# Business Intelligence

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## 1 Goals

The goal of this learning unit is for you to mimic a company. You will be working by teams of 4 or 5. Each student represents a given department of the company (sales, marketing, HR, recruitment, churn/loyalty) and will be working on its own database to produce both a dashboard and a report of your own making (they can include similar information). You will therefore get an individual grade. You will also get a collective grade for your "company", in order to foster cooperation among departments.

## 2 Datacamp classes

Power BI classes on Datacamp are short. We consequently ask you to follow six of them over the course of the semester. The more skills you display using these classes, the higher your grade. You must bring earpods, should you want to follow Datacamp during classes.

1. Introduction to Power BI
2. Introduction to DAX in Power BI
3. Intermediate DAX in Power BI
4. Trend Analysis in Power BI
5. Reports in Power BI
6. Introduction to Python in Power BI

## 3 Data

The company sells large amounts of cars en gros. Each department has its own database. Some information may prove useless. You decide which one to present. Regarding the loyalty program, loyalty is not measured in terms of car sales, but subscription to a newsletter of your company.

1. Customer loyalty / churn : Churn-db
2. Recruitment : Recruitment-db
3. Webmarketing : Marketing-db
4. Employees : HR-db
5. Car sales : Sales-db

### 3.1 Loyalty and churn

Regarding Churn-db, loyalty is measures in terms of the subscription to a newsletter written by your company. userid is the customer. date.inscr corresponds to the registration date to the newsletter. date.dern.lect corresponds to the last time the customer read the newsletter. Resiliation corresponds to a boolean, 1 if the customer unsuscribed from the newsletter, 0 otherwise. Reachat is a boolean, 1 if the customer bought from you more than once, 0 otherwise. Country is the customer's country. mail.spont is a boolean : 1 if the customer spontaneously sent a mail to your company, 0 otherwise. score.ouv.news corresponds to the percentage of newsletters that the customer actually opens. n.ventes corresponds to the total number of car batches that you sold to the customer. revenues corresponds to the total amount of revenues generated by the customer over the course of the past year, in 100k euros.

### 3.2 Onboarding

The focus here is onboarding. date.entretien corresponds to the date of the interview, date.signature to the date of the signature of the contract. ajout.mail.rap is a boolean. 1 if the employee was quickly added to the mailing lists of the structure (in less than 2 weeks), 0 otherwise. crea.compte.rap takes the value 1 if a computer account was quickly created for the employee. obten.ordi.rap takes the value 1 if the employee quickly received a computer. reu.equip.rap takes the value 1 if the employee quickly takes part in a group meeting after the contract is signed. score.satisf.onb is a satisfaction score / how the onboarding phase went. n.emails corresponds to the number of emails that the employee sent over the course of the first month, n.meetings corresponds to the number of meetings that the employee did over the course of the first month.

### 3.3 Marketing

Web marketing campaigns are the focus of this database. ad.id is the id of the ad, We have the date when it was launched (date.ad). It can include an image (Incl.image), use cookies to enable targetted advertisement (uses.cookies), include discounts (Incl.disc). We have a revenue per visit, en euros (rev.per.vis), a bounce rate, a conversion rate to lead (conv2lead), and to customer (conv2customer),

a cost per clic (CPC), the number of people reached (nreach2), the county targeted by the ad, and the platform that was used to broadcast the ad (Facebook, etc.)

### 3.4 Human resources

Traditional information on employees, such as previous employer, name, surname, department, job title, how much time he/she spent in the current company, salary, country, gender, university where he/she studied.

### 3.5 Sales

We have data on salespersons. Name, surname, the type of car that was sold, the size of the batch, in number of cars (Car-batch-size), the cost per car (Unit-cost), the country where the cars were sent, the customer,

## 4 Steps

You must design both a dashboard and a report per student. Each student has 5 to 10 minutes to present his/her own work. You must showcase your abilities, and notably how you used DAX and Python in your project. The two last classes will be dedicated to the presentation of your work. Everyone must have submitted their work when the first presentation of the class starts.

### 4.1 Step 1 (2-3 weeks)

Within your team, explore your assigned dataset using R or Python, and discuss together what type of visualization you want to present .

### 4.2 Step 2 (9-10 weeks)

Start following Datacamp classes and build either dashboard or reports, depending of your role in the team. Use DAX, notably, and some features of Trend Analysis . Consult with the teacher regularly.

In addition to the dashboards, each student must cherry pick one of the graphs that they have designed, and provide a PDF that describes an argument based on this graph. The argument must follow the Toulmin model (exchange students will seek help from Bachelor students if need be). This argument must be sound, and the PDF must be in the range of 600 to 800 words total.

### 4.3 Step 3 (3 weeks)

Present your work as a team. After the presentation, use the instructor's feedback to improve your work.