Data, Metadata

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Basic structure for analysis

The data matrix

	Weight	Height	Sex	Eyes
John	85	1.85	M	azul
	.	.	.	.
	.	.	.	.

Point cloud (video)

Rows: Individuals (study units) (i1….in)

Columns: Variables (characteristics of individuals) (X1..Xk)

Cells: Value of variables for individuals (xik)

https://www.youtube.com/watch?v=4pnQd6jnCWk

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Type of variables

- Numerical: Quantitative, measure
  - continuous (real quantity): *Weight, Height*
  - discrete (natural quantity): *Age, shoes size*
- Categoric: Qualitative, adjective
  (evenctually codified)
  - Ordinal (ordering over modalities): *Socioecnonomic status*
  - Binary (two modalities): *wear glasses*
  - Nominal (unordered modalitites): *Hair color*
- Date: Special formats, only some softwares
- Other variables
  (no standard, rarely used in standard data mining applications)
  - Fuzzy variables
  - Compositional variables
  - Symbolic variables
  - Distributional variables
  - Interval variables/Ratio variables (means, standard dev, dotplots)
  - Textual data

Categorization
Discretization

Mean/StDev
Histograms

RECategorization

Percentages
Tables
BarPlots

Loss information

Better avoid

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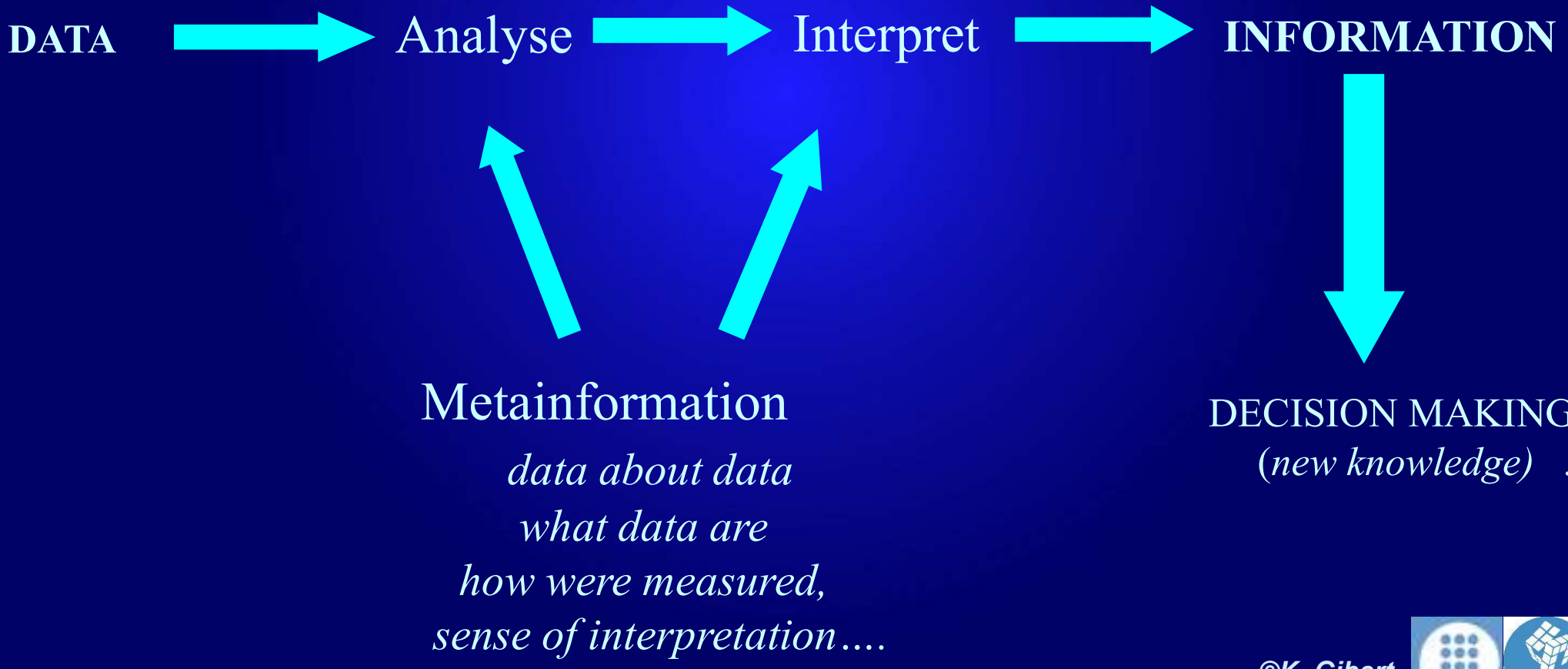
From Data to Decisional Knowledge

DATA <> **INFORMATION**



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Metadata File

url: *www.xxx.ssss.www*

Inclusion criteria: *People in [18,65] years, no hard attacks, no smoking, no cholesterol, married, with sons or daughters….*

n*: nro of rows*

K*: nro of columns*

Variable	Modalities	meaning	Type	Measuring unit	Missing code	Measuring procedure	Range	Role
Age		Age of marriage	Num	years	"*"		[1,105]	Explanatory
Sex		Gender	Quali		Unknown			Explanatory
	M	Male						
	H	Female						
FeC		Level of Iron in blood	Num	μg/dl	NA	Biochemical analysis on blood sample measuring transferrine ……	[30, 200]	Explanatoyr
Anemy		The person has anemy diagnosis	Boolean		Unknown	Levels of Fec<xxx and …….		Response

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First insight to Data

- Look at Metadata
- Determine rows and columns to be kept for the analysis
- Basic descriptive analysis of remanining variables
  - Inspect anomalies, errors, missing data, outliers
- First report about data quality
- Preprocessing
- Verify after each processing step
- Final descriptive analysis *(report data improvements)*

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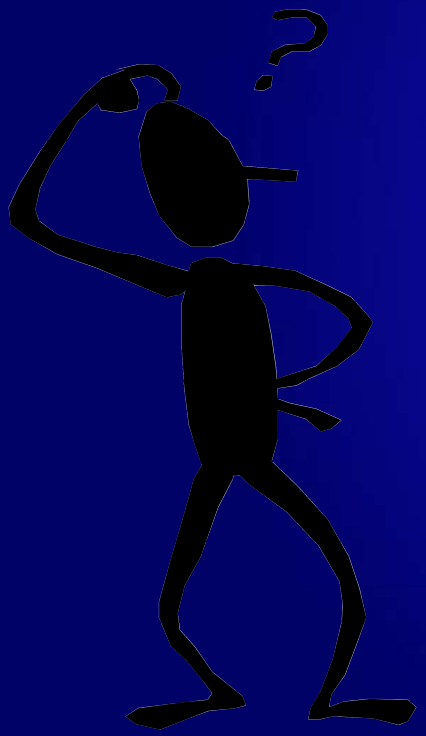

Are there any questions?...

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