# BeData

## DATA IN 10 PROFESSIONS

syntec Conseil

# INTRODUCTION

**There are more and more data professions.**

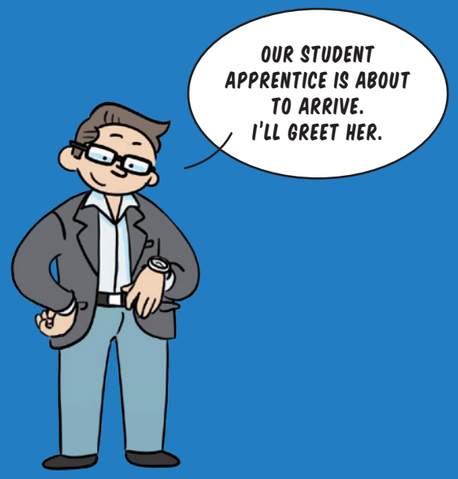
Given that the amount of data collected by companies has increased considerably over the past 20 years, data professions are more numerous, varied, but also promising. To understand this constantly changing world, let's explore **10 key professions in a «DATA CENTRIC» organisation.** This comic was designed as part of the classification, and clarification work of data professions by the Data commission of Syntec Conseil. Its aim is to serve as **benchmarks**.

A video and a glossary complement this comic. These medium make it possible to materialise **the data value chain:** like an industrial chain, it is evident that at each step of data processing a different profession intervenes. It is important to specify that depending on the size of the company, its geographical footprint (France / International), its sector / industry, its organisation (rather centralised / decentralised), some employees may "combine" roles or, on the contrary, many other more specific roles exist (for example in banking, Data Marketing or even within ISDs).

**Enjoy your reading!**



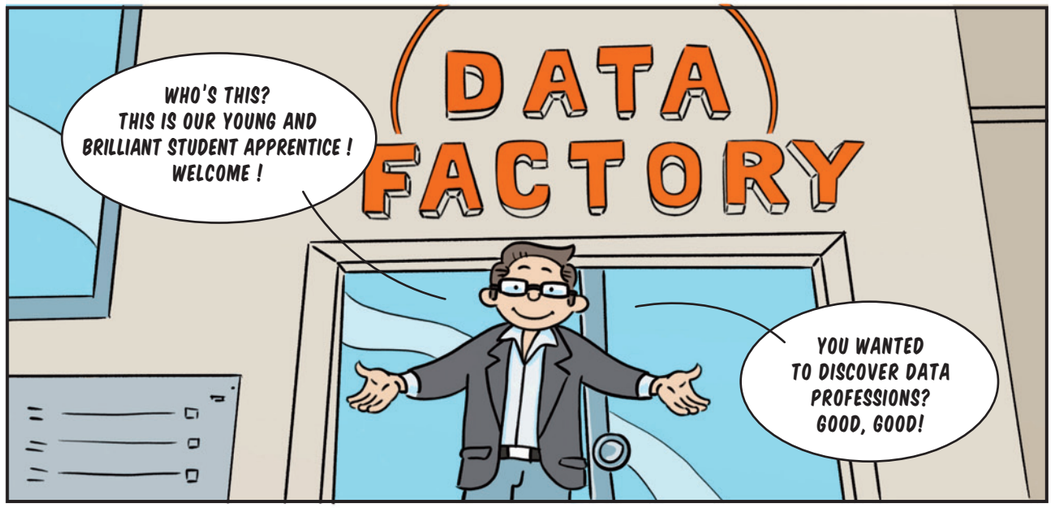


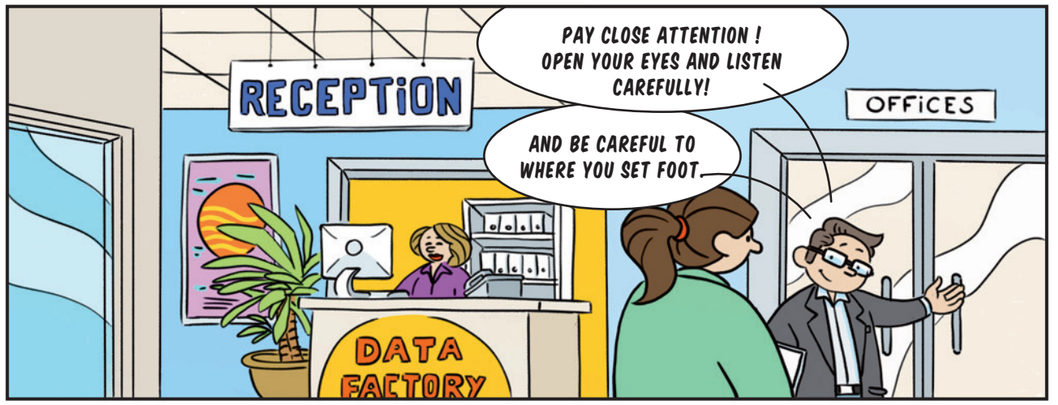


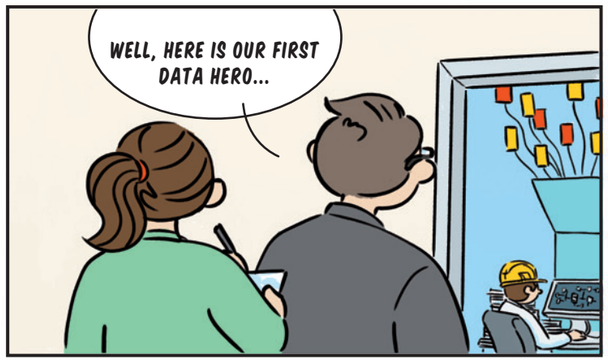

COME ON,
I'M GOING TO BE
CLEAR AND PRECISE WHILE
REMAINING COOL!
GOOD
PRESENTATION
IS PART OF THE
BASICS.



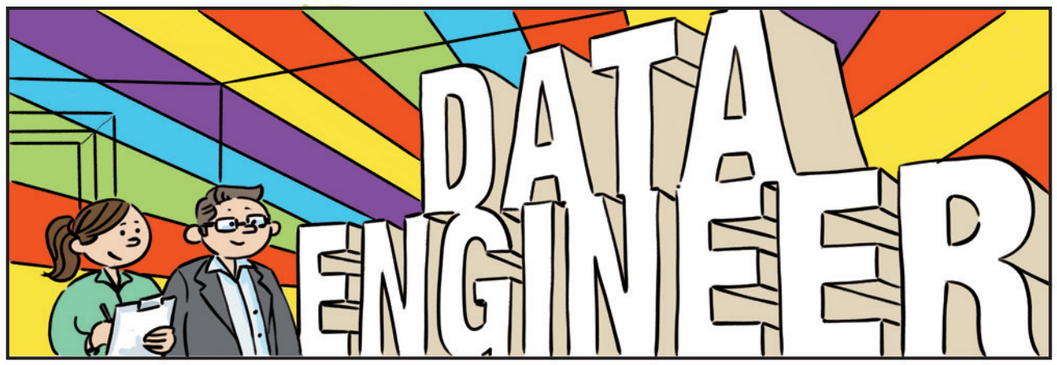

LET'S GO ! I'M GOING
TO IMPRESS HER! SHE WILL
BE SPEECHLESS AFTER MY
PRESENTATION!

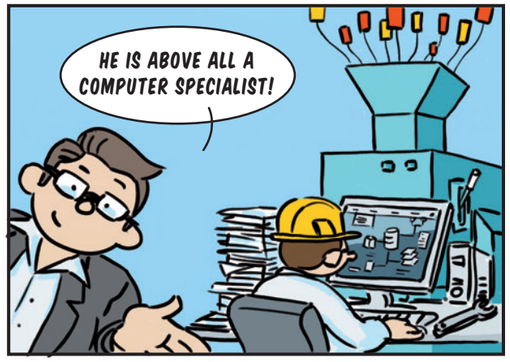

WHO'S THIS?
THIS IS OUR YOUNG AND
BRILLIANT STUDENT APPRENTICE !
WELCOME !
DATA
FACTORY
YOU WANTED
TO DISCOVER DATA
PROFESSIONS?
GOOD, GOOD!

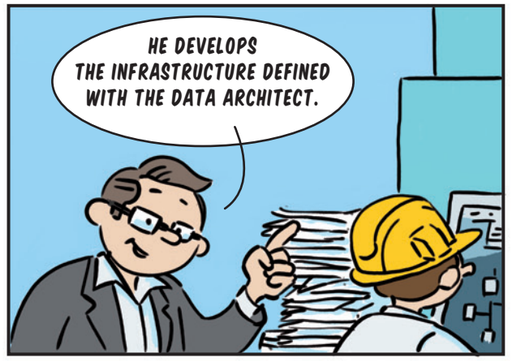

PAY CLOSE ATTENTION !
OPEN YOUR EYES AND LISTEN
CAREFULLY!
RECEPTION
OFFICES
AND BE CAREFUL TO
WHERE YOU SET FOOT.
DATA
FACTORY

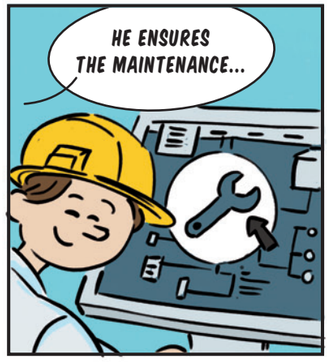






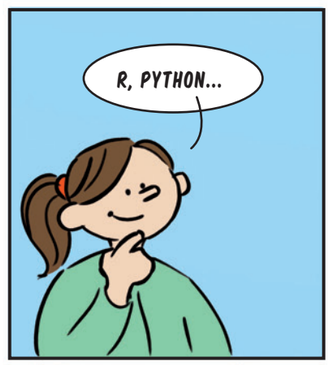





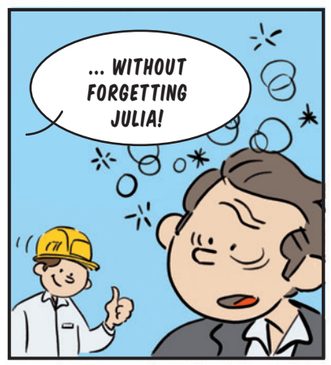




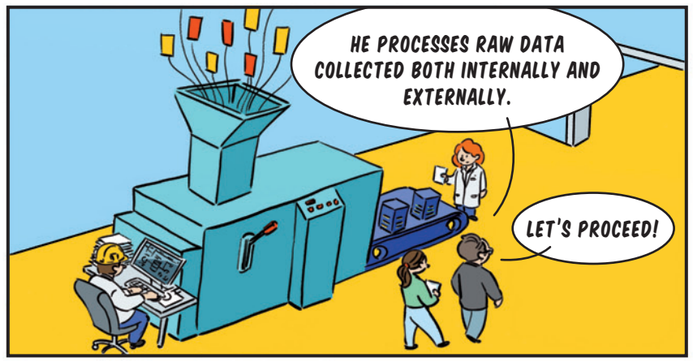


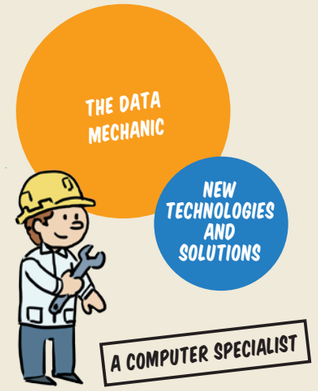











**The Data Engineer** develops the infrastructure defined by / with the Data Architect. He builds robust technical solutions (via robustness tests) and reliable. He ensures their maintenance and upgrades in accordance with safety constraints. He integrates data of various kinds that come from these multiple sources, supervises them and checks the quality of the data. In production, he ensures the follow-up and monitoring of data flows / interfaces. He also ensures that his work is sufficiently documented (programs, interfaces, inputs / outputs, formats, etc.).

## LEVELS & TYPES OF TRAINING

The Data Engineer is above all a computer specialist.
He must master a certain number of languages, technologies and methods: Python, SQL, ETL and its "modern" versions NoSQL (Hive, Impala, Spark SQL) and Hadoop for the Big Data part, the Cloud, DevOps and CRISP methods.

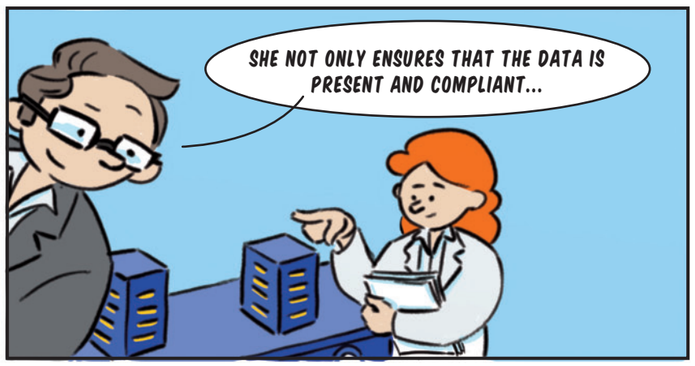
- A level +5 years of study compulsory
- Specialised engineering school

## TRAINING

- Pro Expert Masters in Computer Science, Business Intelligence and Big Data option (Lyon)
- School 42, Jedha Bootcamp...
- Specialised Master in Big Data (Télécom ParisTech, EM Grenoble, Essec, etc.)
- Master in Computer Science, specialising in Computer Science and Business Intelligence Exploration
- Google Cloud Certified Certification - Professional Data Engineer

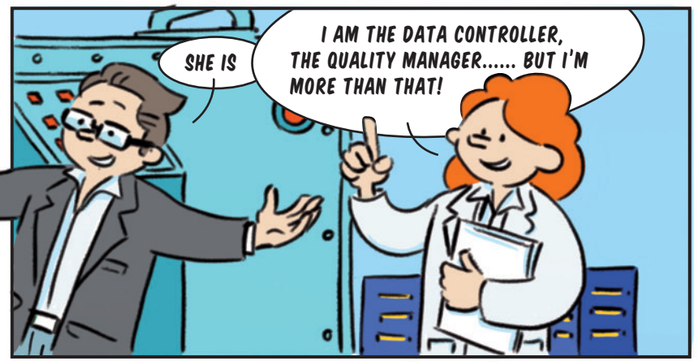


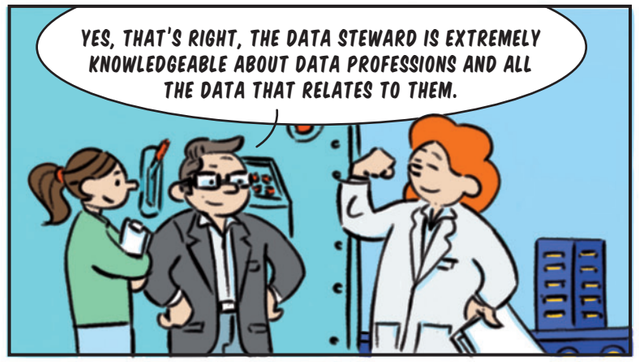




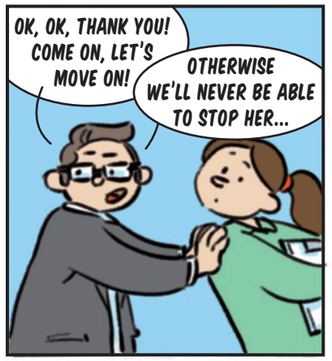




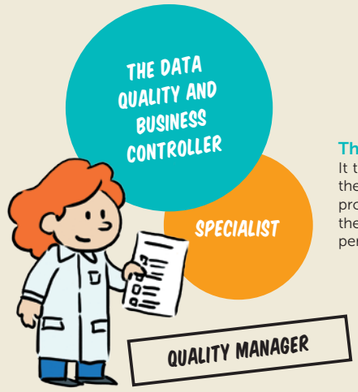


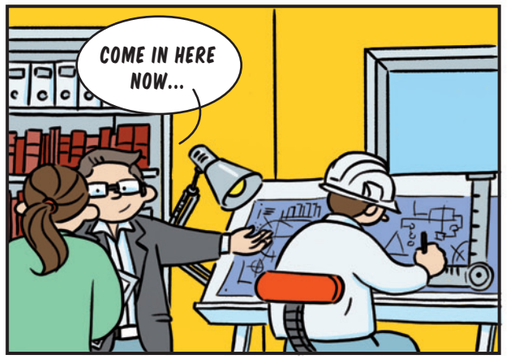


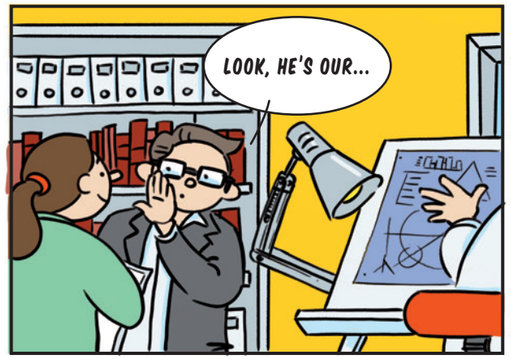



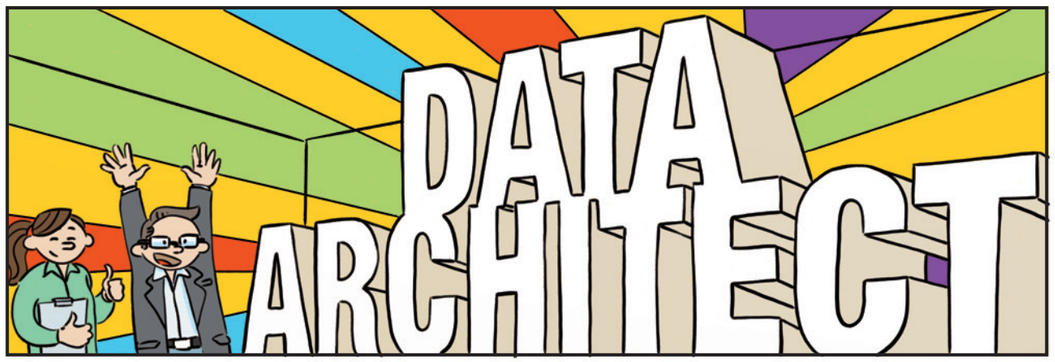


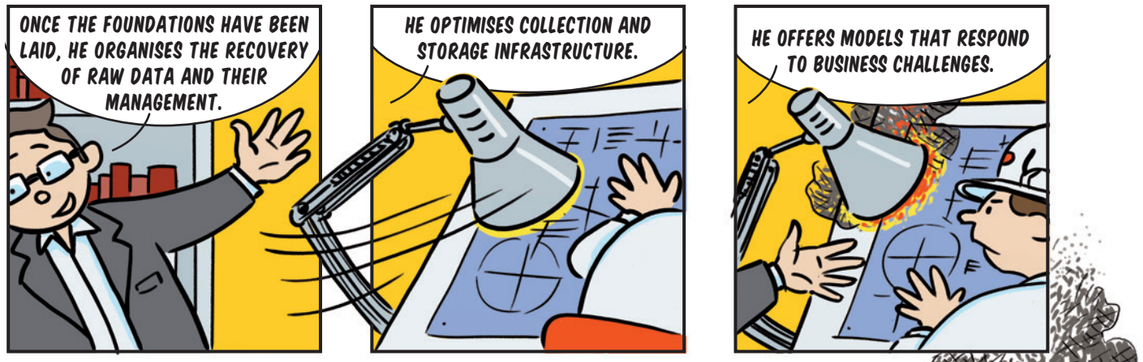



**The role of the Data Steward** is to ensure that the data is relevant, present, compliant, consistent, understood. It translates the business rules relating to the quality of data into requests (allowing their regular verification), he defines the quality indicators and the corresponding tolerance thresholds. The Data Steward is the referent in a data governance project. He plays a key role in its realisation, in particular because he acquires the knowledge of the business of data and their metadata. The Data Steward is a senior person with some authority in the organisation who has agreed to be the person responsible for the quality of a defined dataset, for example, the CFO for financial data.

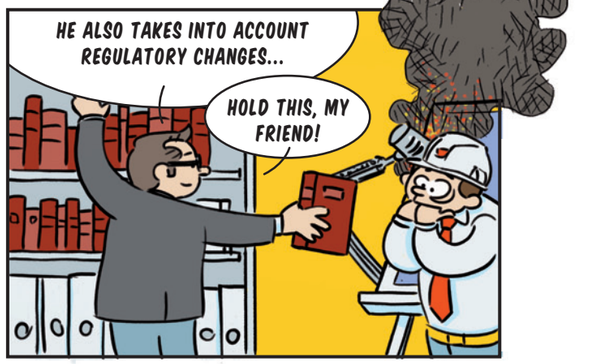


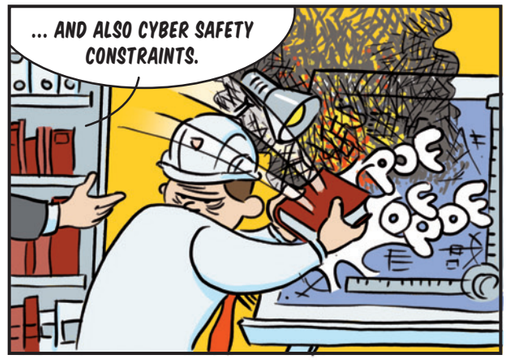



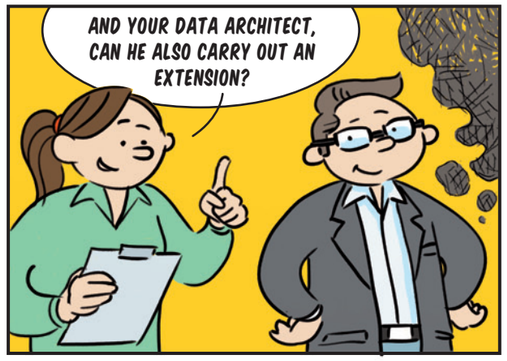



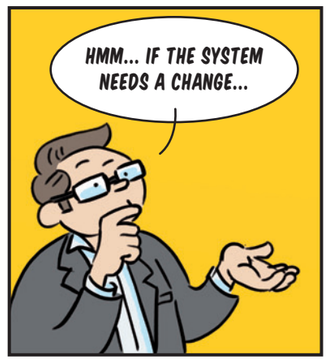


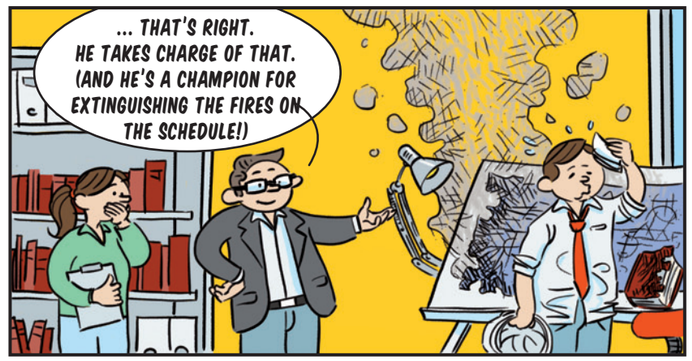




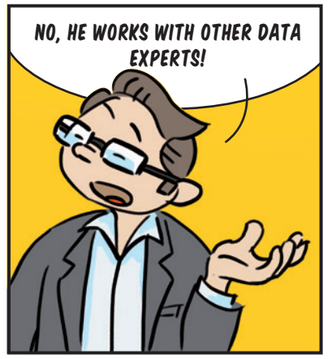









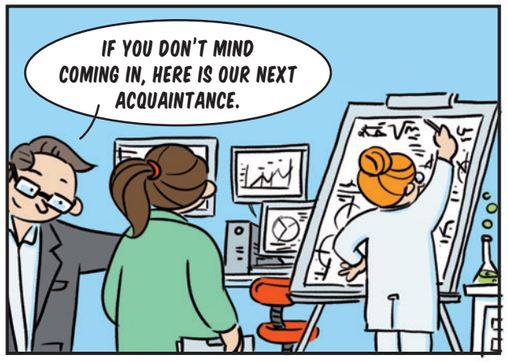

**Le Data Architect** intervenes upstream of the data processing to organise the recovery and management of raw data, more or less structured, in more or less large quantity and coming from various sources (internal, external). After the data inventory, he defines and optimises the collection, storage, handling infrastructure and the associated flows. He proposes modelling changes to meet the challenges of the business lines and facilitate the cross-referencing of downstream data.

He may have to work on the data dictionary, the design of the CDM (Conceptual Data Model) or the inventory of the frame of reference in place. The role is more and more fundamental in a context of cloud architecture, open, real time and cyber safety and regulatory constraints.

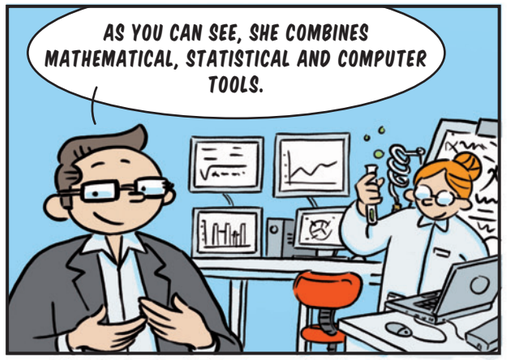
## LEVELS & TYPES OF TRAINING

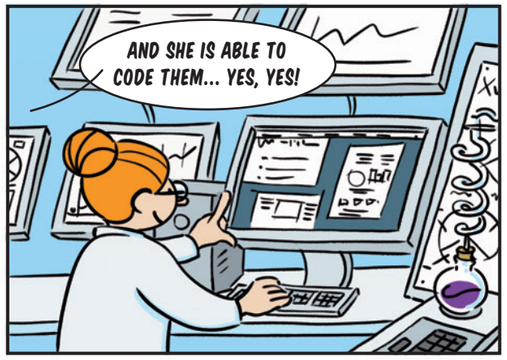
- A Level + 5 years of study in IT, Management, Statistics
- Big Data training
- Specialised engineering school
- Mastery of Business Intelligence and necessary experience in this field (a double course in business strategy is a plus)

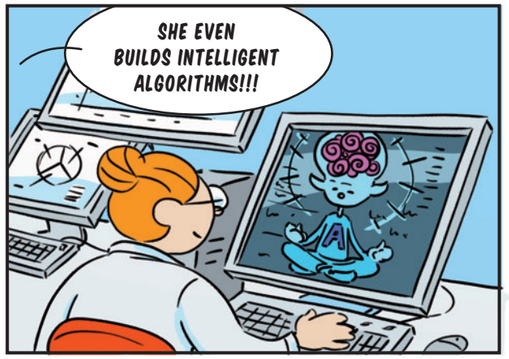
OpenClassRomms offers a work-study Data Architect training programme, and has partnered with Centrale Supélec to create an online Data Architect training course.

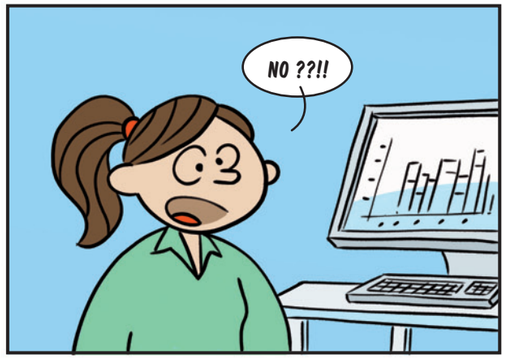




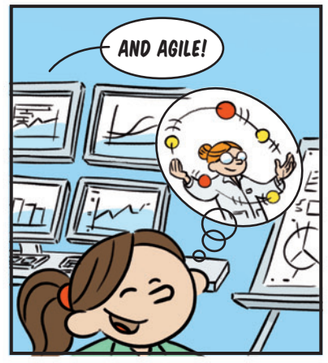



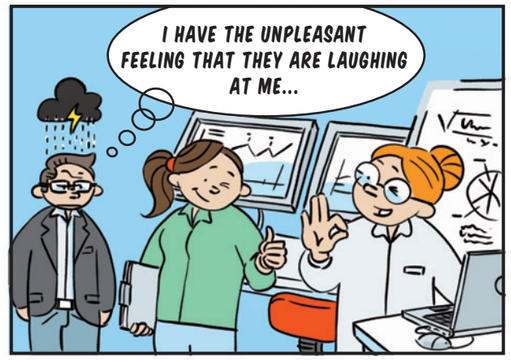



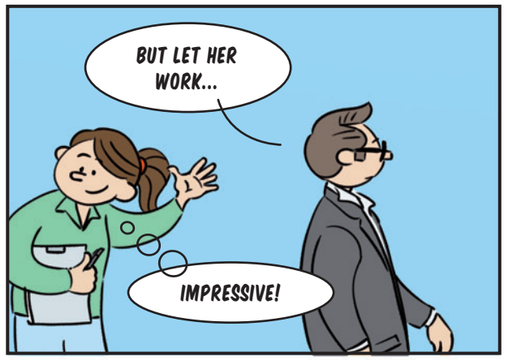








**The Data Scientist** processes, analyses and enhances the data of a company in order to define the best development strategy: marketing and sales strategy, improvement of performance and profitability, forecasting... With knowledge of mathematical / statistical and IT tools, he is able to code them (R, Python), to produce methods (automated, as much as possible) for sorting and analysing mass data and more or less complex or disjointed sources, and to build «intelligent» algorithms, in order to extract useful information.

The missions of the Data Scientist are different (very often in connection with the Data Engineer and the Data Architect):

- Explore new sources of data to broaden the ability to identify business and operational efficiency issues more precisely and quickly
- Take advantage of cutting-edge technologies to obtain better data analysis and design (predictive) models
- Participate in the industrialisation of these models
- Combine structured and unstructured data analysis methods and knowledge of the field of study to provide business with decision support models:
  - Transform business issues into mathematical problems
  - Apply statistical models to explain a given problem
  - Provide businesses with clear presentations of the analysis carried out on their issues, highlighting possible leads for development.

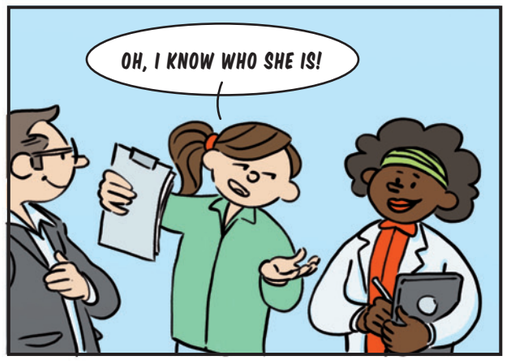
## DATA SCIENCE TRAINING

Engineering degree with Big Data / Data Science specialisation:

- IAMD - Engineer and Applications of Big Data (Télécom Nancy)
- Master 2 Mathematics and Applications: Data Science course (École Polytechnique)
- Big Data & Data Science (Mine Nancy)
- Data Science (Ensae ParisTech)
- Bachelor in Data Science (FHNW, University of Applied Sciences Northwestern Switzerland)
- Master in Data Science (EPFL, École Polytechnique Fédérale de Lausanne)

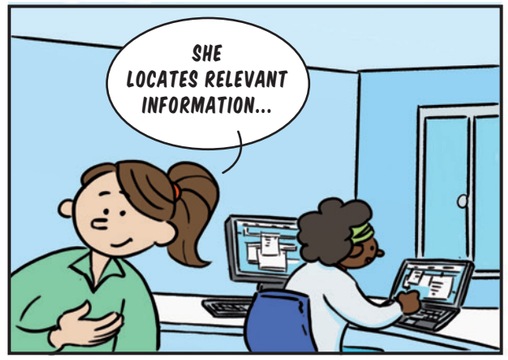
## LEVELS & TYPES OF TRAINING

- A Level +5 years of study in Computer Science and Advanced Mathematics, Econometrics
- Specialised engineering school

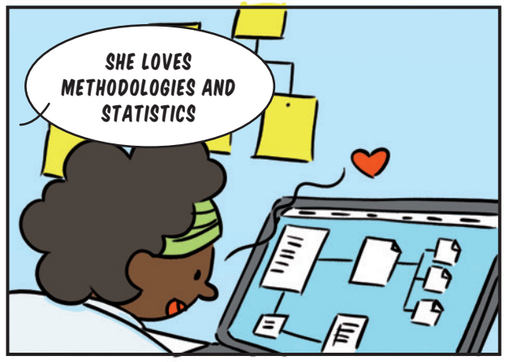


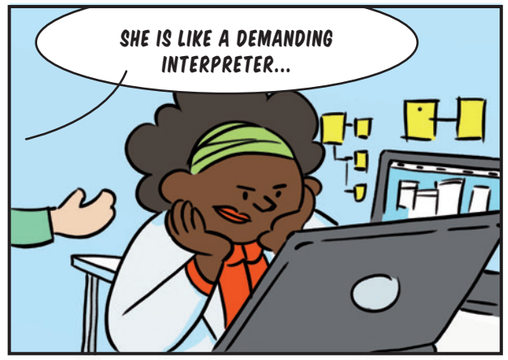


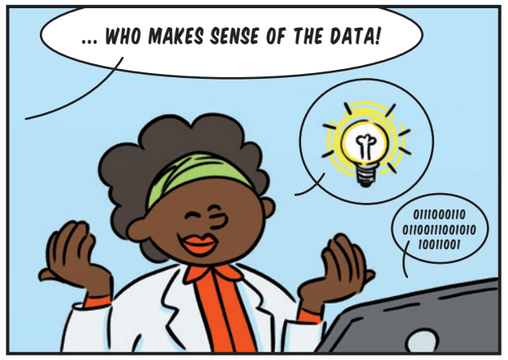



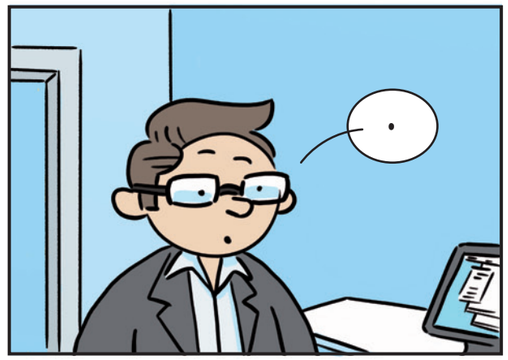


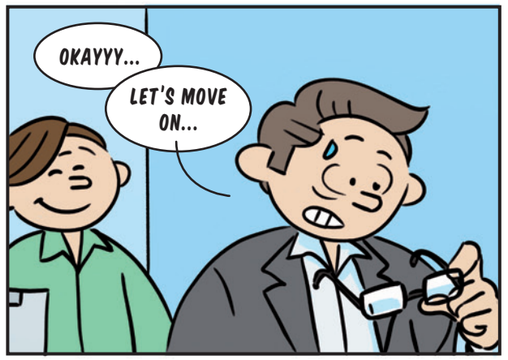


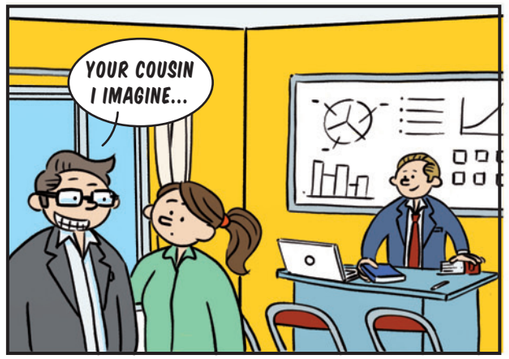




**The Chief Analytics Officer** exploit IT and technical tools and uses statistical methods (including Data Science) to help organise, synthesise and translate data efficiently. He identifies, among all the information available to the company, which is the most important / relevant to extract for optimal decision-making, based on an objective methodology based on statistics. Where appropriate, he ensures that the information collected internally or externally is reliable, consistent and ready for analysis. He can also pilot the industrialisation of the process for the most interesting data. He organises, synthesises and translates information to facilitate decision-making.

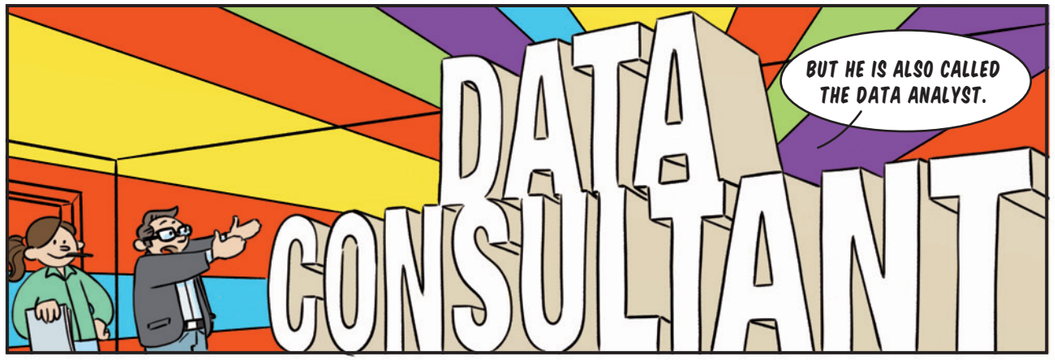
## TRAINING LEVELS

- A Level +5 years of study in Computer Science, Statistics
- Studies in Data Science or Econometrics
- 10 years of experience at least

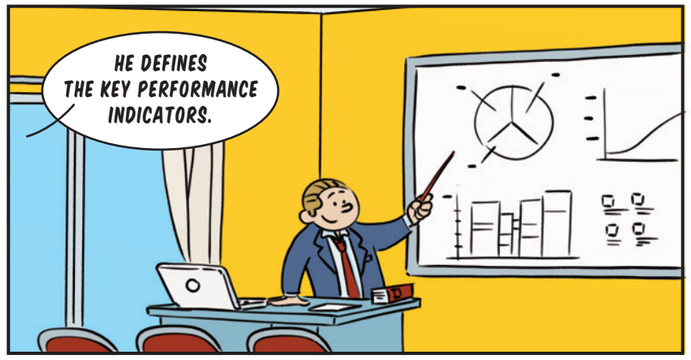





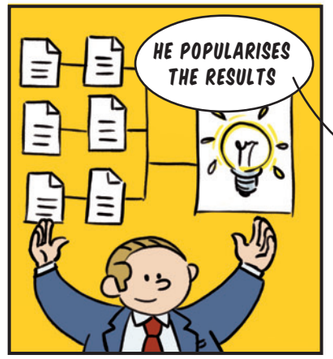


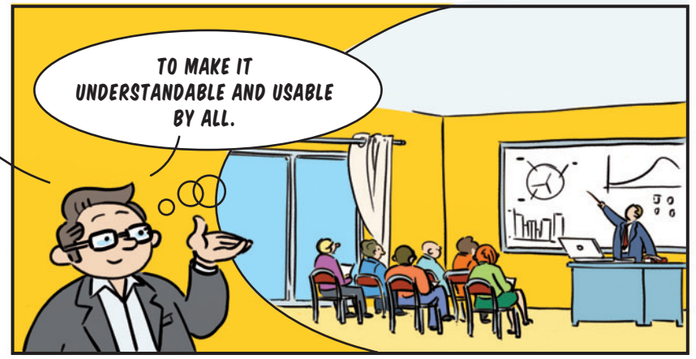


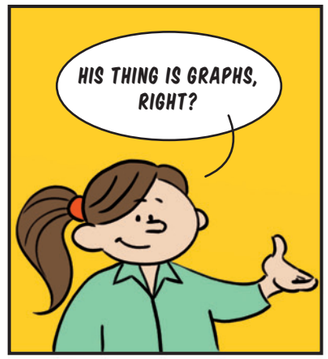


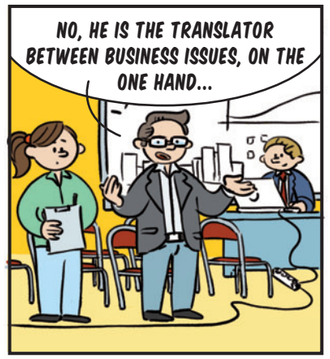


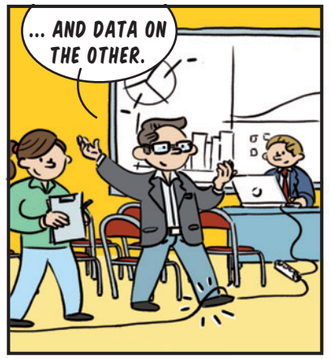


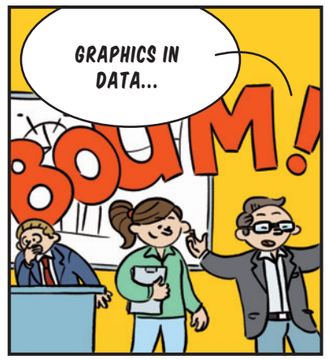



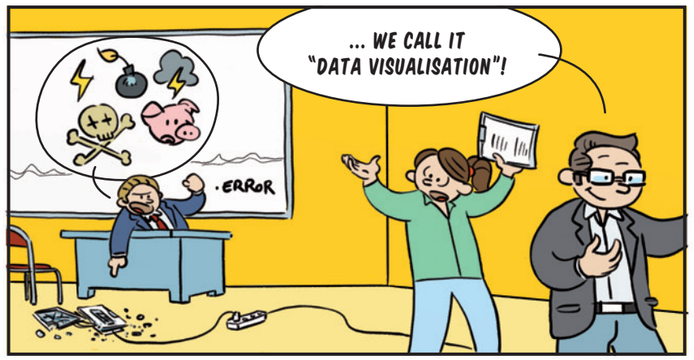



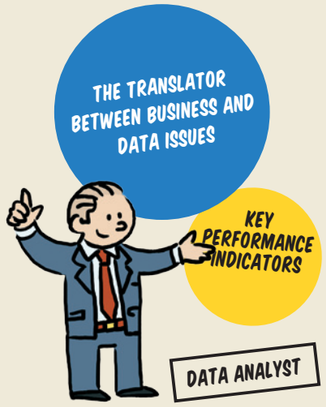



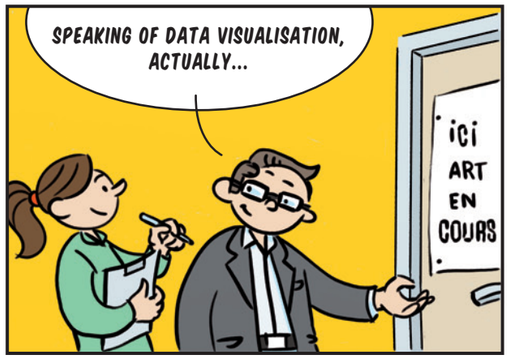



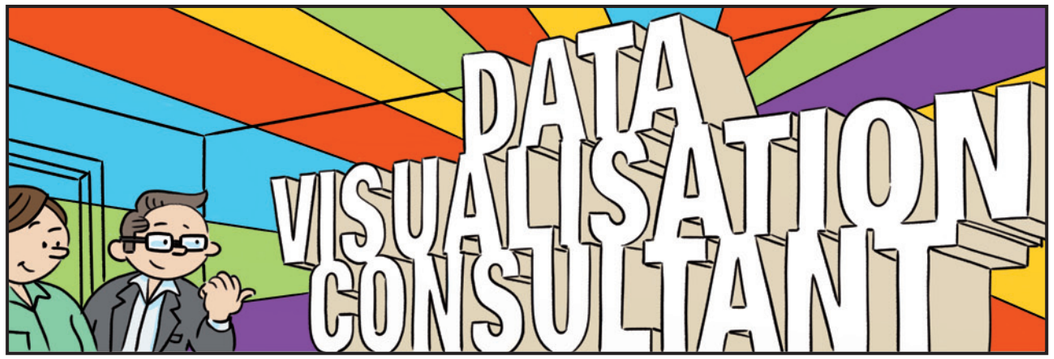

**The Data Consultant / Data Analyst** generally works on a specific type of data from a single and known source, which he analyses with a «business» perspective in order to guide strategic decision-making. Working with Data Scientists and business experts, he defines key performance indicators in particular (KPIs) to popularise and give his results back to decision makers through an exploitable format. He uses the various data tools at his disposal in order to explore, organise, synthesise and translate raw data such as, for example, consumption trends or a significant change in buyer profiles. He can be more broadly responsible for telling an organisation what it can expect from its data (including outside its most common areas) and providing an operational response.

## LEVELS & TYPES OF TRAINING

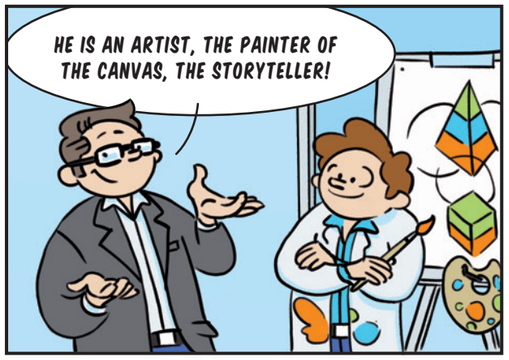
- A Level +5 years of study, Big Data and / or Mathematics and / or Statistics and / or Business Intelligence
- Specialised engineering school

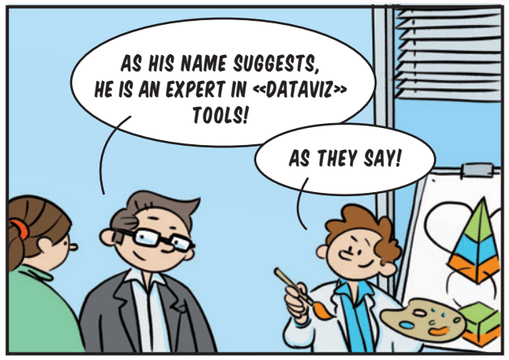


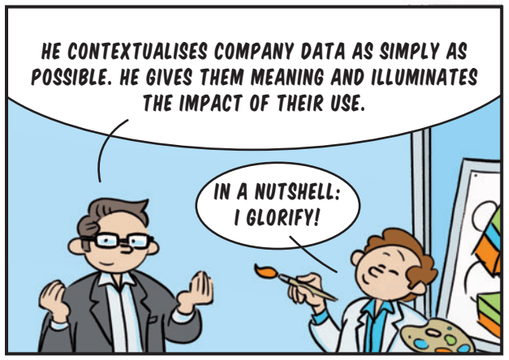




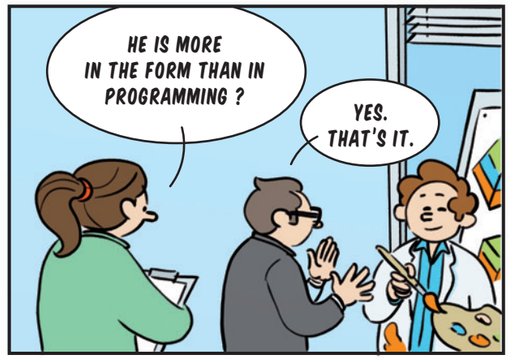


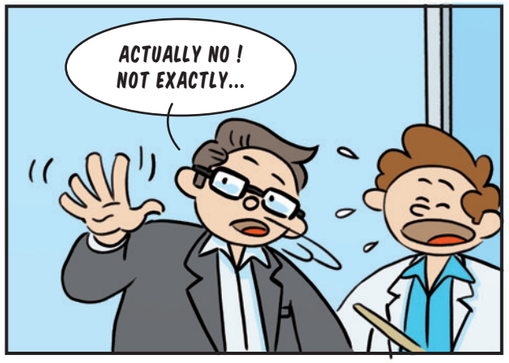


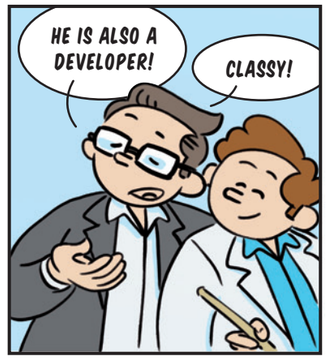



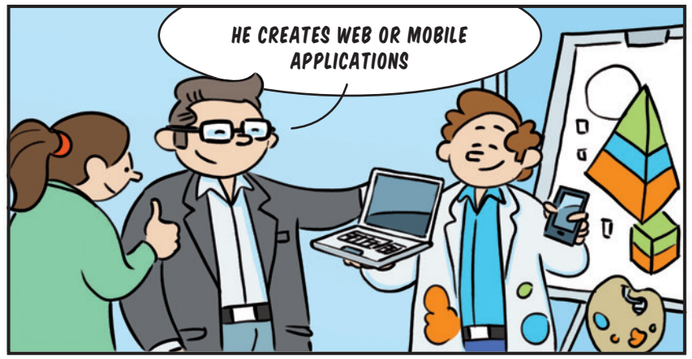



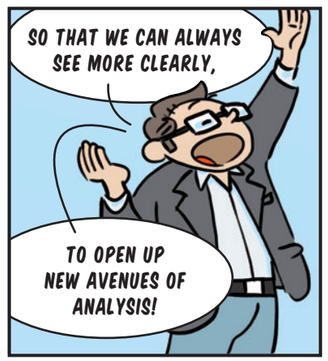




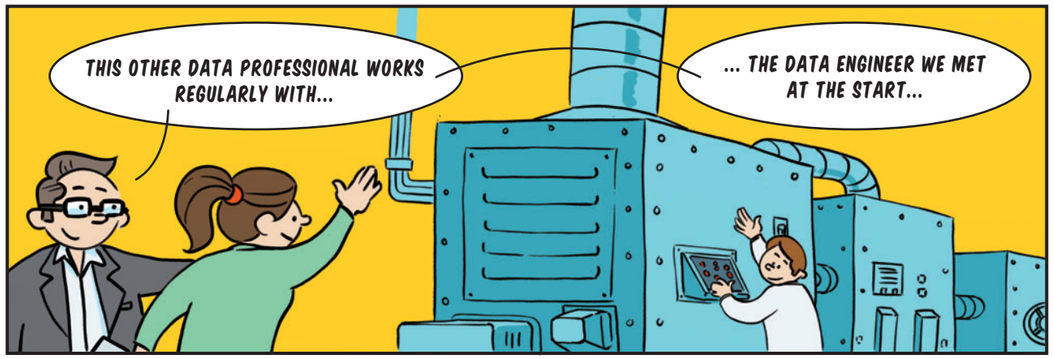


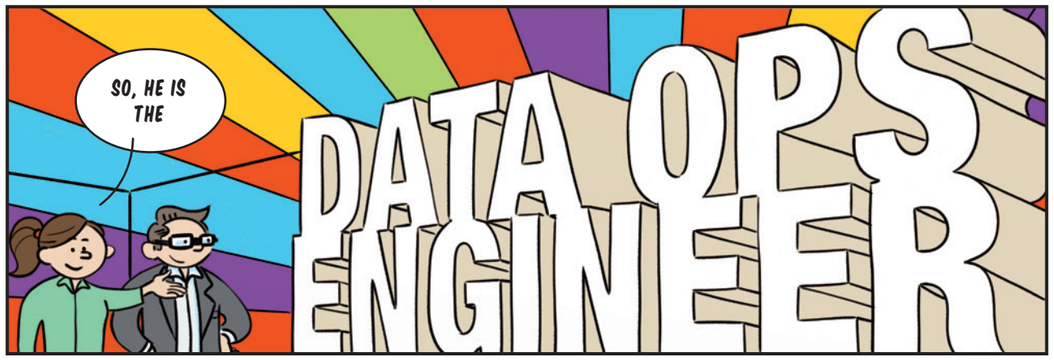
**The Data Visualisation Consultant** is the company's storyteller. He is able to exploit business data, contextualise it and provide simple visualisations to explore its meaning and impacts. Thanks to his judicious choice of spatial organisation, links between data, colours, shapes, the Data Visualisation expert stages complex data, makes them intelligible and accessible in order to present them to actors without technical expertise. This profile has two facets: he is an export of a data visualisation tools doing reporting and storytelling on data, or he is a developer who creates data visualisation applications, whether in the intranet, on the web, on mobile applications or on paper.

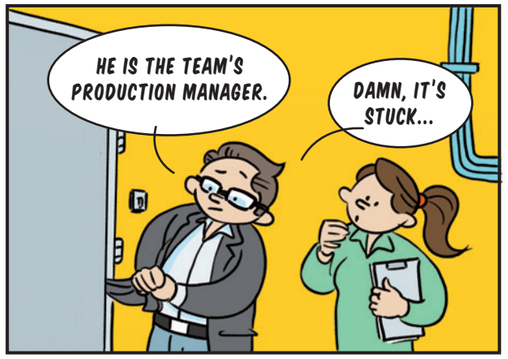
Through his work on interfaces, this expert also enables operational teams to see more clearly in reliable data by asking the right questions, and to identify new avenues of analysis by exploring data in a new light. He must be able to choose the most relevant visualisations and likely to bring the least bias.

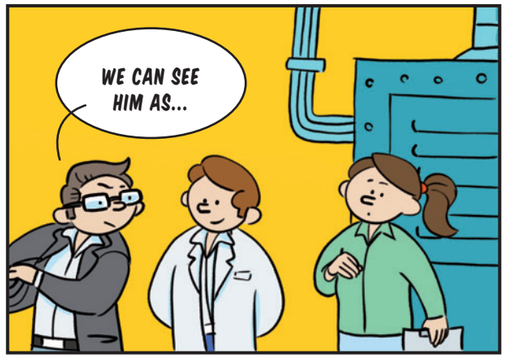
## LEVELS & TYPES OF TRAINING

- A Level +5 years of study in Mathematics and / or Statistics + Business Intelligence (data analysis and Data visualisation)
- Specialised engineering school



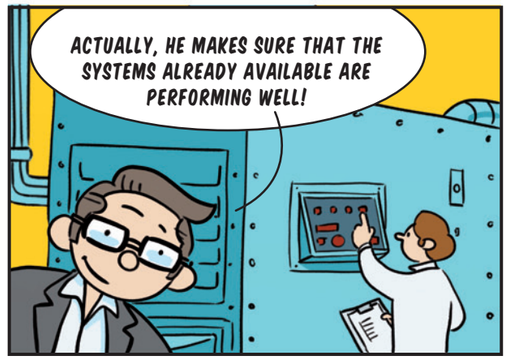



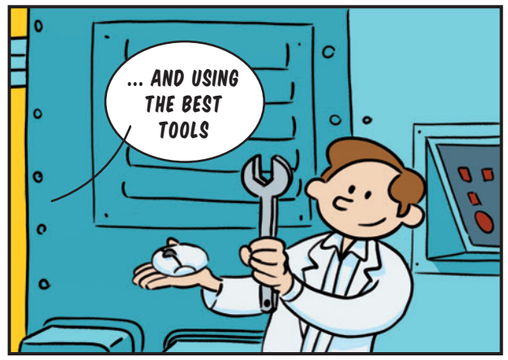




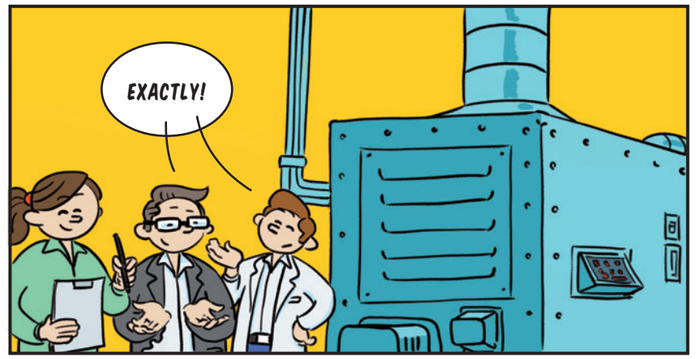


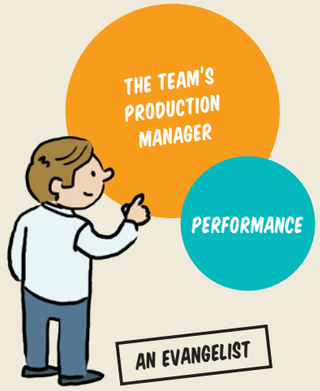








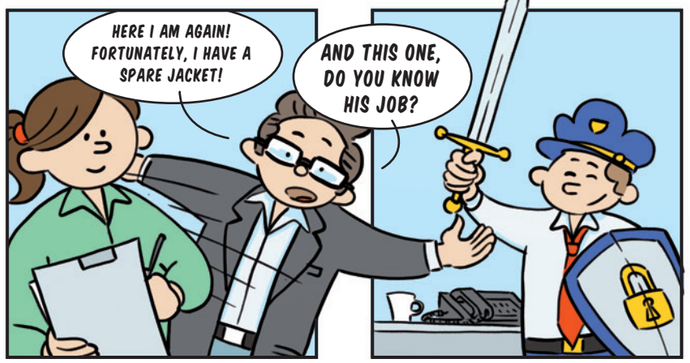




**The DataOps Engineer** orchestrates the production data analysis pipeline, promotes production functionality and automates quality, always in conjunction with the Data Engineer.

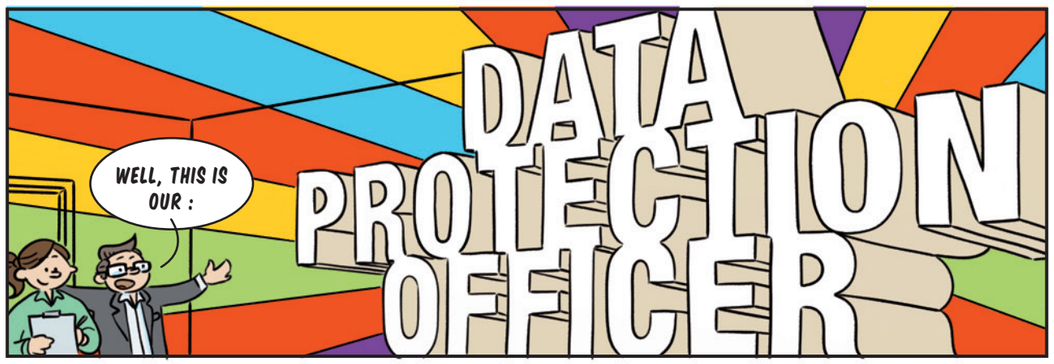
He also ensures that systems already in production are available and performing. The DataOps Engineer also suggests best practices and best tools among data science teams to improve productivity and avoid common mistakes.

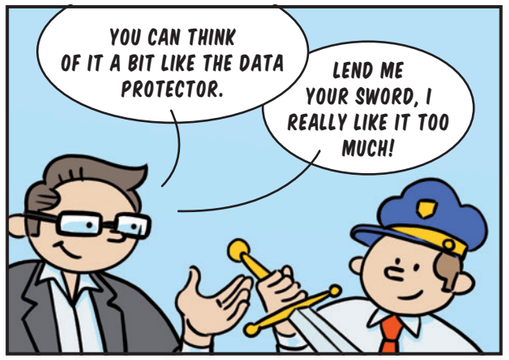
## LEVELS & TYPES OF TRAINING

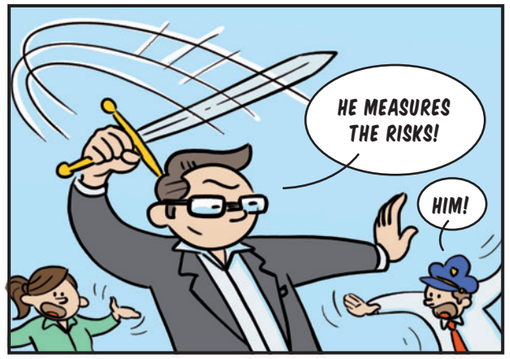
- A Level +5 years of study compulsory in IT / Big Data
- Specialised engineering school





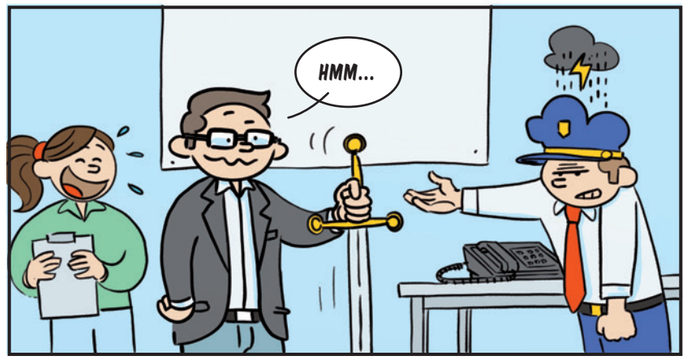


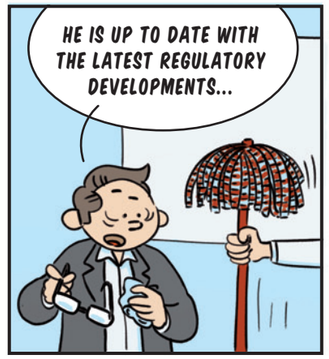



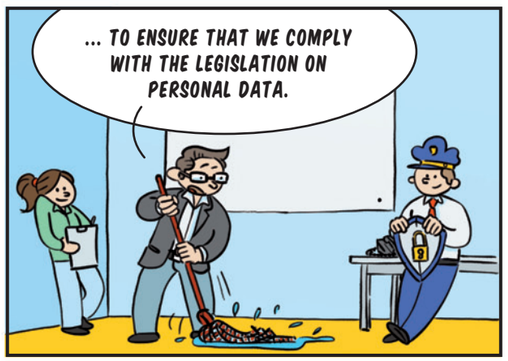


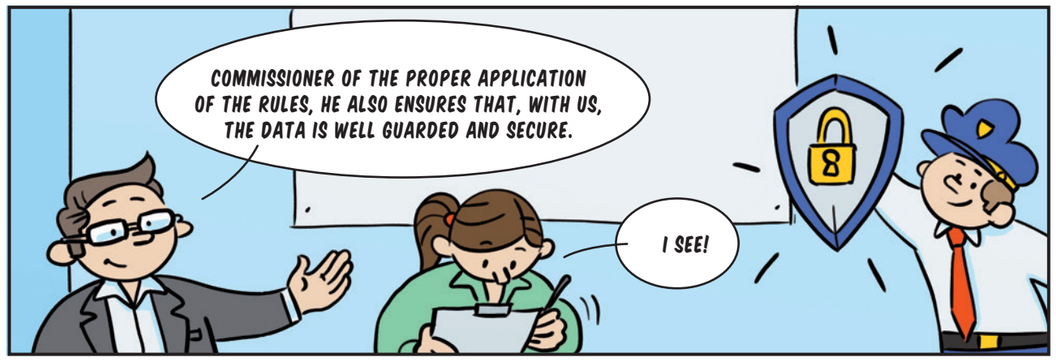








Since May 2018 and the application of the General Data Protection Regulation (GDPR), this position is mandatory in Europe in companies and administrations that process sensitive or large-scale data.

The mission of **The Data Protection Officer (DPO)** is to inform about, advise about and control of data governance (particularly personal data). Its challenge is to keep abreast of all the company's data-related projects, in order to be able to make recommendations sufficiently upstream in privacy by design initiatives. It is a profession at the crossroads of law, IT security, compliance and ethics.

The DPO is responsible for ensuring compliance with the regulations, defining the roles and responsibilities of each, establishing a mapping of processing and data flows, keeping the processing register and overseeing the management of security incidents (including those with subcontractors).

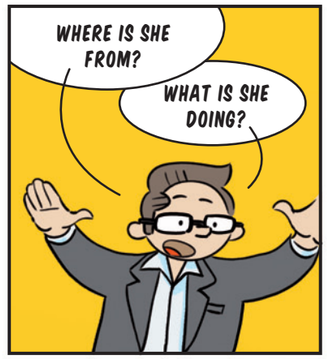
## TRAINING LEVELS

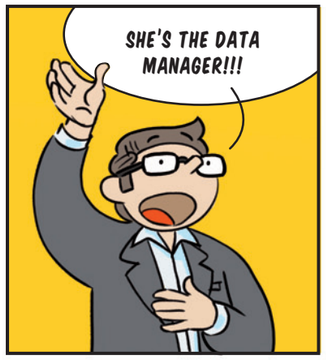
DPOs are often hybrid profiles, who can measure risks, manage IT projects and integrate the notion of "Privacy by design".

Three types of employees are potentially concerned:

- Company lawyers and more generally all functions linked to the General Secretariat
- Data project managers
- Internal auditors



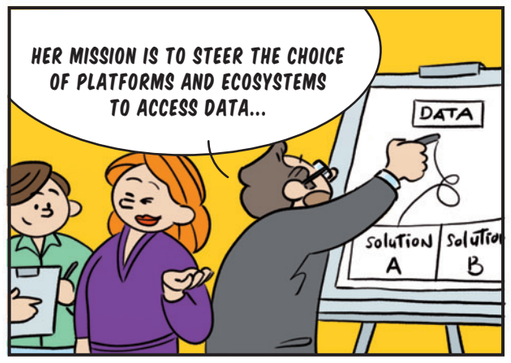





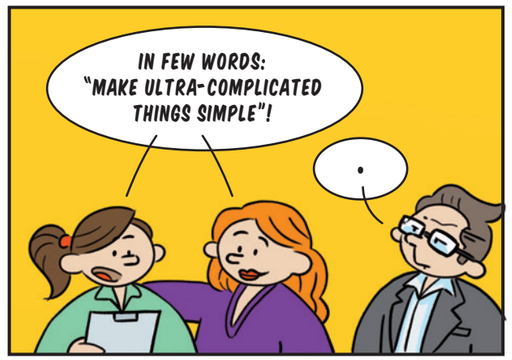


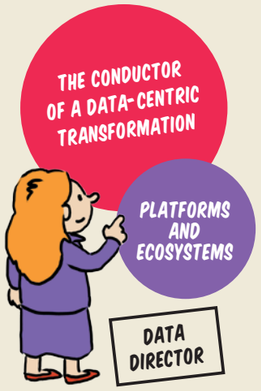









**The Chief Data Officer, or CDO,** creates an environment that allows different managers in the business to easily - and securely - access the information they need for optimal strategic decision-making. He must find the most appropriate platforms, Data & Business Intelligence software systems, and ecosystems (dataset, etc.) so that everyone can perform analyses independently. The CDO is therefore at the heart of its organisation. The CDO is also responsible for the quality and consistency of the data. His function therefore intersects with those of other professions such as the management controller, the IT director (CIO) or the head of operational activities. He works in close collaboration with all the data specialists within his company.

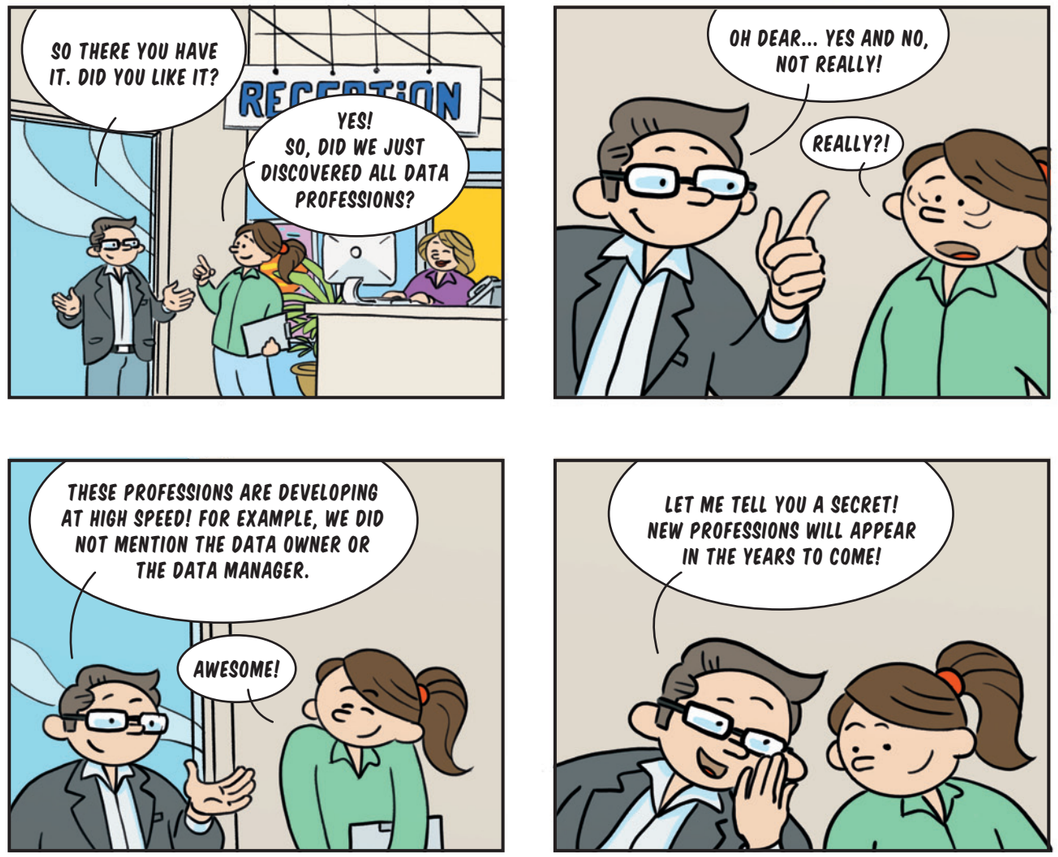
## TRAINING LEVELS

- A Level +5 years of study in IT, Management, Statistics and / or Marketing
- Big Data training
- 10 years of experience at least

## (BIG) DATA TRAINING

Specific training now exists in (Big) Data. They are still few in number. Here are some examples of existing training:

- MSc (master of sciences): Statistics for Smart Data (Ensai)
- Big Data for Business (École polytechnique - HEC)
- Data Sciences & Business Analytics (Centrale Spelec - Essec Business School)
- Applied Data Science & Big Data (Data Science Institute)
- Data Science (Ensae ParisTech)
- Data management (Paris School of Business)



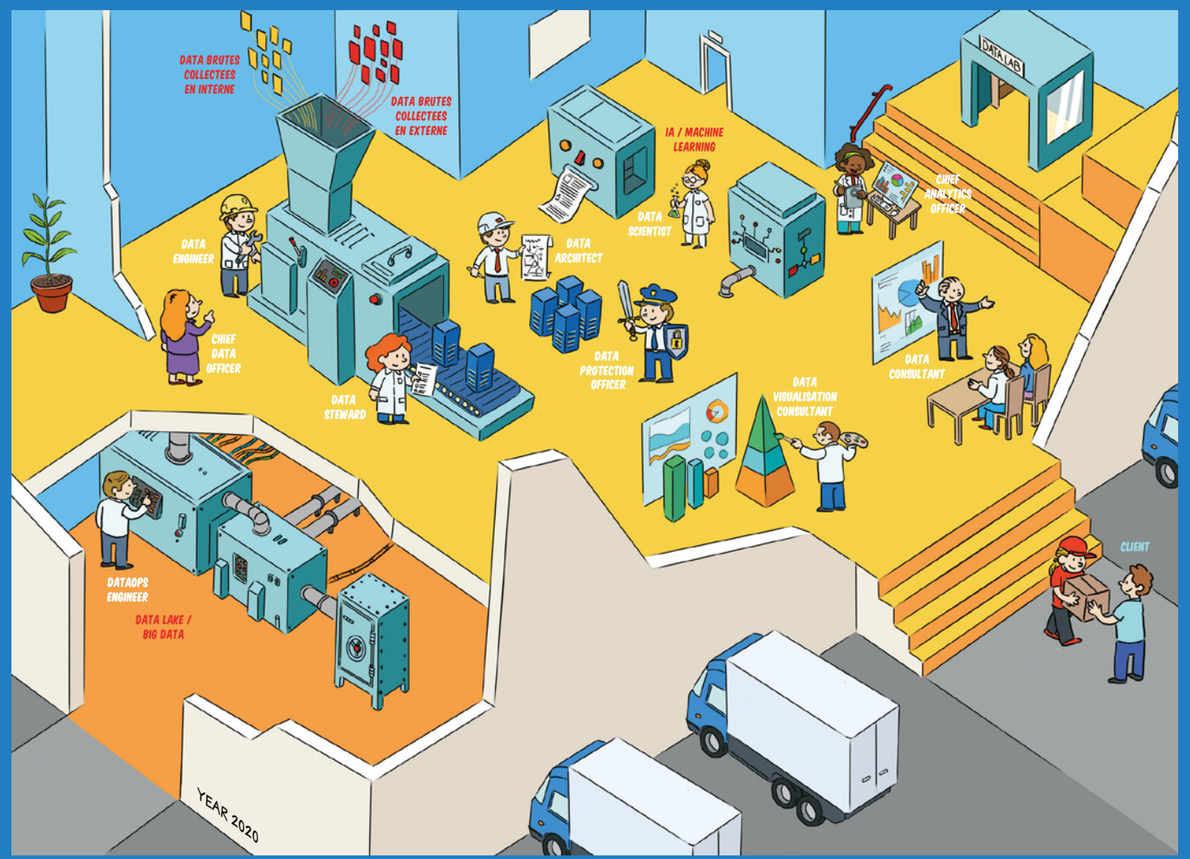



## DISCOVERING THE CONSULTING PROFESSIONS :

www.concepteursdavenirs.fr

## TO FIND OUT MORE ABOUT THE MAIN DATA PROFESSIONS :

www.syntec-conseil.fr




**Character creation:**
Adrien Liard

**Design and production:**
Six

**Content production and writing:**
Members of the Syntec Conseil Data commission

**Dialogue writing**
Agence Elo A

Comic ordered and financed by Atlas, OPCO of financial services and consulting, following defined cooperation lines in the agreement signed with the Ministry of Education and Youth, the Ministry of Higher Education, Research and Innovation, with the help of funds collected under the apprenticeship tax.

6ix - 04 - 2021 - www.6ix.fr