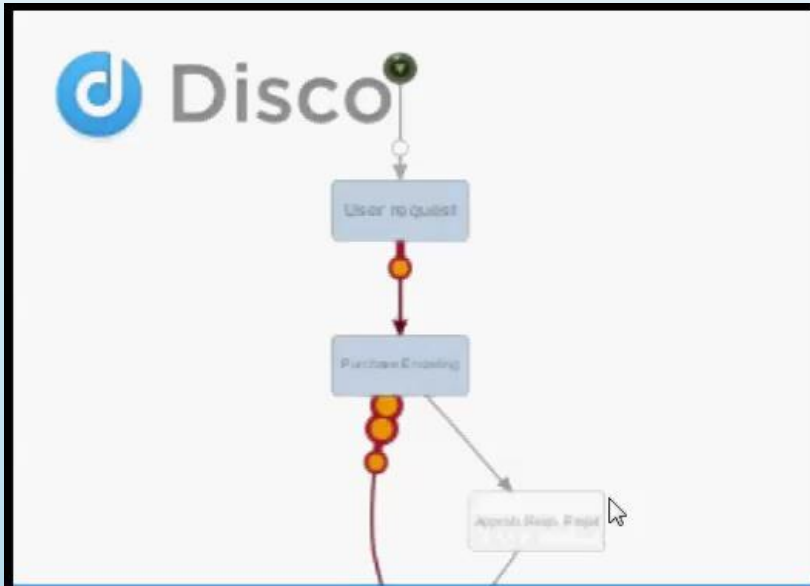
› Based on purchase requests logs

DA	Commande	Date	Stratégie	Ressource	Activity
18002613	4570020797	19/12/2013 00:00	3	P06333	User Request
18002618	4570019402	20/12/2013 00:00	1	P06677	User Request
18002620	4570019405	23/12/2013 00:00	1	P06069	User Request
18002621	4570019406	23/12/2013 00:00	1	P06069	User Request
18002637	4570019397	30/12/2013 00:00	1	P16002	User Request
18002640	4570019396	02/01/2014 00:00	1	P05086	User Request
18002640	4570019396	02/01/2014 00:00	1	Purchase	Purchase Encoding
18002637	4570019397	03/01/2014 00:00	1	Purchase	Purchase Encoding
18002618	4570019402	03/01/2014 00:00	1	Purchase	Purchase Encoding
18002620	4570019405	03/01/2014 00:00	1	Purchase	Purchase Encoding
18002621	4570019406	06/01/2014 00:00	1	Purchase	Purchase Encoding
18002646	4570019422	07/01/2014 00:00	1	P06677	User Request
18002647	4570019423	07/01/2014 00:00	1	P06677	User Request
18002645	4570019522	07/01/2014 00:00	1	P16029	User Request
18002637	4570019397	07/01/2014 10:26	1	P06252	Approb. Ctrl de gest.
18002618	4570019402	07/01/2014 10:27	1	P06252	Approb. Ctrl de gest.
18002640	4570019396	07/01/2014 10:31	1	P06252	Approb. Ctrl de gest.
18002620	4570019405	07/01/2014 10:32	1	P06252	Approb. Ctrl de gest.
18002621	4570019406	07/01/2014 10:32	1	P06252	Approb. Ctrl de gest.
18002637	4570019397	07/01/2014 11:11	1	USER_PO	Approb. Compta
18002618	4570019402	07/01/2014 11:12	1	USER_PO	Approb. Compta
18002640	4570019396	07/01/2014 11:14	1	USER_PO	Approb. Compta
18002620	4570019405	07/01/2014 11:14	1	USER_PO	Approb. Compta
18002621	4570019406	07/01/2014 11:14	1	USER_PO	Approb. Compta
18002637	4570019397	07/01/2014 13:06	1	USER_PO	Approb. Resp. achats
18002618	4570019402	07/01/2014 13:08	1	USER_PO	Approb. Resp. achats

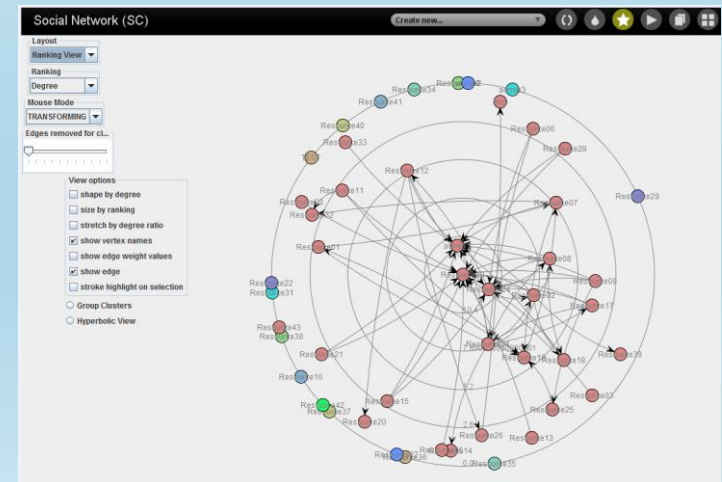
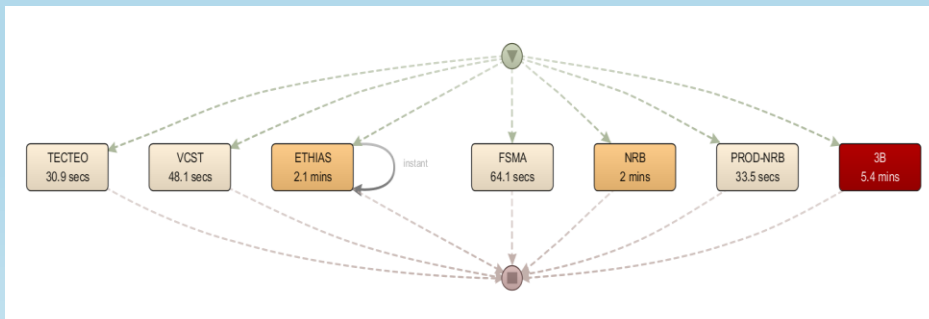
- › Highlight steps and paths followed by the request in order to validate the conformity relative to the defined process
- › Compute minimum, maximum and average time to process a step / activity



- Allow to go deeper in details and show steps and paths little used and bottlenecks



- Show interactions between stakeholders

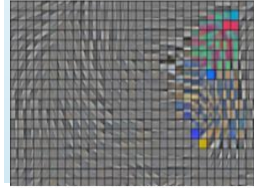




Stanford

Machine Learning

Learn about the most effective machine learning techniques, and gain practice implementing them and getting them to work for yourself.



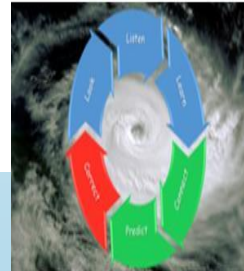
Neural Networks for Machine Learning

Learn about artificial neural networks and how they're being used for machine learning, as applied to speech and object recognition, image segmentation, modeling language and human



Social Network Analysis

This course will use social network analysis both its theory and computational tools, to make sense of the social and information networks that have been fueled and rendered accessible by the internet.



Web Intelligence and Big Data

This course is about building 'web-intelligence' applications exploiting big data sources arising from social media, mobile devices and sensors, using new big-data platforms based on the 'map-reduce' parallel programming



Big Data in Education

Education is increasingly occurring online or in educational software, resulting in an explosion of data that can be used to improve educational effectiveness and support basic research on learning. In this course, you will learn how and when to use key methods for educational data mining and learning analytics on this data.



Stanford

Probabilistic Graphical Models

In this class, you will learn algorithms for using a PGM to reach conclusions about the world from limited and noisy evidence, and for making good decisions under uncertainty.

> Risks & Statistics

Sporadic

Recurring

Statistics

Cognitive

error



Sporadic

Recurring

Statistics

Cognitive

error



mistake

Sporadic

Recurring

Statistics

error

mistake

Confounding variable

Confirmation
bias

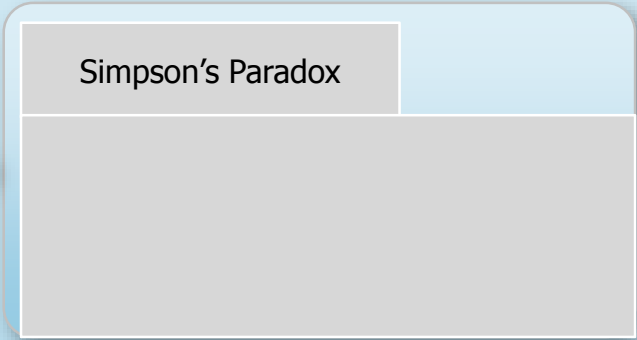
Simpson's Paradox

Sporadic

Repetitif

Statistics

error



Homer




Edward



Same name, different first names, different fates...

Emergency Services : global indicator of the performances

Statistical indicators : Survival rate / Period : 10 days

Hospital	Total	Survivors	Deaths	Survival Rate
Hospital A	1000	800	200	80 %
Hospital B	1000	900	100	90 % 

Additional Information

Identical criteria for :

Hospital A

Hospital B

Sporadic

Recurring

Statistics

Cognitive

erreur

Mistake

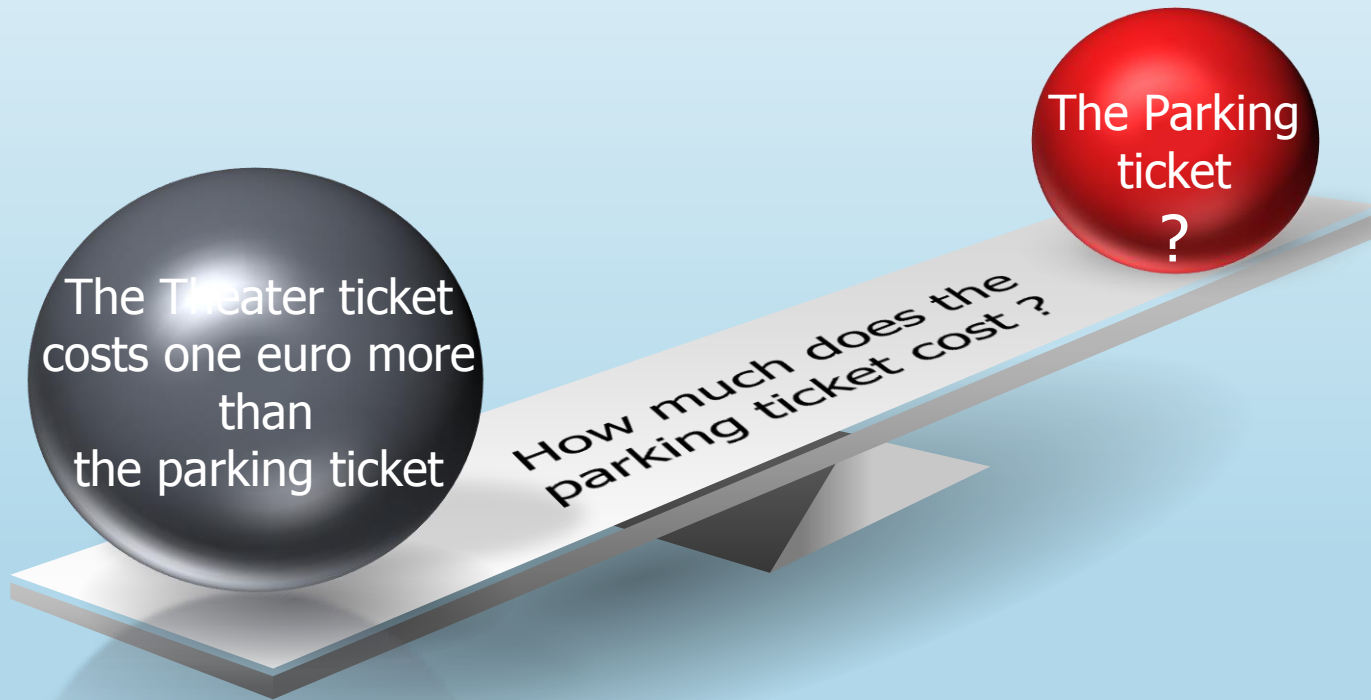
Inference fallacy

Confirmation bias

Simpson's Paradox

Apopenia

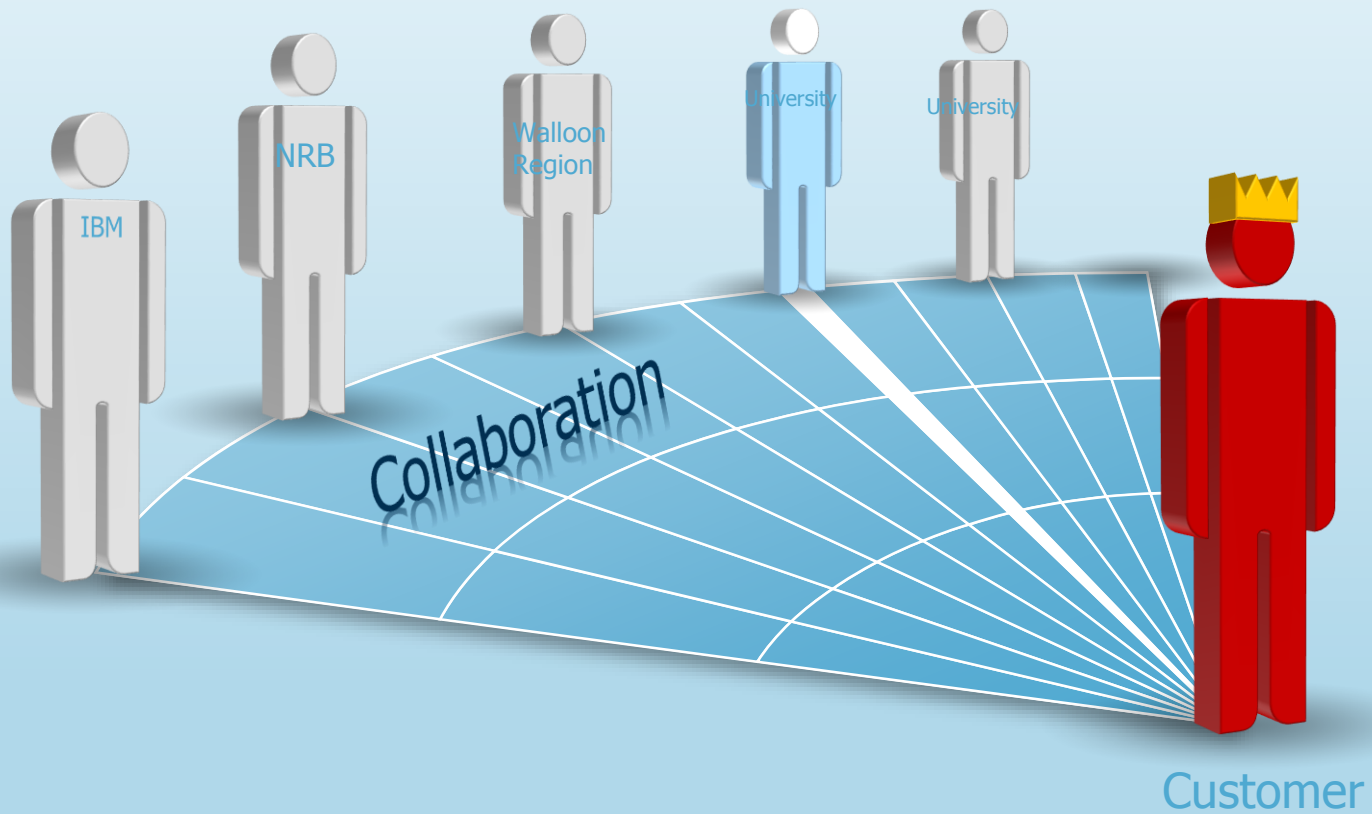
$$\left[\text{Theater ticket} + \text{parking ticket} = 1,1\text{€} \right]$$





> Conclusions

Principle of creative cooperation in developing solutions



Discover

According to Business Maturity

