

# The development of Big Data & its impact on Consulting World

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# Mémorandum

Mémorandum est un cabinet de **conseil en data stratégie**.

Nous intervenons en trois phases :

1. Réflexion sur l'usage de la donnée dans votre entreprise
2. Analyse de vos données
3. Industrialisation de solutions informatiques

Nous apportons :

- Une méthodologie mêlant stratégie et technique.
- Des preuves de concepts “machine learning” avec les outils en pointe de la communauté open source
- Des méthodes agiles et de Lean Analytics qui garantissent des résultats adaptés



## **Romain Jouin - Associé**

INT Management 2006 - Télécom Paris 2013  
7 ans de commercial  
25 ans d'informatique

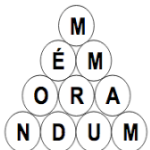


## **Denis Oblin - Associé**

Centrale 1994 - Télécom Paris 2013  
10 ans de conseil en stratégie  
7 ans en direction opérationnelle Groupama

## **Mémorandum a trois expertises majeures :**

- Technique
  - ◆ Big Data
  - ◆ Machine Learning
- Fonctionnelle
  - ◆ Stratégie de la micro décision
  - ◆ Marketing
- Métier
  - ◆ Relation client
  - ◆ Force de vente





What is Big Data ?

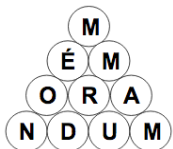
Big Data Vs Machine Learning

How Big Data is influencing the economy

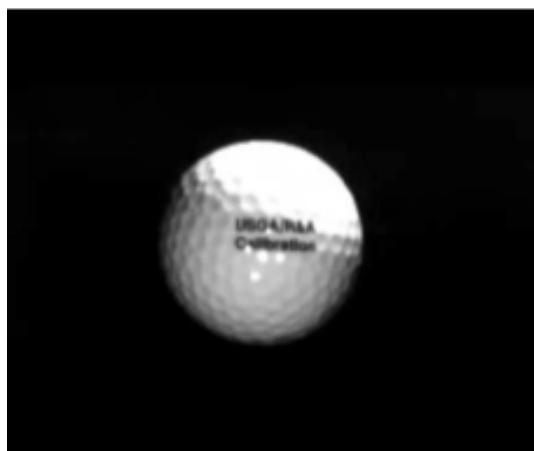
How Big Data is influencing the consulting World

What are the new consulting skills & jobs opportunities around Big Data

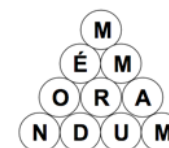
Figures, development, main actors...



Another proof that we don't understand our world.



### Golf Club List



What is Big Data ?



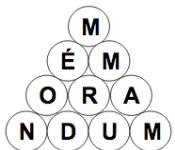
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# Big data a big deal in business

**RIGHT STRATEGY:**  
It allows for better  
decision-making  
and marketing



**T**HESE are unusual times for the world in general and for companies in particular. Business and economics are being reshaped by the digital revolution. The world is becoming more interconnected, more transparent, more data-driven. The digital revolution is not just a technological phenomenon; it is a social and economic one. It is changing the way we live, work, and play. It is creating new opportunities and challenges. It is forcing us to rethink our strategies and our ways of doing business. It is a time of great change and great potential.

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## The buzz and the truth.

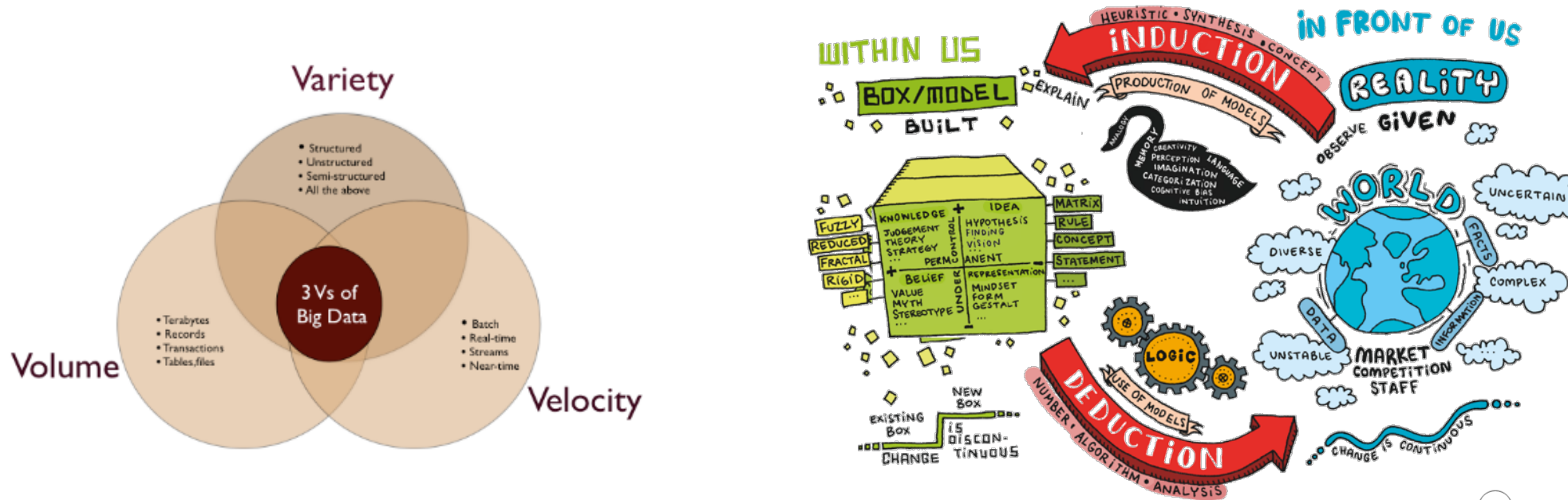
### Big Data

Big Data

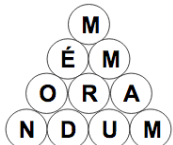
3V

Machine Learning

0V



© Luc de Brabandere 2012



## The buzz and the truth.




 **Apache Kafka**  
A high-throughput distributed messaging system.

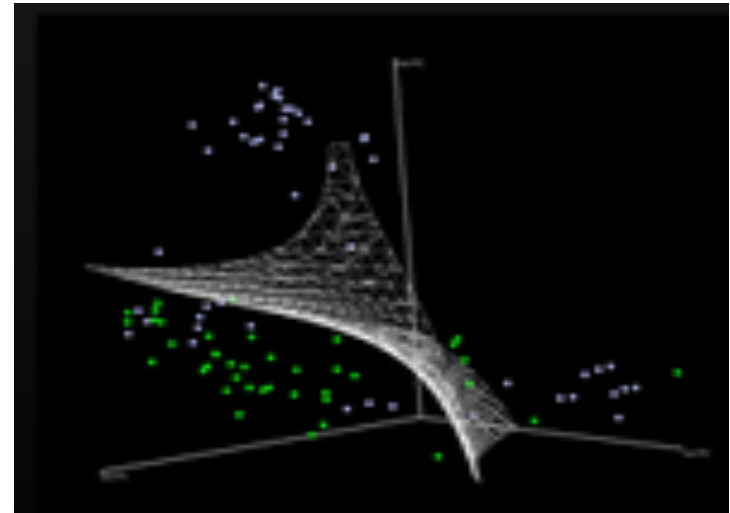


 **Spark**

 **Scala**

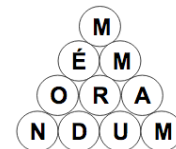


 **elasticsearch.**



# Machine Learning

START





## The buzz and the truth.

# Machine Learning



what society thinks I  
do



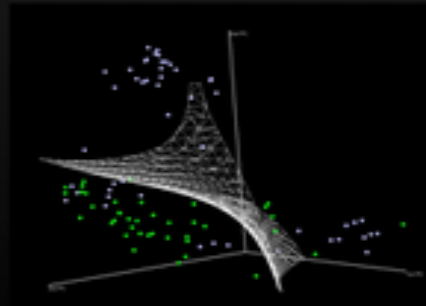
what my friends think  
I do



what my parents think  
I do

$$\begin{aligned} \ell_y(\mathbf{w}) &= \frac{1}{2} \|\mathbf{w}\|^2 - \sum_{i=1}^n \alpha_i x_i (x_i \cdot \mathbf{w} + b) + \sum_{i=1}^n \alpha_i \\ \alpha_i &\geq 0, \forall i \\ \mathbf{w} &= \sum_{i=1}^n \alpha_i x_i, \sum_{i=1}^n \alpha_i x_i = 0 \\ \nabla_{\theta} \ell(\theta_t) &= \frac{1}{n} \sum_{i=1}^n \nabla \ell(x_i, y_i; \theta_t) + \nabla r(\theta_t) \\ \theta_{t+1} &= \theta_t - \eta_t \nabla \ell(x_{(t)}, y_{(t)}; \theta_t) - \eta_t \cdot \nabla r(\theta_t) \\ \mathbb{E}_{(t)}[\ell(x_{(t)}, y_{(t)}; \theta_t)] &= \frac{1}{n} \sum_{i=1}^n \ell(x_i, y_i; \theta_t). \end{aligned}$$

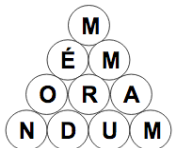
what other programmers  
think I do



what I think I do

```
>>> from scipy import svm
```

what I really do



What is Big Data ?

Big Data Vs Machine Learning

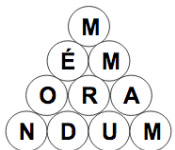


How Big Data is influencing the economy

How Big Data is influencing the consulting World

What are the new consulting skills & jobs opportunities around Big Data

Figures, development, main actors...



French government is really aware of data's importance.

Vous êtes concernés !

11

On commence ?

Pour quoi faire ?

Qu'est ce que cela change ?

Comment ça marche ?

Les technologies de modélisation ont

occupé  
financiers  
de l'inn  
montre  
historique  
faible p  
ils se  
les fonc  
concept  
que la m  
bien a  
marketin  
chain.



Aremus & Associés  
CAPITAL-INNOVATION

bpi**france**

80% des dirigeants seront les  
figurants de demain.

Et vous ?

Oui. Votre business est déjà concerné.

La disruption sera vecteur de compétitivité pour les entreprises prêtes à se réinventer. A condition de faire vite et de définir une vision claire, sous peine de décroître puis sombrer.

“ L'algorithme  
intime de  
De plus en plus  
temps réel : l

Heureusement,  
la disruption s'apprend.  
mais plus profondément encore d'entrer dans une transformation de  
l'expérience client sur des produits et services qui peuvent désormais  
bénéficier d'une évolution constante. ”

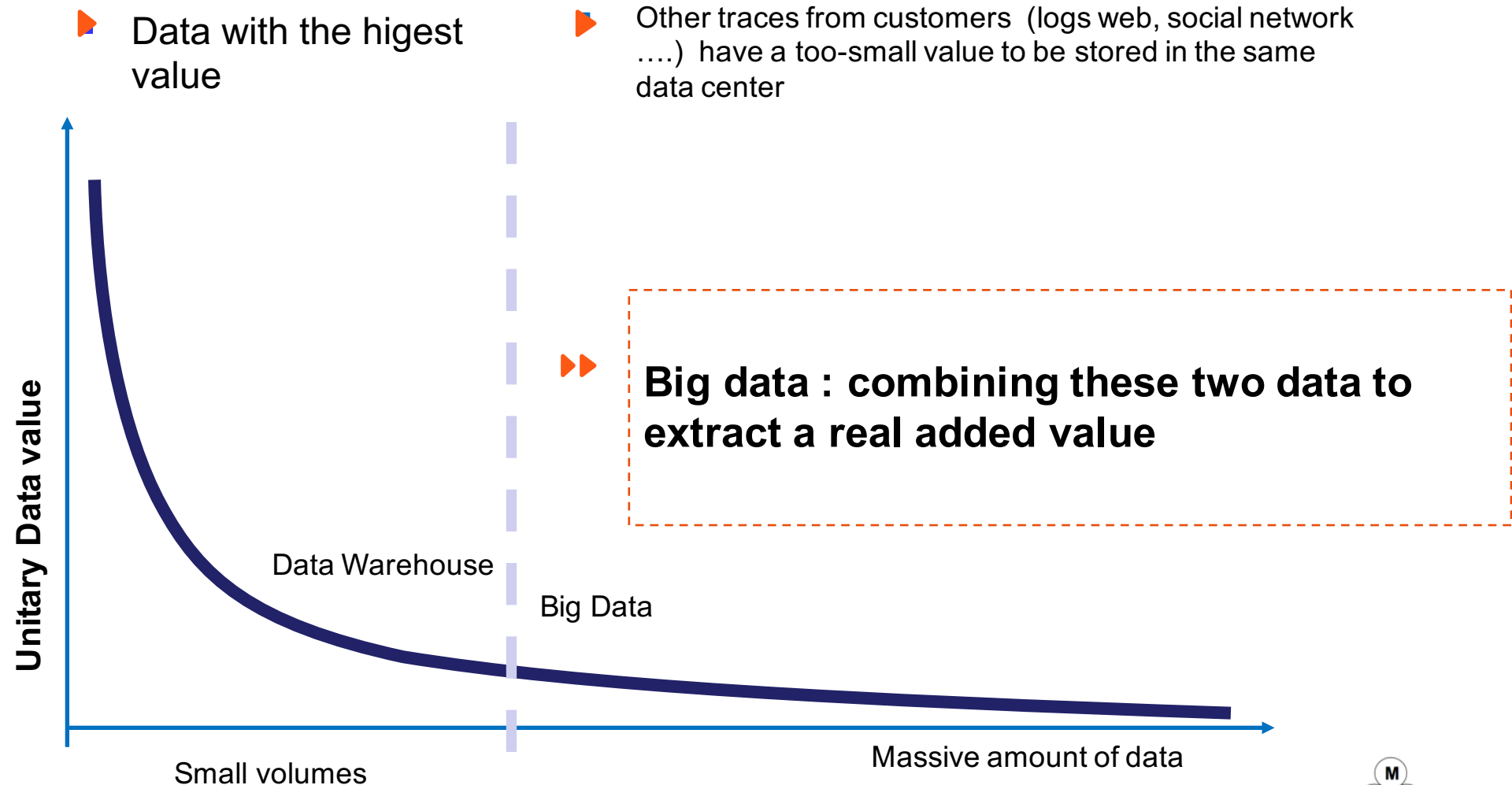
Modèles, données et algorithmes

Les nouvelles frontières du numérique

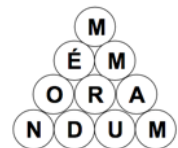
Par Etienne de Rocquigny (Aremus & Associés)



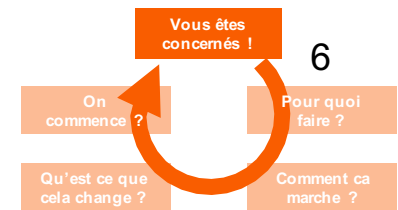
# Big data and the long tail theory



Source : Didier Girard / <https://www.linkedin.com/pulse/20141204124054-158449-bigdata-l-arme-du-digital>



## Two ways data is valuable (in french, sorry ...)



Une donnée parmi d'autres :  
« **Le client X a contacté le service client** »

### L'information pour elle-même

Déclencher l'action suivante :

- Répondre au client

Mettre à jour la rémunération variable du conseiller,

Alimenter les reports

→ **Domaine connu**

La donnée n'a été initialement produite que pour cela. Après usage cette donnée est aujourd'hui un déchet

### Le contexte d'autres événements

**Reconstituer le contexte** d'autres événements de l'entreprise, tous interdépendants à des degrés divers :

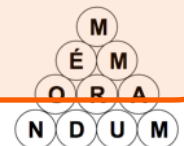
Une vente s'est faite  
entre un client connu  
et un produit particulier,  
dans un magasin spécifique,  
avec un vendeur unique,  
un certain jour de la semaine

Un exemple de préoccupation

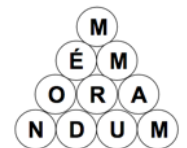
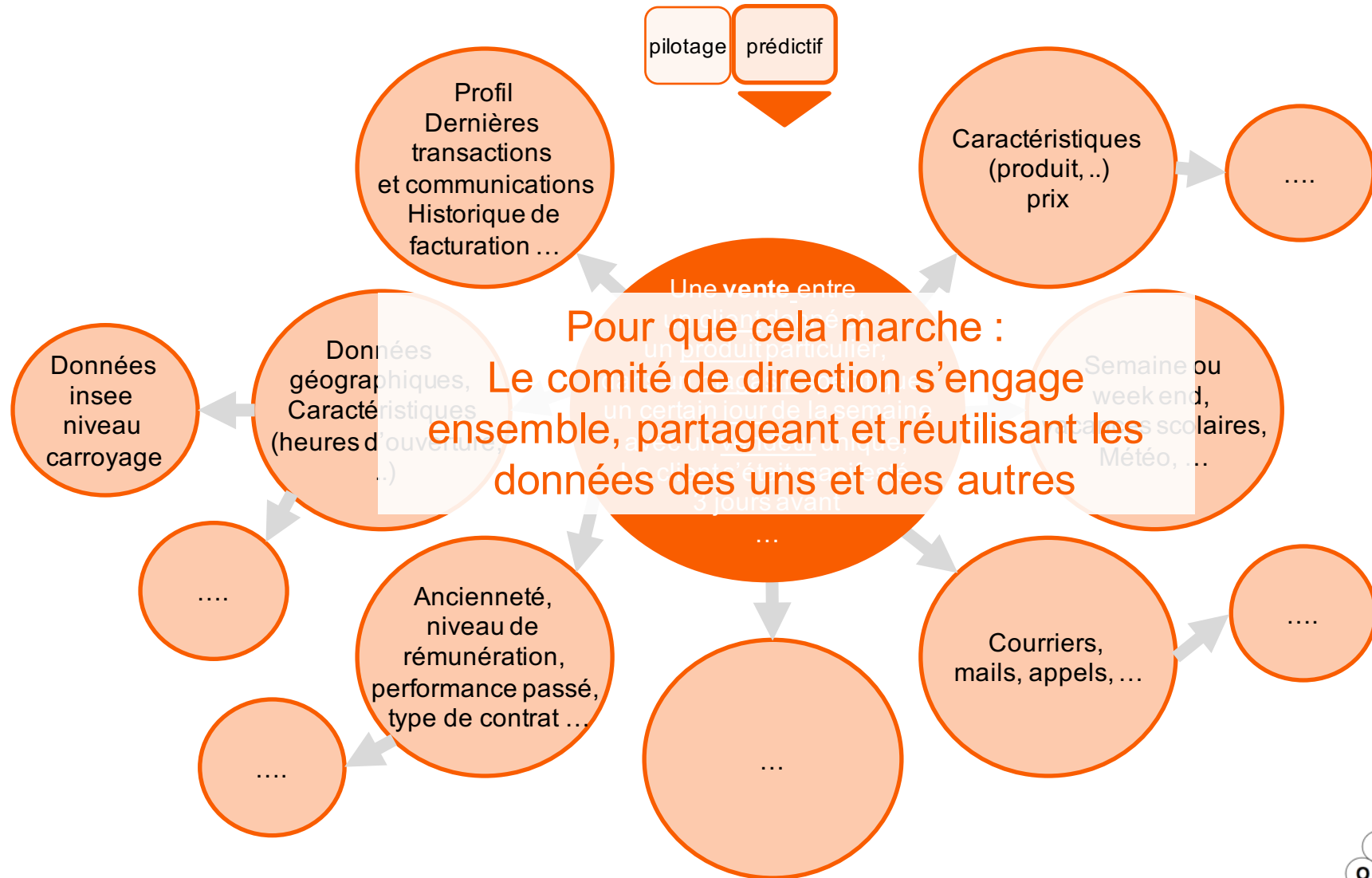
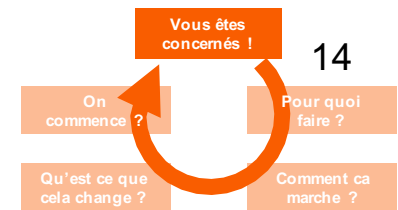
**Le client s'était manifesté 3 jours avant pour dire xxx**

Une donnée sortie de son contexte qui éclaire le sujet

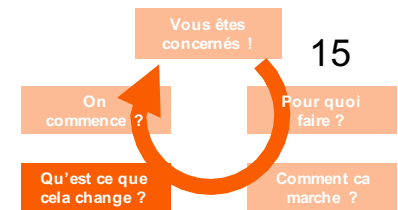
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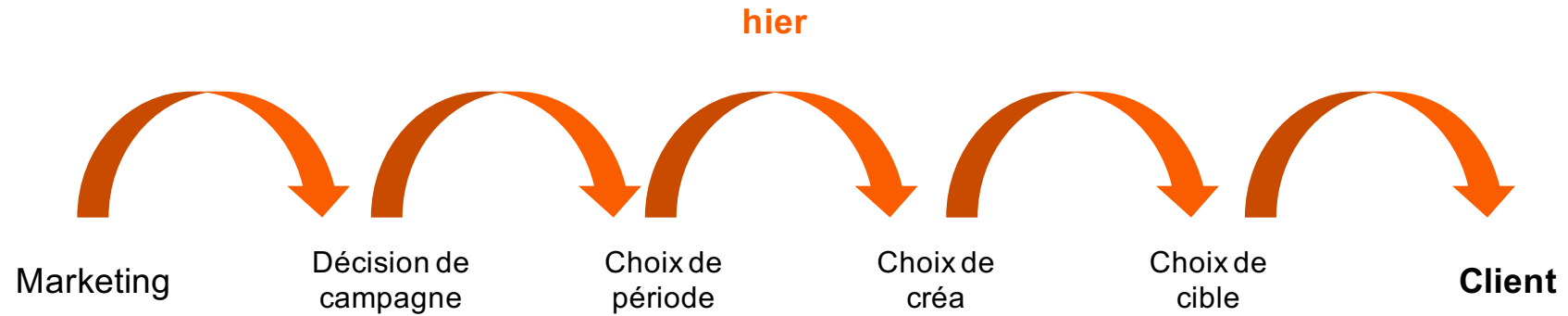
# Machine learning works by contextualising data.



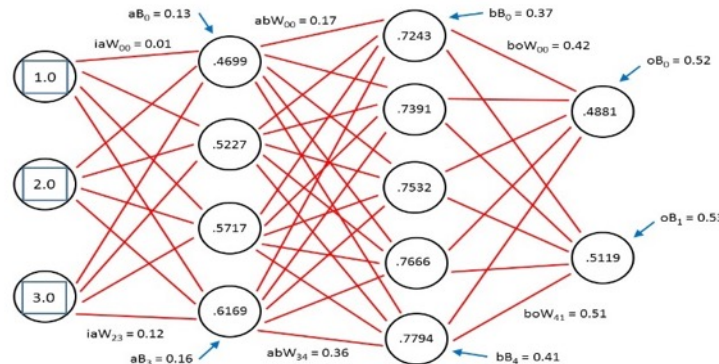
Contexts are so various that only a computer can handle them.



15



**Aujourd'hui**

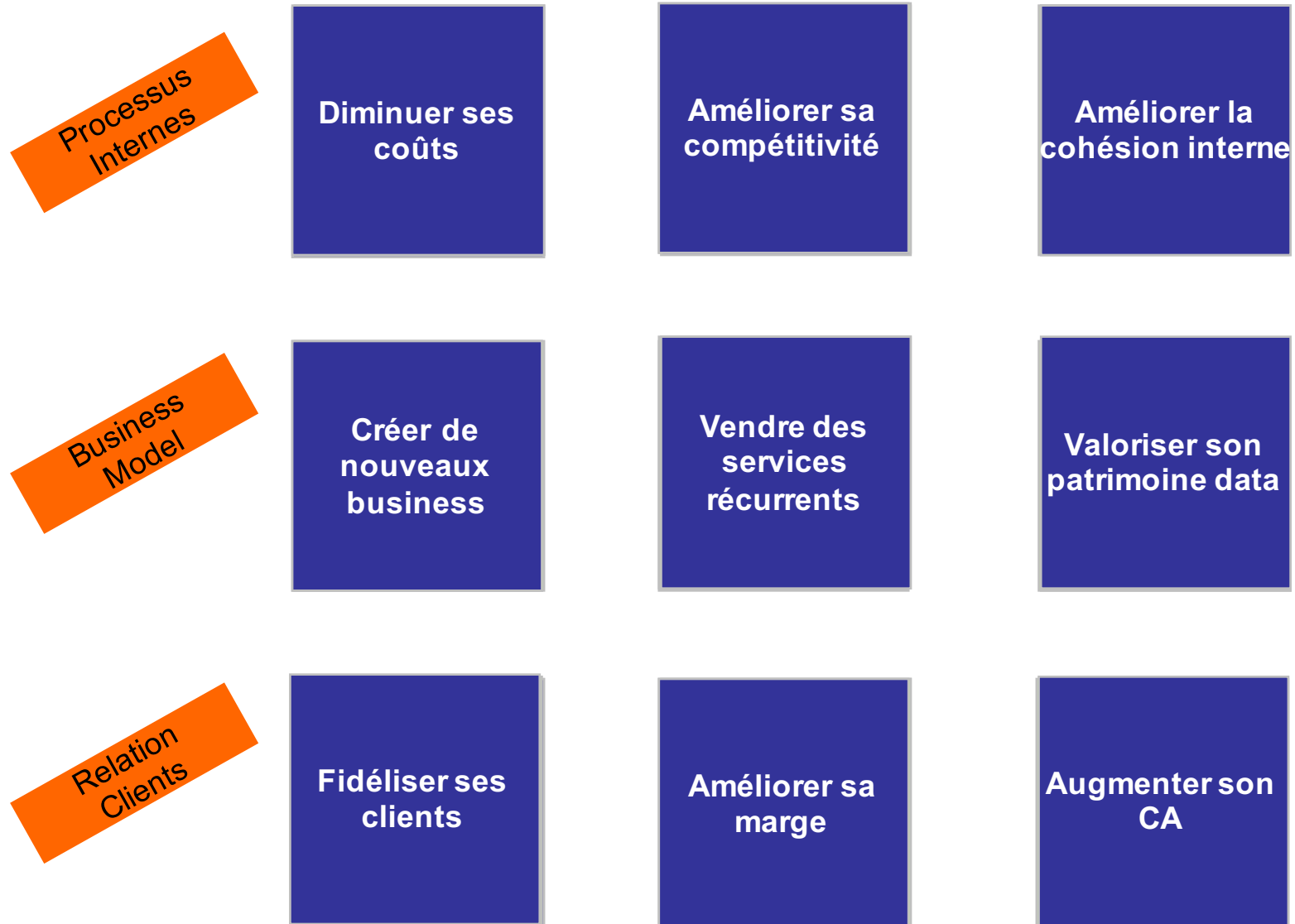


Client X  
Client Y  
Client Z  
Client T  
Client U  
Client v  
Client w  
Client X

Client ...



## Valeur des données : Exemples





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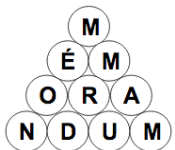
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Today Consulting company create powerpoints presentations



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& consultants sometimes delegate IT to some strange back-door geek...



+



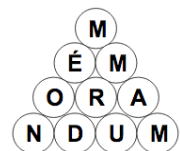
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consultant



geek



The value being in the data, the geek will be the guy to become.



+



=



Long-term strategic powerpoint disappear to the advantage of short-term highly-valued data-driven decision.

Consultant should adapt.



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Plenty of job offer, and a handful of competencies

**Harvard  
Business  
Review**

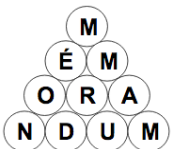


**DATA**

# Data Scientist: The Sexiest Job of the 21st Century

by **Thomas H. Davenport** and **D.J. Patil**

FROM THE OCTOBER 2012 ISSUE



Plenty of job offer, and a handful of competencies

New jobs : Chief data officer, data scientist, master data manager, CIL, Big Data governor, Digital Champion...

Starting salaries for data scientists have gone north of \$200,000

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by [Rodrigo Orihuela](#) [Dina Bass](#)  
[rorihuela](#) [dinabass](#)  
from **Bloomberg Businessweek**

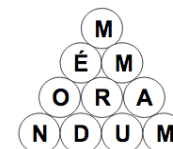
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Reprints

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June 4, 2015 — 7:07 PM CEST Updated on June 4, 2015 — 8:00 PM CEST

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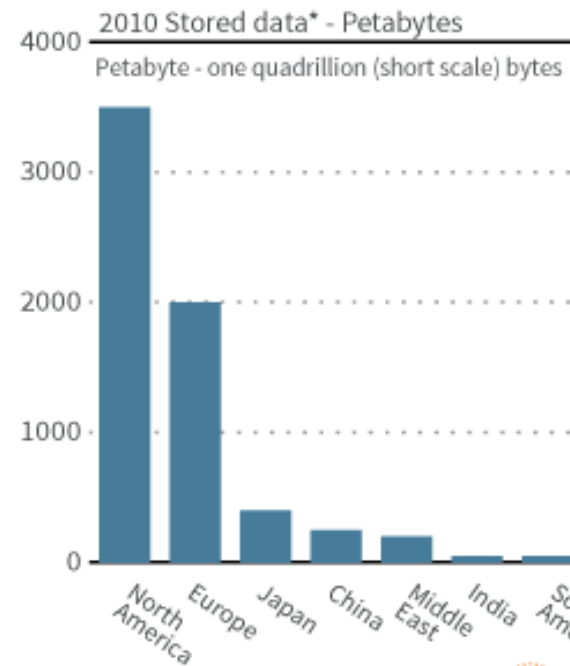
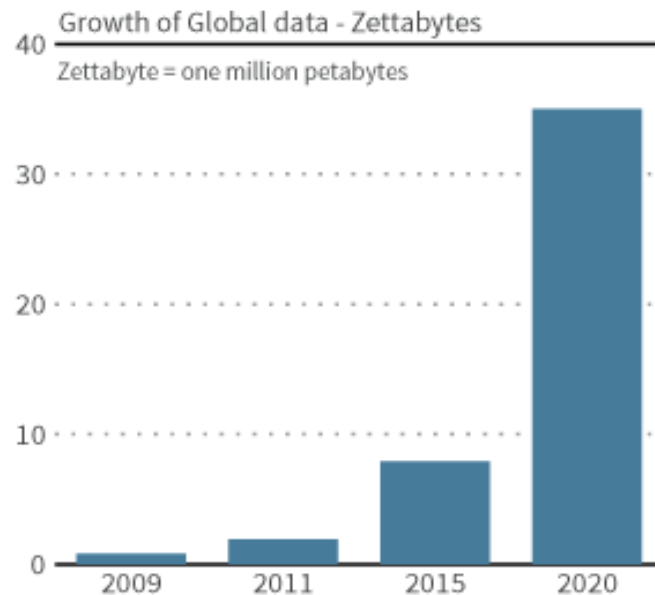


Figures, development, main actors...



# Big data growth

Big data market is estimated to grow 45% annually to reach \$25 billion by 2015

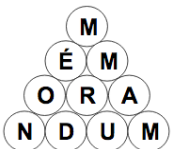


\*greater than

Sources: Nasscom -CRISIL GR&A analysis



Reuters graphic/Catherine Trevethan 05/10/12



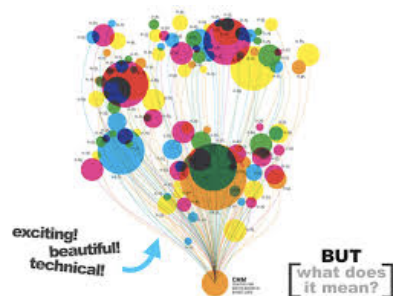
A few main actors (without citing the GAFA and other mastodons...)



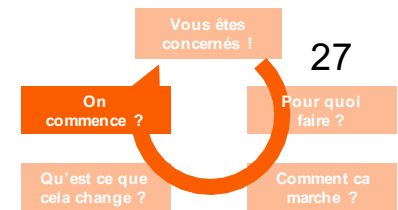
cloudera



TERADATA



# Big Data is a question of Decision : to catch it or not ?



**La difficulté n'est pas de voir ce que personne n'a jamais vu  
mais de penser comme personne n'a jamais pensé  
au sujet de choses que tous voient**

Arthur Schopenhauer

