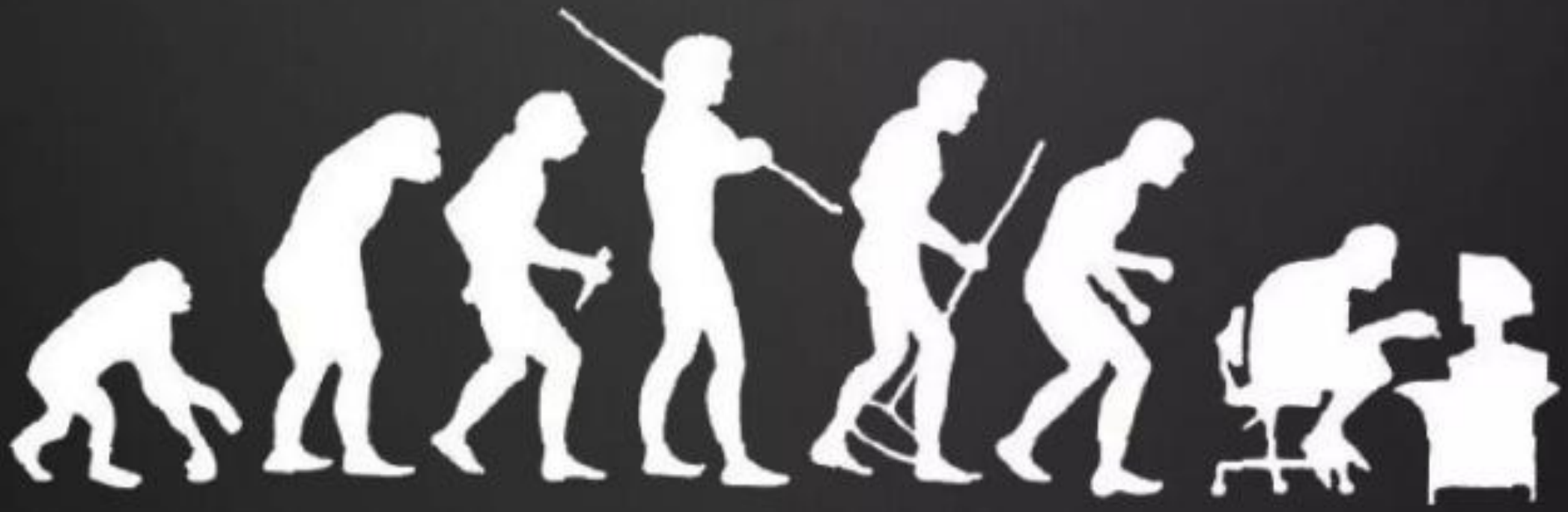
parliamo di evoluzione

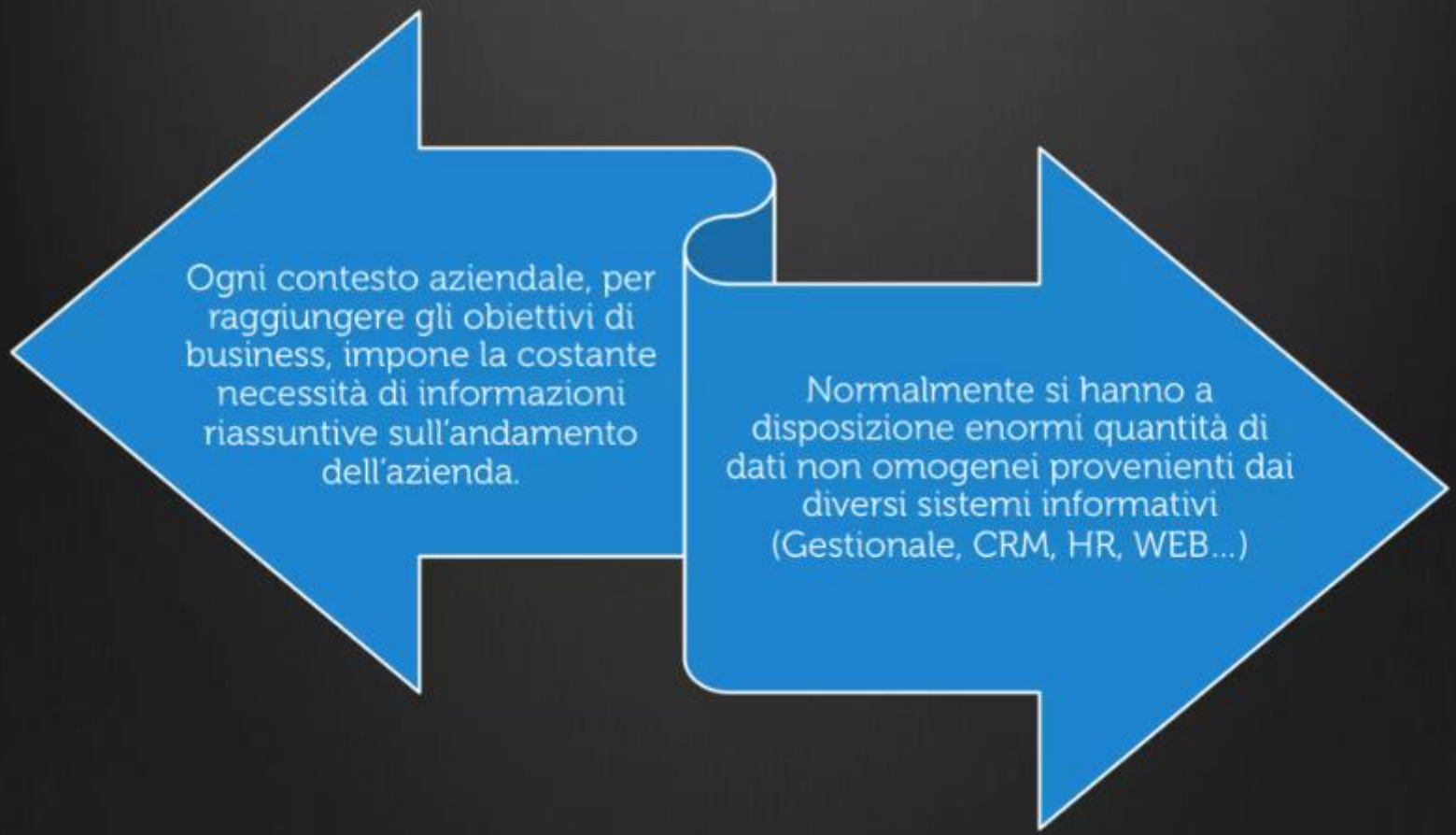


il mondo cambia **in fretta!**


siamo pronti ad affrontare il cambiamento?
Cosa fanno i concorrenti?
Come va il nostro business?
Il mercato è in costante evoluzione
Cosa pensano i nostri clienti?
Quali sono i nostri piani?


INFORMAZIONE?
gli elemeni per rispondere sono sulla nostra scrivania
ma vanno
razionalizzati!
MANAGEMENT

opposte realtà a confronto




Molti dati disaggregati = CAOS
HR
(Personale)
GEST.
Excel
Xml, html
CRM
CAOS

servono risposte più veloci,

ma come?


ma cos'è?
la Business Intelligence

“...sistemi in grado di mettere **l'informazione giusta** nelle mani dell'utente finale

Conoscere per decidere

Know

Info

Dati

CARATTERISTICHE DELLE INFO

Info	Decisioni strategiche	Decisioni operative
Accuratezza	Bassa	Elevata
Grado di dettaglio	Aggregato	
Orizzonte tempor.	Futuro	
Frequenza d'uso	Bassa	
Fonte	Esterna	
Tipo di info	Qualitative	Quantitative
Portata info	Ampia	Ristretta

Il sogno di Alfred Sloan

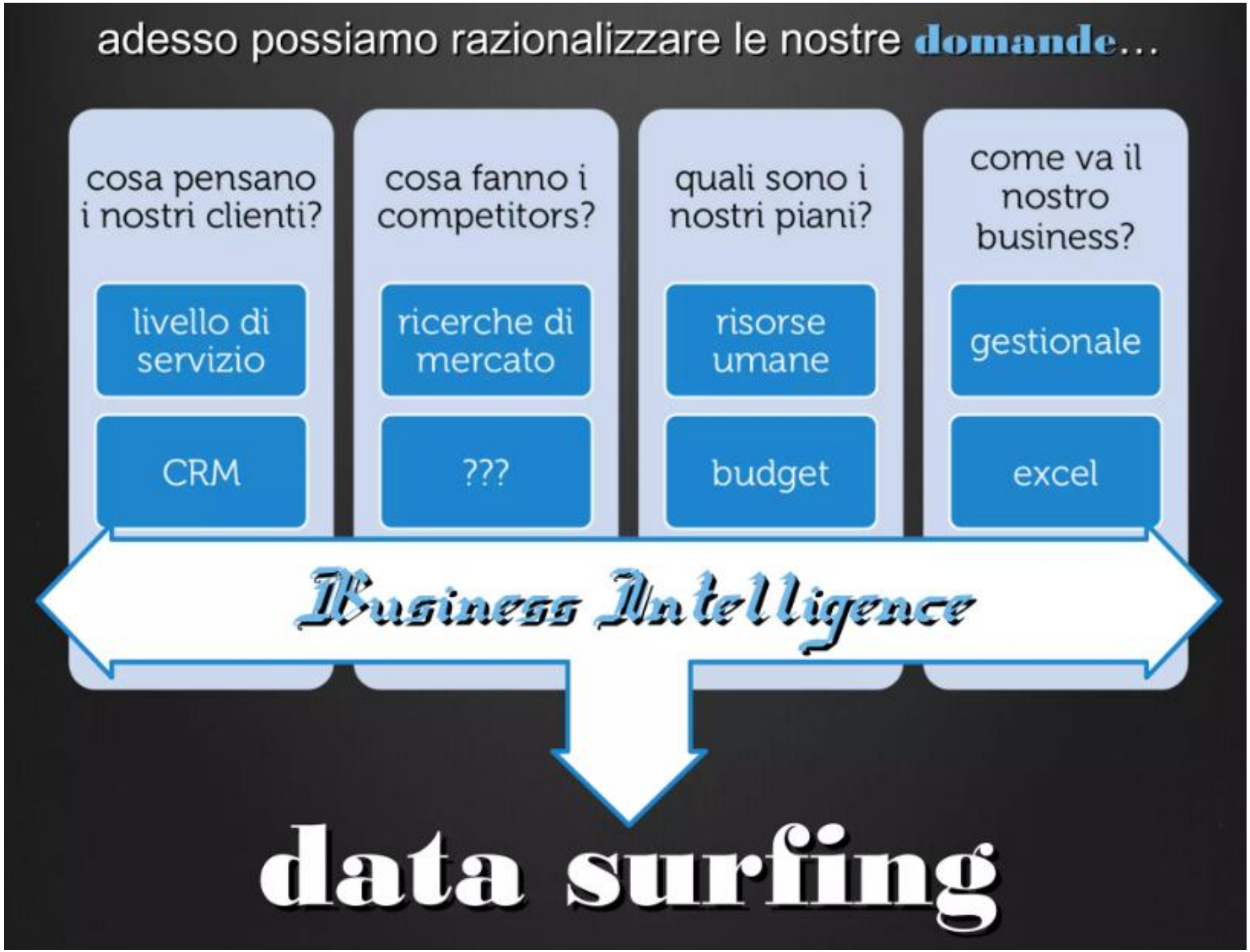
"Il successo e il fallimento di un'impresa dipendono dal modo in cui si raccolgono, gestiscono ed utilizzano le informazioni"

"Disposto a pagare qualunque cifra se solo avesse potuto con un tocco di bacchetta magica dare a tutti un buon sistema contabile e trattare intelligentemente molti dettagli informativi"

A. Sloan – General Motors –anni '30


“.soluzioni che permettono all’utente finale
l’analisi facile e veloce dei dati
aziendali, per poter prendere decisioni
intelligenti

“**Business Intelligence** significa poter usare i propri dati per **prendere decisioni** di business migliori


adesso possiamo razionalizzare le nostre domande…
cosa pensano i nostri clienti?
cosa fanno i competitors?
quali sono i nostri piani?
come va il nostro business?
livello di servizio
ricerche di mercato
risorse umane
gestionale
CRM
???
budget
excel
Business Intelligence
data surfing

la **business intelligence** razionalizza tutti i dati aziendali provenienti dalle diverse aree funzionali

una “metafora fotografica”

fonti dati aziendali

trasforma

elabora

presenta

DASHBOARD

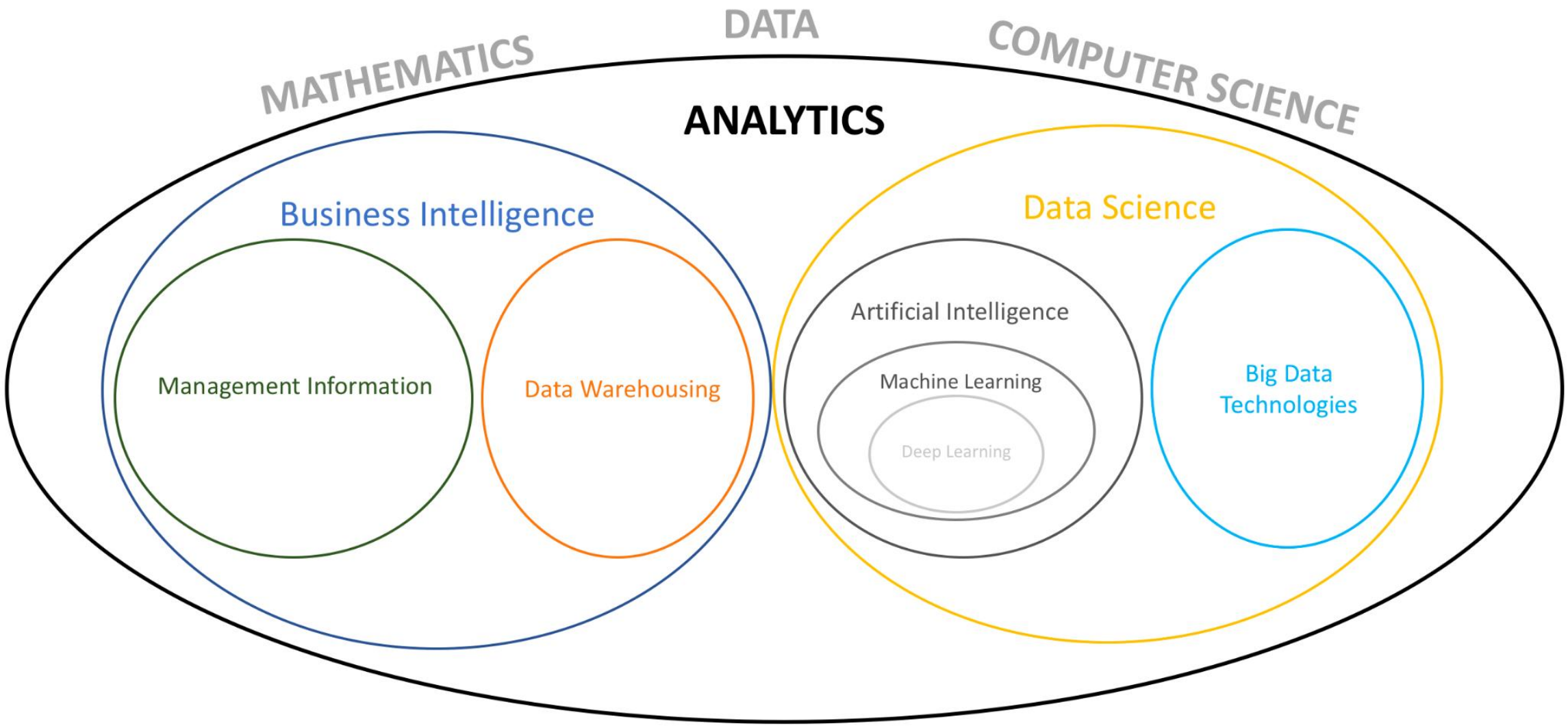
Decision Making: a definition

Decision-making is the process of selecting a course of action from among two or more possible alternatives in order to arrive to a solution for a given problem.

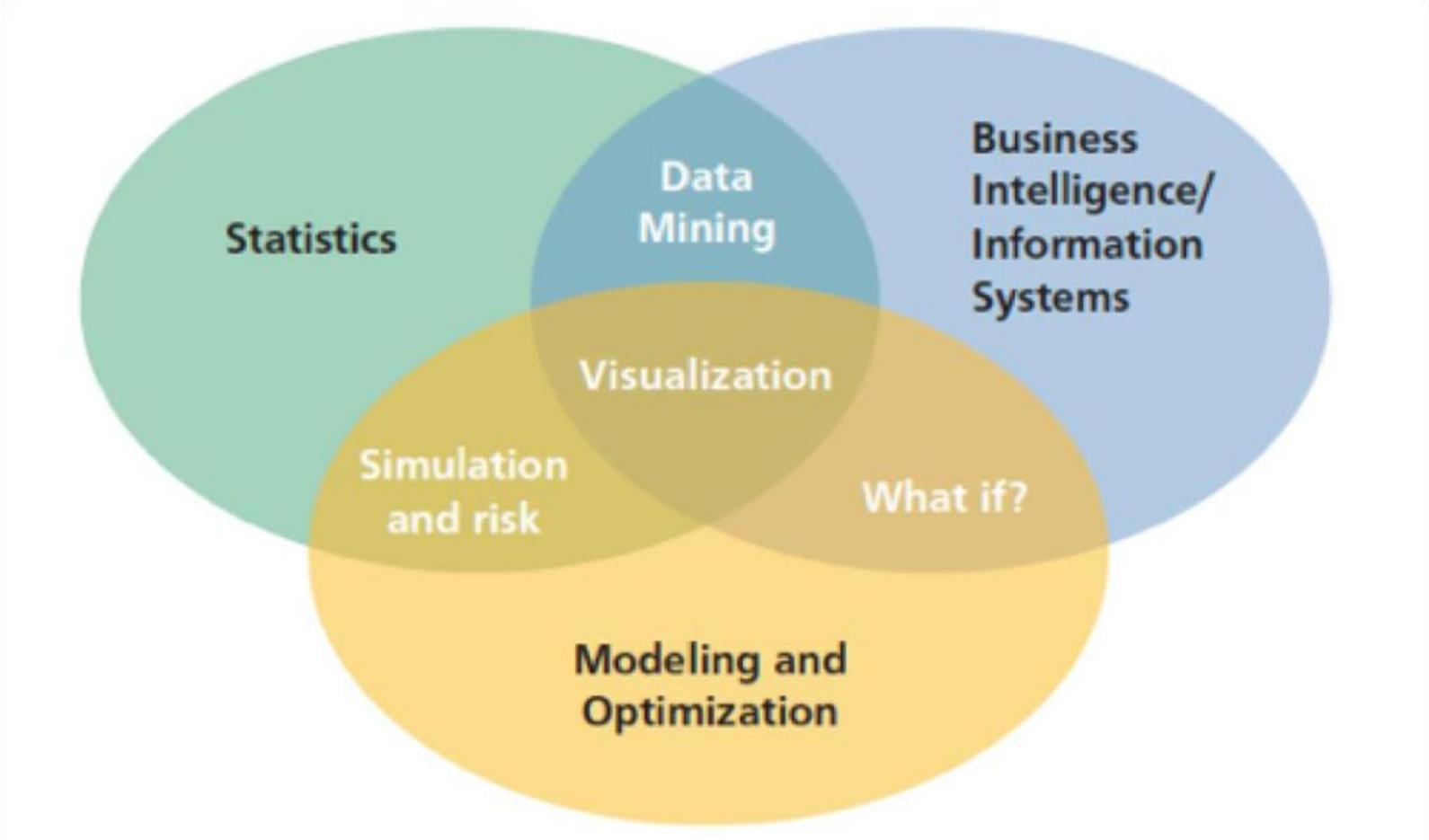
Business Analytics: a definition

Business analytics is the process of collating, sorting, processing, and studying business data.

They utilize statistics, information systems, operations research and artificial intelligence, deep learning, and neural networks to micro-segment available data and identify patterns.


MATHEMATICS
DATA
COMPUTER SCIENCE
ANALYTICS
Business Intelligence
Management Information
Data Warehousing
Data Science
Artificial Intelligence
Machine Learning
Deep Learning
Big Data Technologies

A Visual Perspective of Business Analytics



Examples of Applications

- **Pricing**
  - setting prices for consumer and industrial goods, government contracts, and maintenance contracts
- **Customer segmentation**
  - identifying and targeting key customer groups in retail, insurance, and credit card industries
- **Merchandising**
  - determining brands to buy, quantities, and allocations
- **Location**
  - finding the best location for bank branches and ATMs, or where to service industrial equipment
- **Social Media**
  - understand trends and customer perceptions; assist marketing managers and product designers

Scope of Business Analytics

- **Descriptive analytics**: the use of data to understand past and current business performance and make informed decisions

- **Predictive analytics**: predict the future by examining historical data, detecting patterns or relationships in these data, and then extrapolating these relationships forward in time.

- **Prescriptive analytics**: identify the best alternatives to minimize or maximize some objective

5 Type of Analytics

1. Descriptive: What is happening?

- Correct Data
- Effective Exploratory data analysis

2. Diagnostic: Why is it happening?

- Finding the causes
- Separating all the patterns

3. Predictive: What is likely to happen?

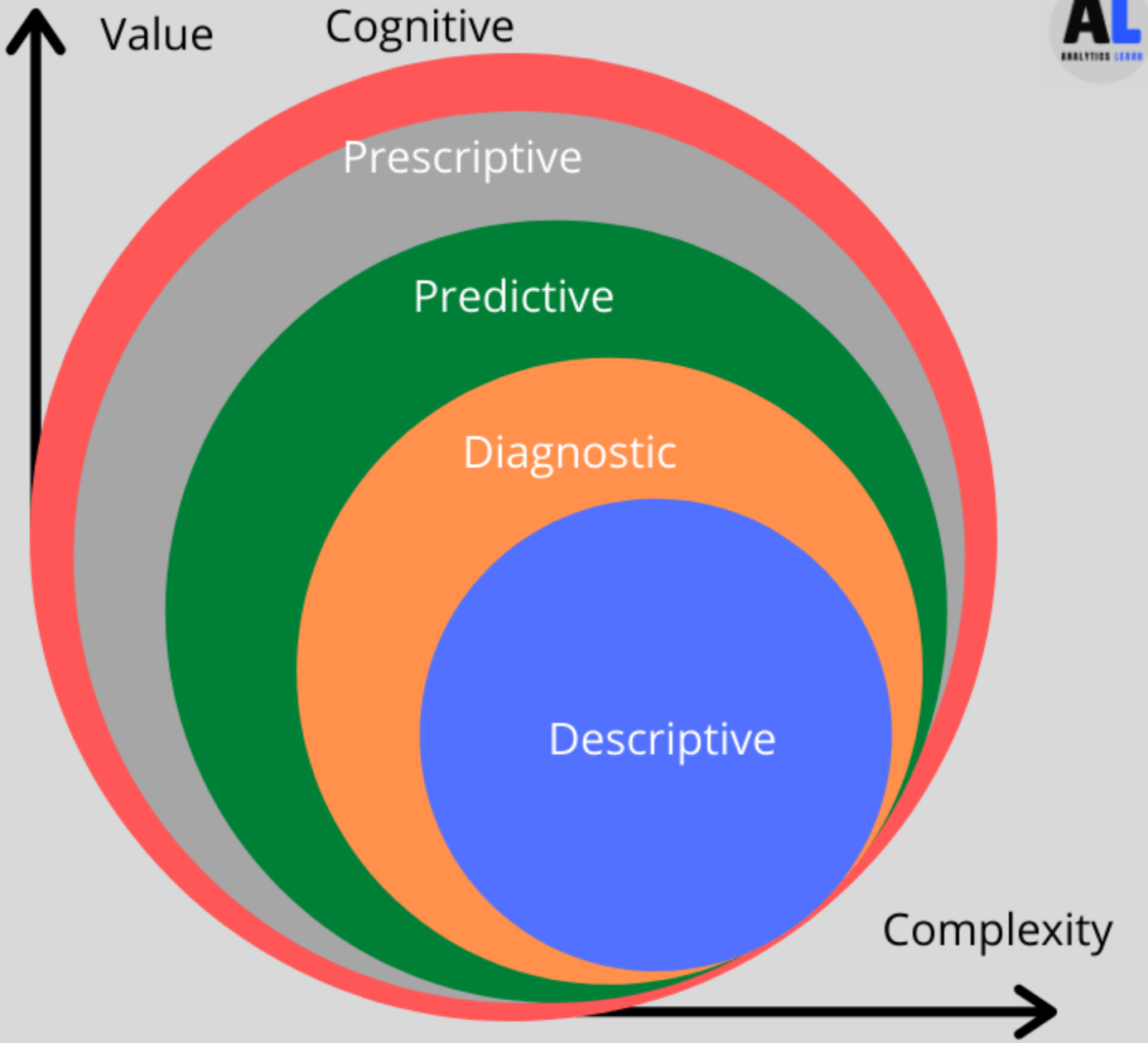
- Choosing the right algorithm
- Bulding the right business strategies

4. Prescriptive: What do I need to do?

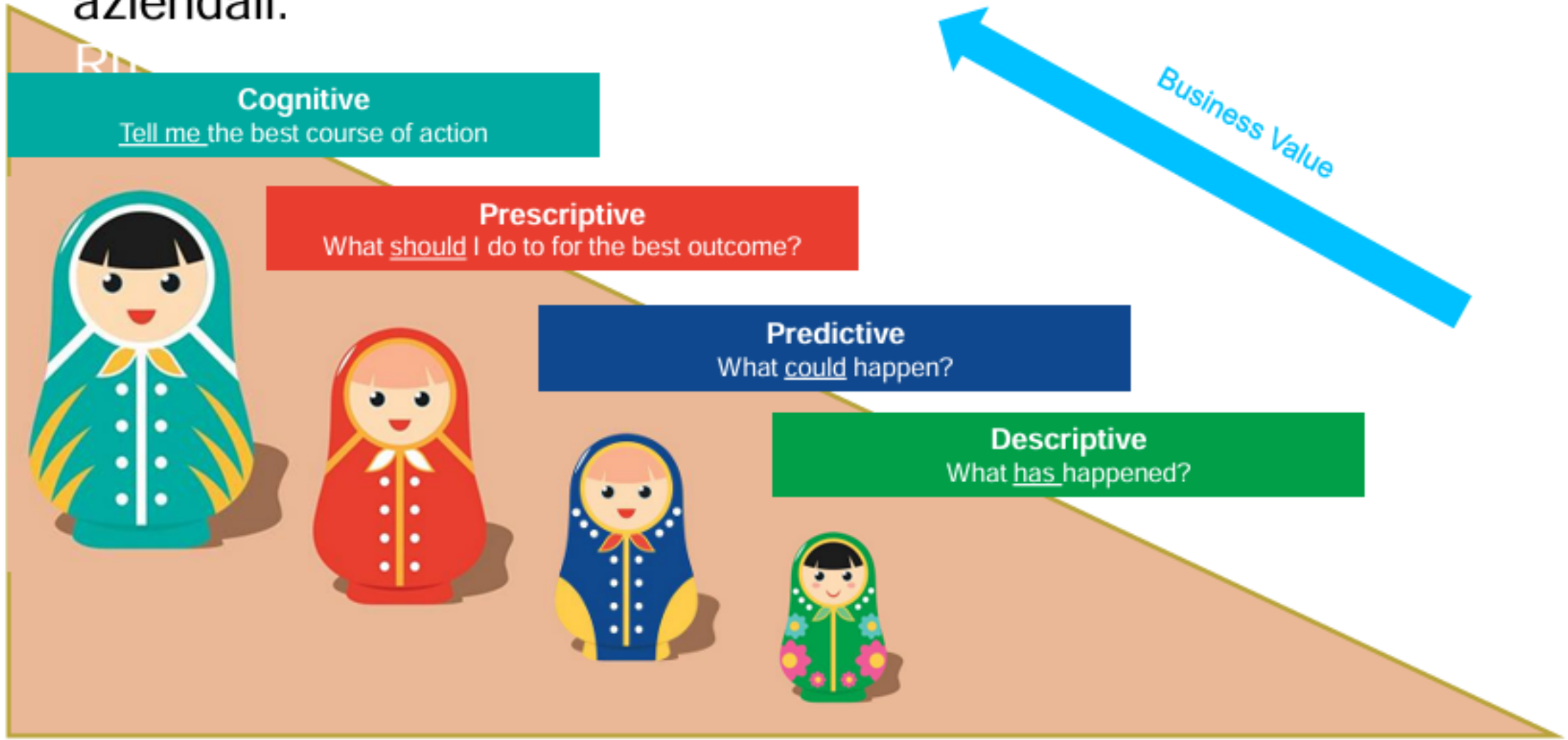
- Using the advance analytics
- Recommended actions

5. Cognitive Analytics

- Neurological and Behavioral analysis



DATA ECONOMY: capacità delle imprese di sfruttare i *Big Data* e gli *Analytics* per supportare le decisioni strategiche aziendali.



Tools

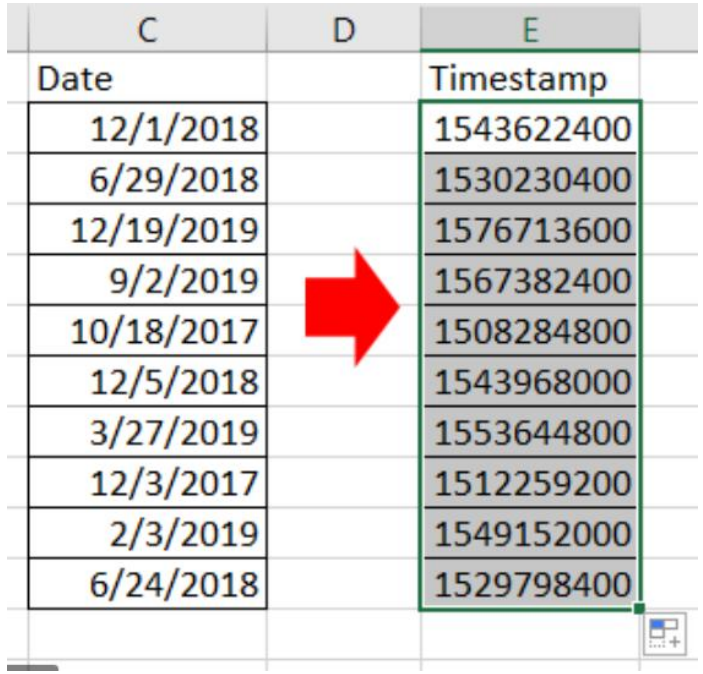
- Database queries and analysis
- Spreadsheets
- Data visualization
- Dashboards to report key performance measures
- Data and Statistical methods
- Data Mining basics (predictive models)

- Simulation
- Forecasting
- Scenario and “what-if” analyses
- Optimization
- Text Mining
- Social media, web, and text analytics

Data for Business Analytics

- **Data**: numerical or textual facts and figures that are collected through some type of measurement process.

- **Information**: result of analyzing data; that is, extracting **meaning** from data to support evaluation and decision making.



C	D	E
Date		Timestamp
12/1/2018		1543622400
6/29/2018		1530230400
12/19/2019		1576713600
9/2/2019		1567382400
10/18/2017		1508284800
12/5/2018		1543968000
3/27/2019		1553644800
12/3/2017		1512259200
2/3/2019		1549152000
6/24/2018		1529798400

Big Data

- **Big data** to refer to massive amounts of business data from a wide variety of sources, much of which is available in real time, and much of which is uncertain or unpredictable. IBM calls these characteristics **volume**, **variety**, **velocity,** and **veracity**.

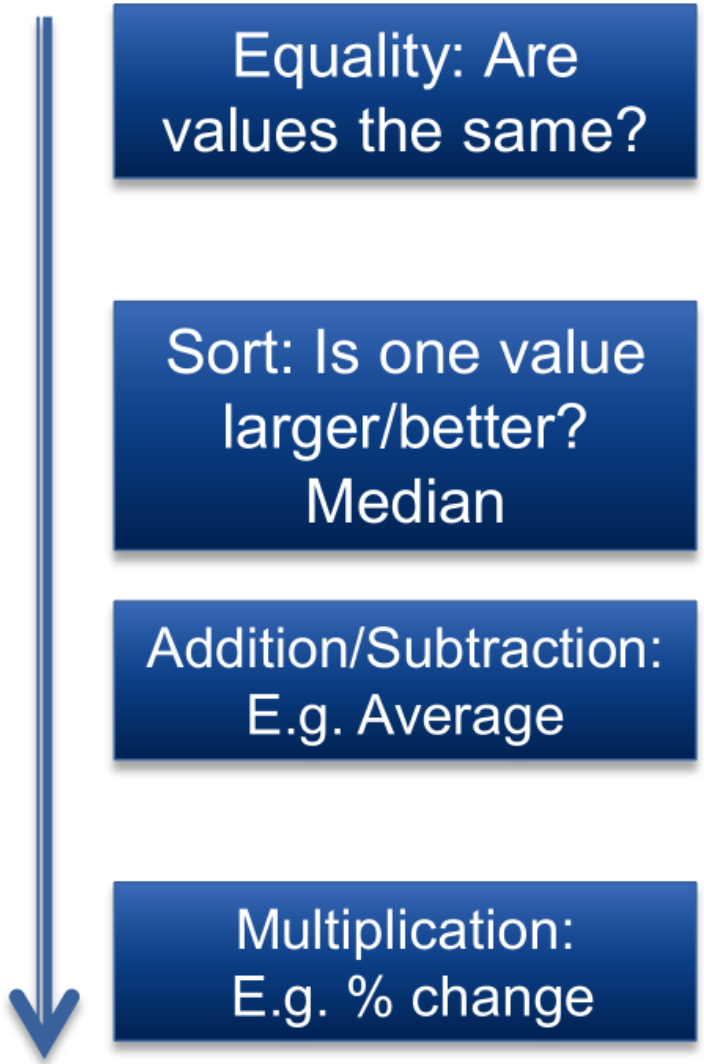
"*The effective use of big data has the potential to transform economies, delivering a new wave of productivity growth and consumer surplus. Using big data will become a key basis of competition for existing companies, and will create new competitors who are able to attract employees that have the critical skills for a big data world.*" - McKinsey Global Institute, 2011

Types of Data

- **Discrete** - derived from **counting** something.
  - For example, a delivery is either on time or not; an order is complete or incomplete; or an invoice can have one, two, three, or any number of errors. Some discrete metrics would be the proportion of on-time deliveries; the number of incomplete orders each day, and the number of errors per invoice.
- **Continuous** based on a **continuous scale of measurement.**
  - Any metrics involving dollars, length, time, volume, or weight, for example, are continuous.

Measurement Scales

- **Categorical (nominal) data** - sorted into categories according to specified characteristics.
- **Ordinal data** - can be ordered or ranked according to some relationship to one another.
- **Interval data** - ordinal but have constant differences between observations and have arbitrary zero points.
- **Ratio data** - continuous and have a natural zero.



Example 1.3: Classifying Data Elements

	A	B	C	D	E	F	G	H	I	J
1	**Purchase Orders**									
2										
3	**Supplier**	**Order No.**	**Item No.**	**Item Description**	**Item Cost**	**Quantity**	**Cost per order**	**A/P Terms (Months)**	**Order Date**	**Arrival Date**
4	Hulkey Fasteners	Aug11001	1122	Airframe fasteners	$ 4.25	19,500	$ 82,875.00	30	08/05/11	08/13/11
5	Alum Sheeting	Aug11002	1243	Airframe fasteners	$ 4.25	10,000	$ 42,500.00	30	08/08/11	08/14/11
6	Fast-Tie Aerospace	Aug11003	5462	Shielded Cable/ft.	$ 1.05	23,000	$ 24,150.00	30	08/10/11	08/15/11
7	Fast-Tie Aerospace	Aug11004	5462	Shielded Cable/ft.	$ 1.05	21,500	$ 22,575.00	30	08/15/11	08/22/11
8	Steelpin Inc.	Aug11005	5319	Shielded Cable/ft.	$ 1.10	17,500	$ 19,250.00	30	08/20/11	08/31/11
9	Fast-Tie Aerospace	Aug11006	5462	Shielded Cable/ft.	$ 1.05	22,500	$ 23,625.00	30	08/20/11	08/26/11
10	Steelpin Inc.	Aug11007	4312	Bolt-nut package	$ 3.75	4,250	$ 15,937.50	30	08/25/11	09/01/11
11	Durrable Products	Aug11008	7258	Pressure Gauge	$ 90.00	100	$ 9,000.00	45	08/25/11	08/28/11
12	Fast-Tie Aerospace	Aug11009	6321	O-Ring	$ 2.45	1,300	$ 3,185.00	30	08/25/11	09/04/11
13	Fast-Tie Aerospace	Aug11010	5462	Shielded Cable/ft.	$ 1.05	22,500	$ 23,625.00	30	08/25/11	09/02/11
14	Steelpin Inc.	Aug11011	5319	Shielded Cable/ft.	$ 1.10	18,100	$ 19,910.00	30	08/25/11	09/05/11
15	Hulkey Fasteners	Aug11012	3166	Electrical Connector	$ 1.25	5,600	$ 7,000.00	30	08/25/11	08/29/11

Categorical
Ordinal
Categorical
Categorical
Ratio
Ratio
Ratio
Ratio
Interval
Interval

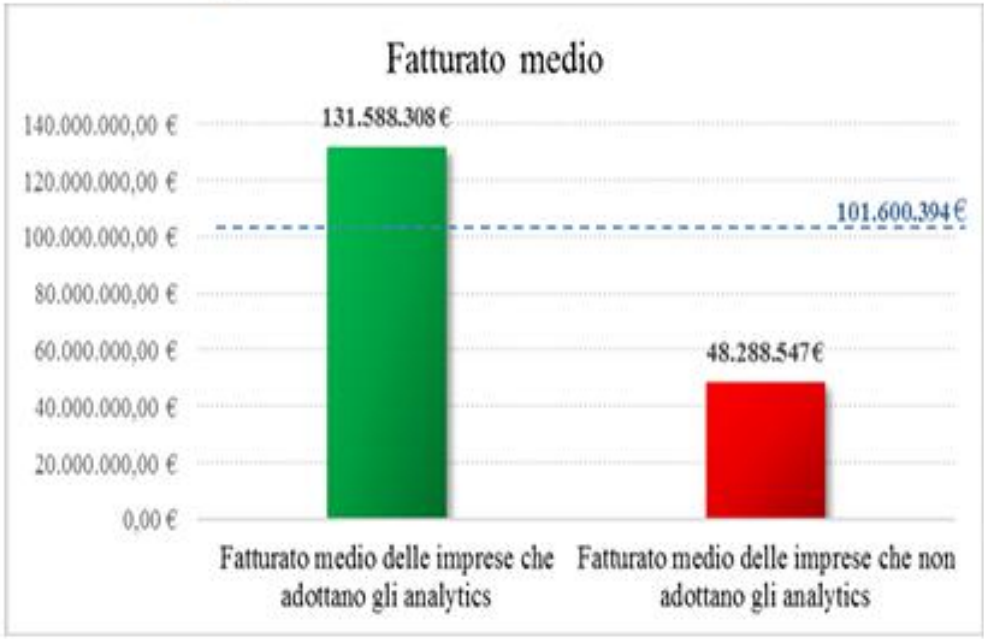
Software Support

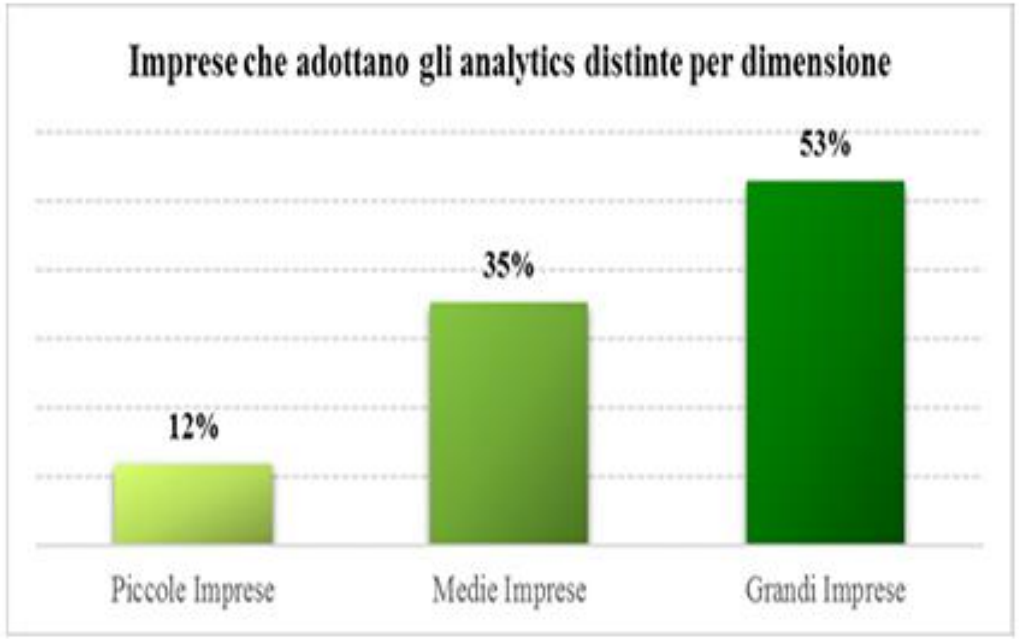


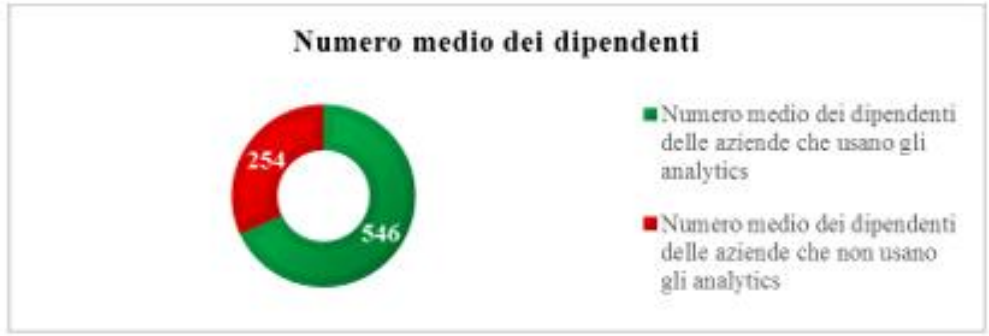


- **SQL** various databases
- **Excel** Spreadsheets
- Tableau Software Simple drag and drop tools for visualizing data from spreadsheets and other databases.
- IBM Cognos Express An integrated business intelligence and planning solution designed to meet the needs of midsize companies, provides reporting, analysis, dashboard, scorecard, planning, budgeting and forecasting capabilities.
- SAS / SPSS / **Rapid Miner** Predictive modeling and data mining, visualization, forecasting, optimization and model management, statistical analysis, text analytics, and more using visual workflows.
- R / Python Advanced programing-based data preparation, analytics and visualization.

Sono le imprese più grandi ad utilizzare di più gli «analytics»

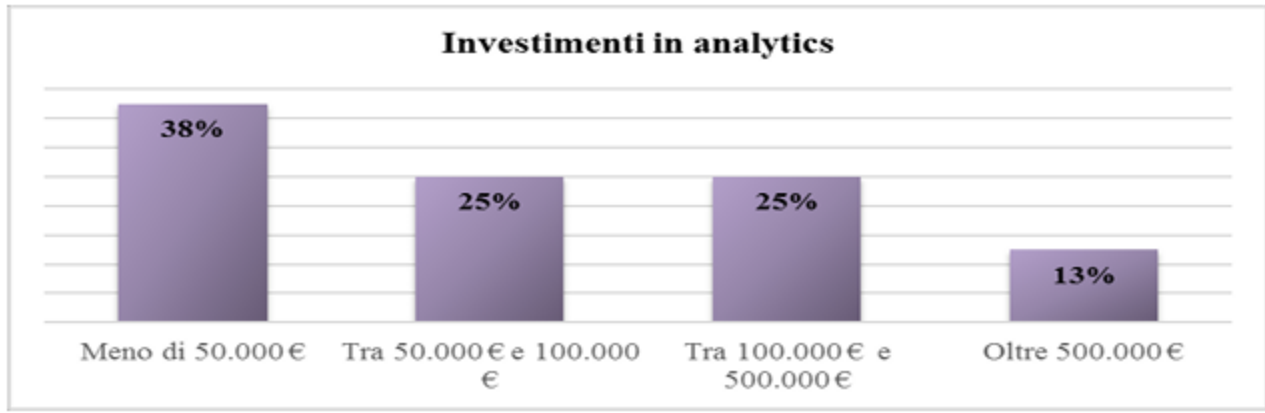


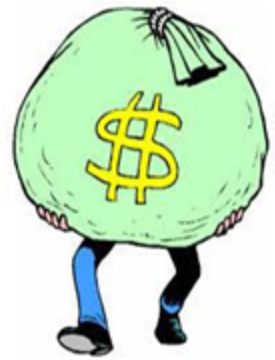




Ricerca Arciuolo 2017

Per utilizzare gli analytics non servono troppe risorse finanziarie





Siamo però ancora ad uno stadio iniziale e l'impiego prevalente è quello <u>diagnostico e descrittivo</u>

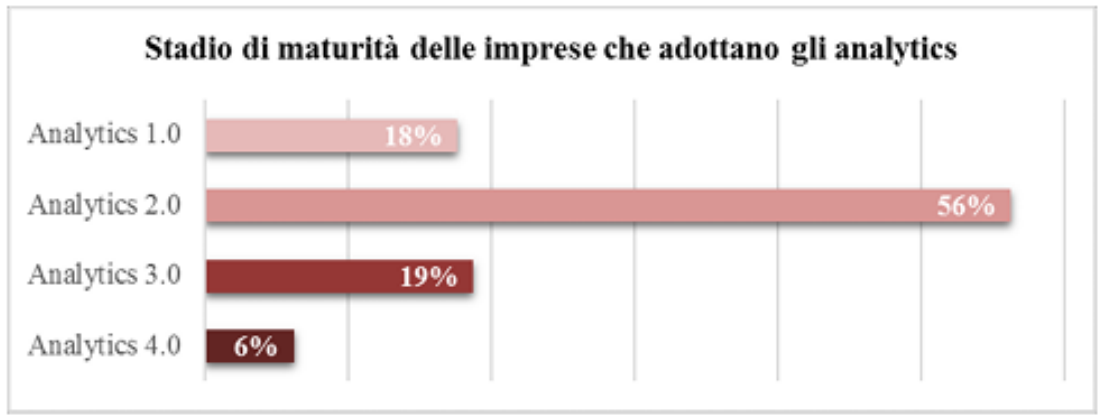
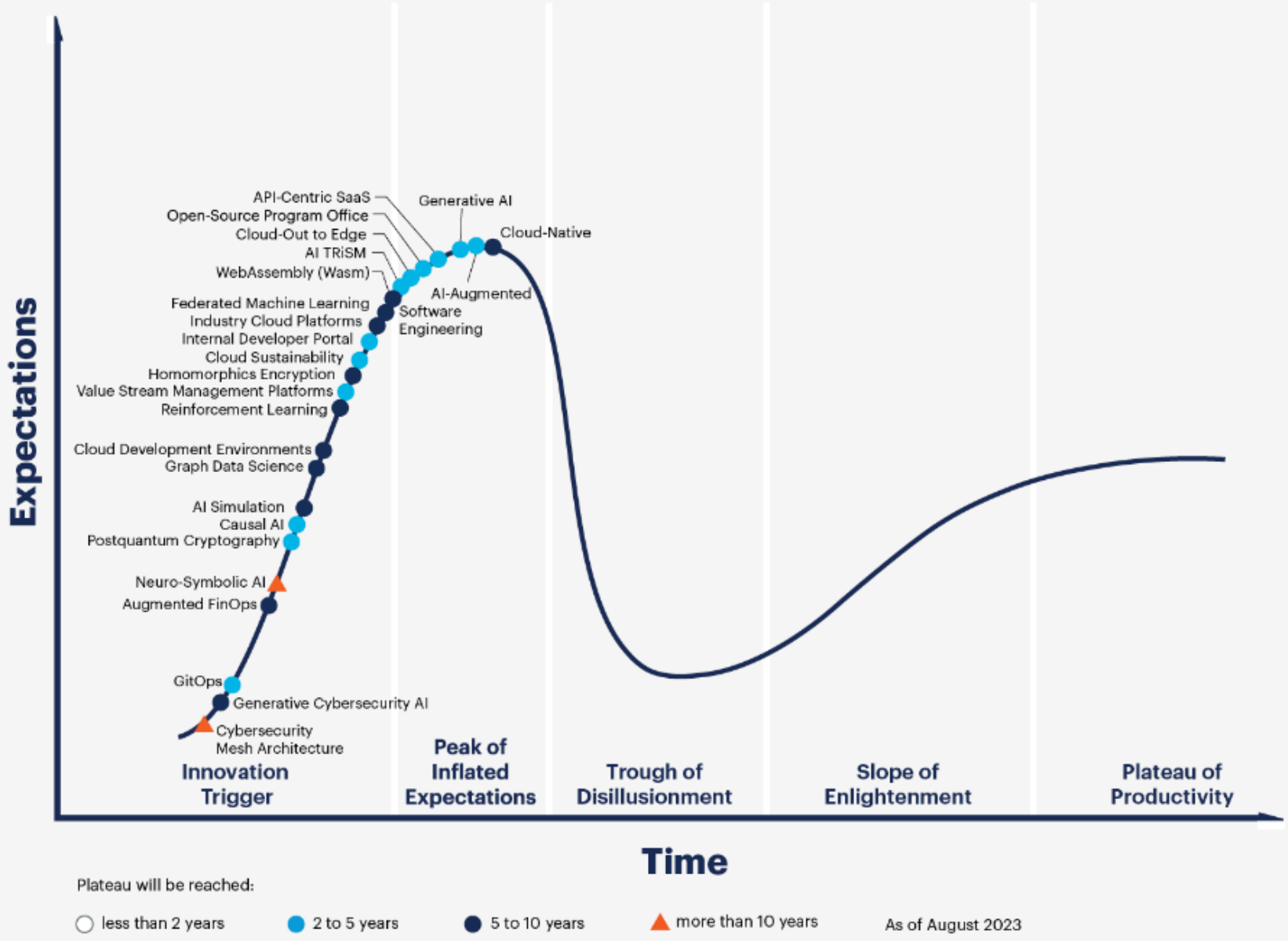


Figure 1: Magic Quadrant for Analytics and Business Intelligence Platforms

Source: Gartner March (2023)

Hype Cycle for Emerging Technologies, 2023



gartner.com

la **dashboard** consente agli utenti di analizzare i propri dati dall'alto di una visione d'insieme…


…per poi scendere fin nel più piccolo dettaglio


sempre alla velocità del business!

la BI in sintesi

+ veloce

- posto unico dove reperire informazioni
- notevole riduzione dei tempi di sviluppo
- facile connessione a tutte le fonti dati

migliore

- storicizzazione
- analisi grafiche
- analisi incrociate su più fonti
- analisi what-if

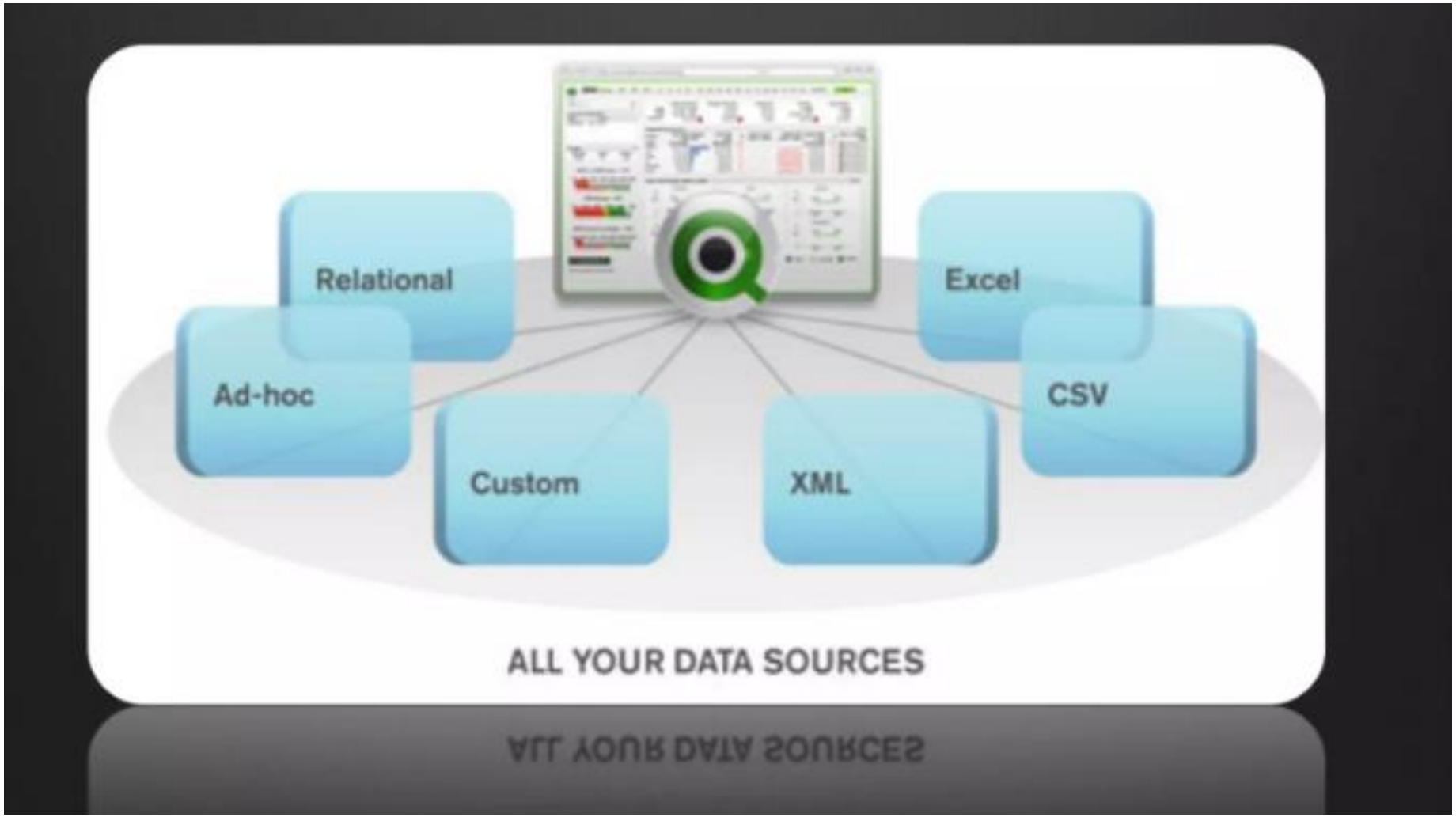
economica

- eliminazione degli step manuali per la produzione del dato
- saving di giorni/uomo


Teoria e Pratica
La teoria è quando si conosce il funzionamento di qualcosa ma quel qualcosa non funziona
La pratica è quando tutto funziona ma non si sa come
Spesso si finisce con il coniugare la teoria con la pratica:
non funziona niente e non si sa il perché


Molti dati disaggregati = ~~CAOS~~
dashboard
HR
(Personale)
GEST.
Excel
Xml, html
CRM

Ovunque si trovano i dati, la Business Analytics ci aiuta a raccoglierli, rendendoli omogenei per ogni tipo di Analisi



ogni utente “vede” solo ciò di cui ha bisogno per un’analisi **mirata** dei dati di suo interesse


What if?
How?
How much?
why?
what are the numbers?
why not
why?
Why?
why not
who hits the target?