



PROJET 4 : ANTICIPEZ LES BESOINS EN CONSOMMATION DE BÂTIMENTS

Formation DATA SCIENTIST - Victor BARBIER

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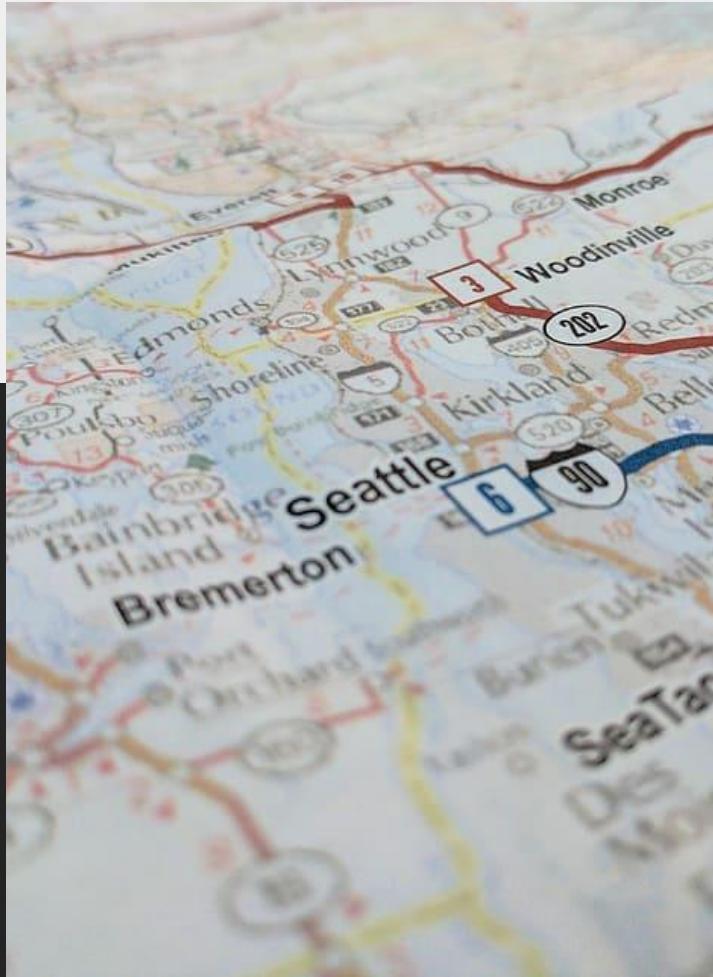
TRAITEMENT DES
DONNÉES

03

MODELISATION

04

CONCLUSION



01

CONTEXTE



CONTEXTE

MISSION

- Agent de Seattle
- Ville neutre en carbone en 2050.
- Bâtiments non destinés à l'habitation

JEU DE DONNÉES

- Relevés coûteux
- Données de 2016

OBJECTIFS

- Prédire les émissions de CO₂ et la consommation totale d'énergie
- Évaluer l'intérêt de l'ENERGYSTAR score.

METHODE

- Modélisation avec différents algorithmes de régression
- Choix des hyperparamètres
- Validation croisée

JEU DE DONNÉES

BATIMENTS

3376

VARIABLES

46

COMPLET

87.2%

DONNÉES

INFORMATIONS GÉNERALES	Nom, identifiant unique, ...
ADRESSE	Adresse, longitude, latitude, quartier, ...
TAILLE	Nombre de bâtiments, nombre d'étages, surface, ...
CONSOMMATIONS	Consommation en gaz, électricité, eau chaude, ...
EMISSIONS	Émissions en gaz à effet de serre.

02

TRAITEMENT DES DONNÉES

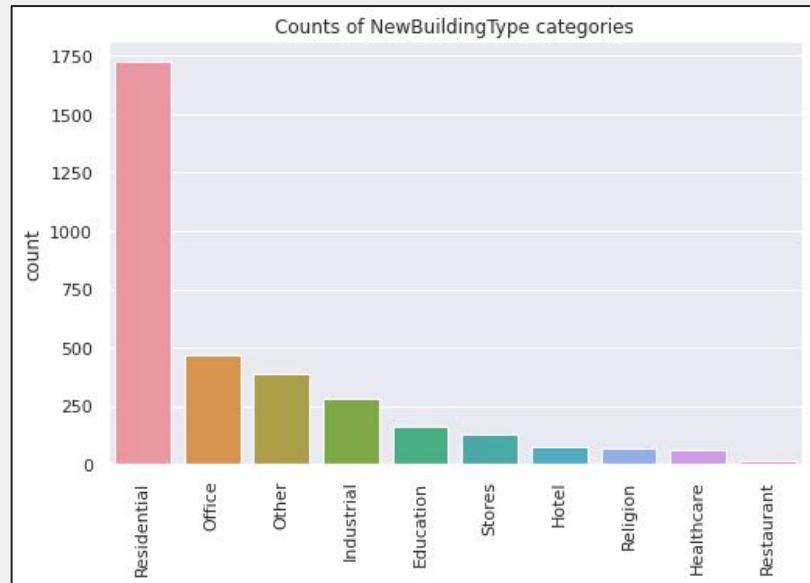


Type de bâtiments

Transformation

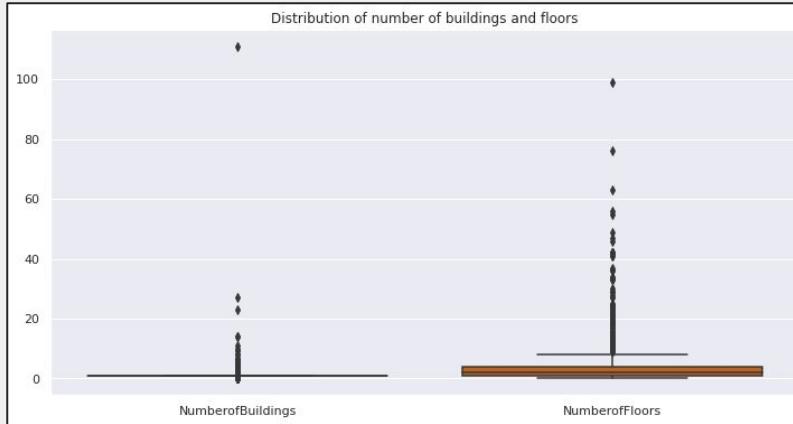
- Beaucoup de variables et catégories
- Utilisation de trois variables principales
- Création de nouvelles catégories (dictionnaire)
- Création d'un nouvelle variable

VARIABLE	CATÉGORIES
<i>BuildingType</i>	8
<i>PrimaryPropertyType</i>	23
<i>LargestPropertyUseType</i>	55



Filtrage des type *Residential*

Taille des bâtiments



Nettoyage des outliers

VARIABLE	VALEUR	NETTOYAGE
NumberofBuilding	== 0	Vérification sur Google et remplacement par 1
	> 100	Conservation de l'University of Washington
NumberofFloors	== 0	Vérification sur Google et remplacement par 1
	> 70	Vérification sur Google et remplacement par la bonne valeur

Surface des bâtiments

Vérification

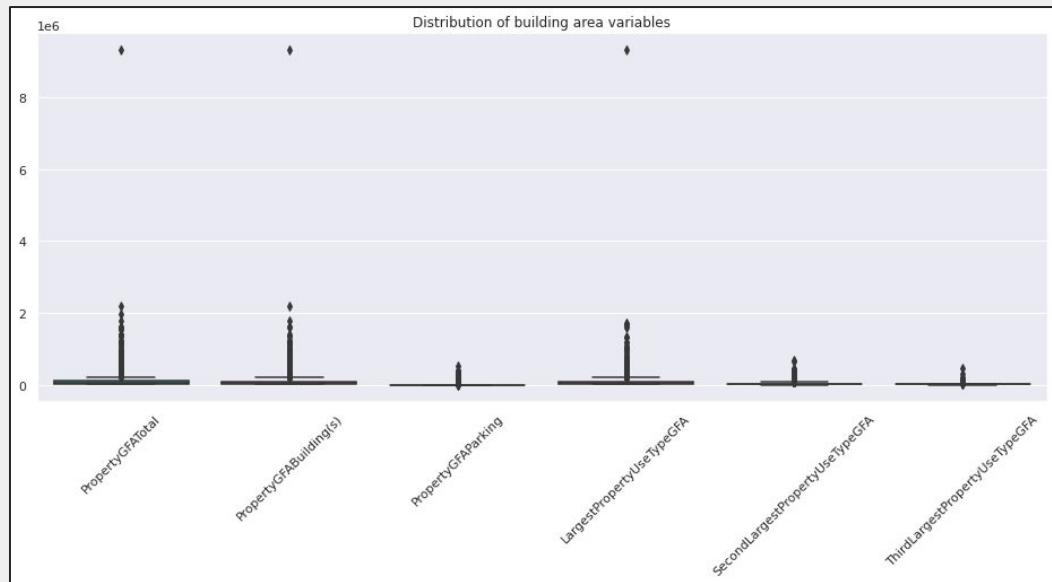
$PropertyGFATOTAL =$

$PropertyGFABuilding(s) + PropertyGFAParking$

Nettoyage des outliers

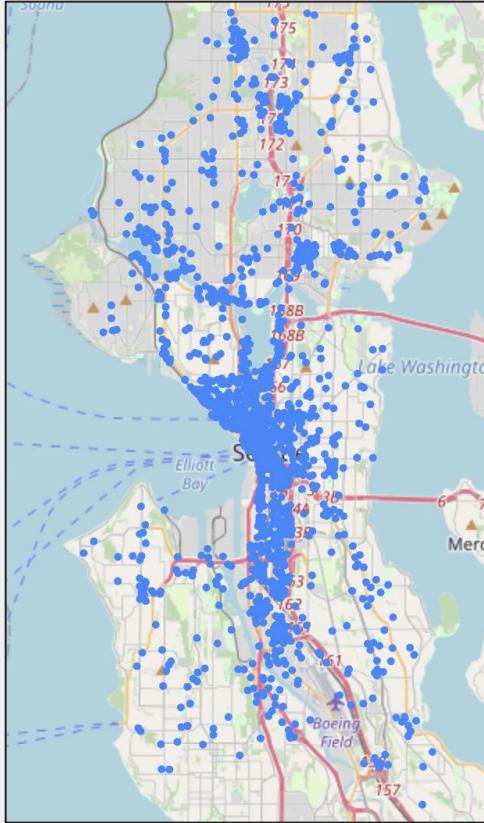
$> 9 \text{ e}^6 \text{ ft}^2$

Conservation de l'University of Washington



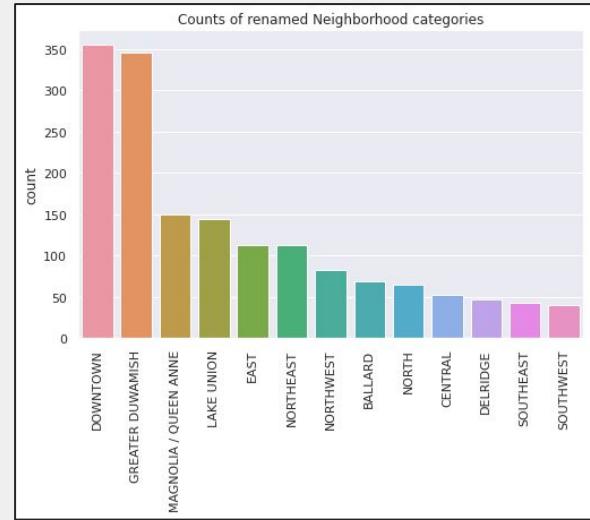
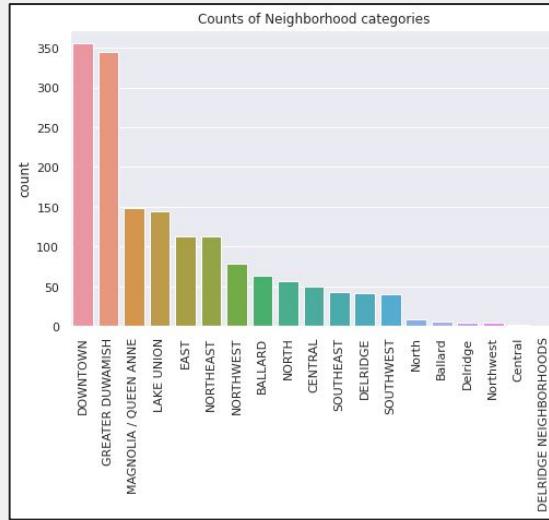
Conservation de $PropertyGFABuilding(s)$ et de $PropertyGFAParking$

Adresse des bâtiments



Nettoyage

- Vérification de la longitude et de la latitude
- Nettoyage des quartiers : redondances des catégories et fautes de frappe

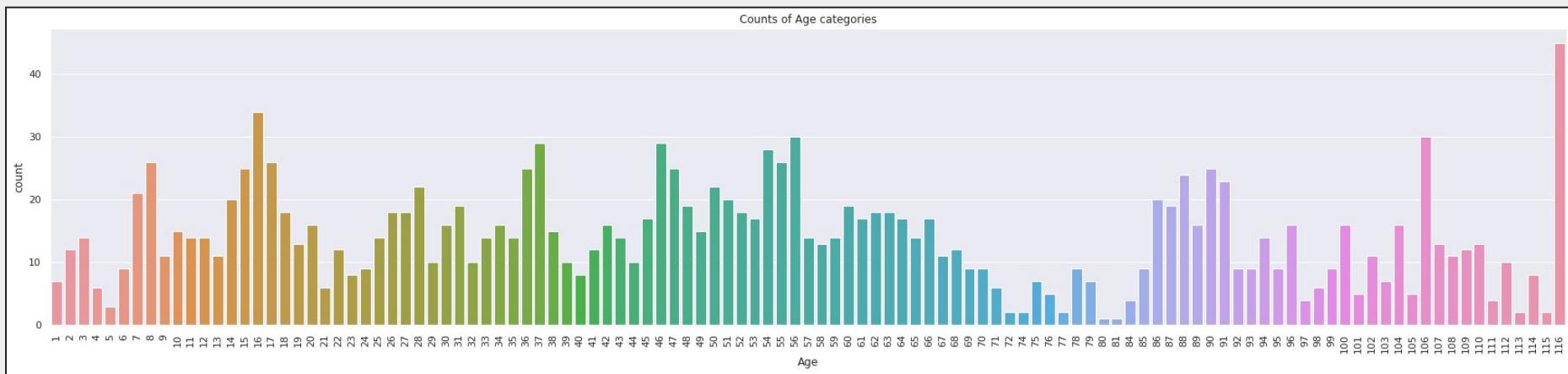


Age des bâtiments

Transformation

- Création d'une nouvelle variable **Age** :

$$\text{Age} = 2016 - \text{YearBuilt}$$



Consommation des bâtiments 1/2

Corrélations

Parfaites corrélations entre :

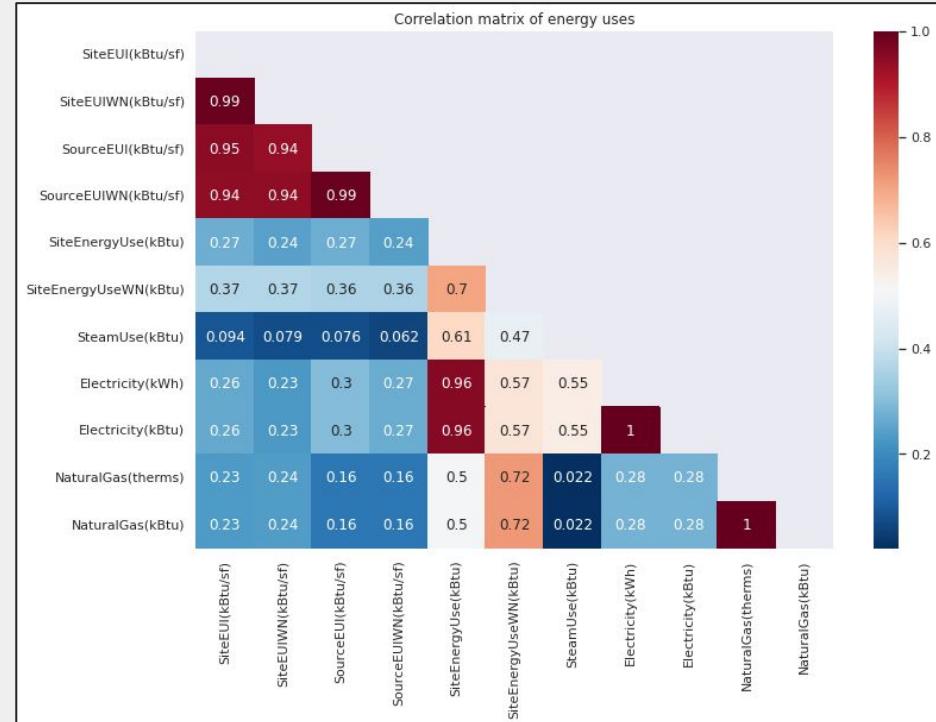
- **Electricity(kBtu)** et **Electricity(kWh)**
- **NaturalGas(kBtu)** et **NaturalGas(therms)**

Fortes corrélations entre :

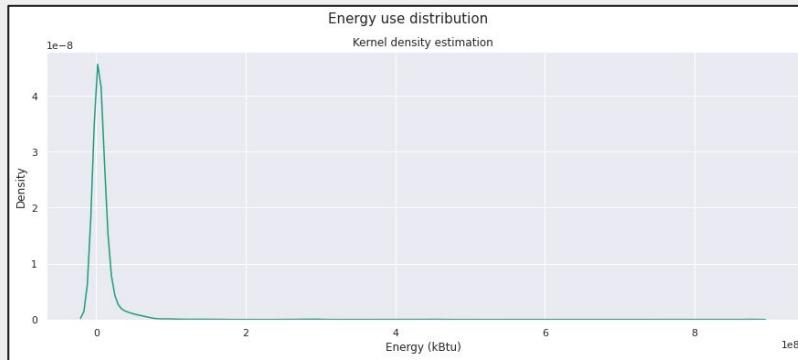
- **SiteEUI**, **SiteEUIWN**, **SourceEUI** et **SourceEUIWN**
- **SiteEnergyUse** et **Electricity**

TARGET N°1

SiteEnergyUse(kBtu)

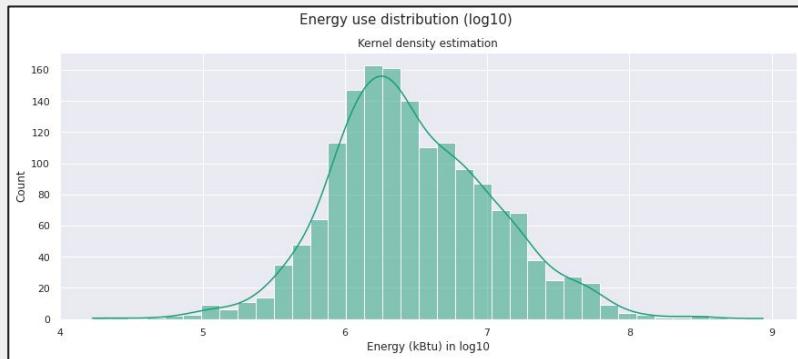


Consommation des bâtiments 2/2



Nettoyage des outliers

== 0 kBtu	Suppression des bâtiments
> 8 e ⁸ kBtu	Conservation de l'University of Washington



Transformation

- Utilisation du logarithme pour *normaliser* la distribution
- Remplacement de la target **SiteEnergyUse** par sa transformée

Émissions de gaz à effet de serre

TARGET N°2

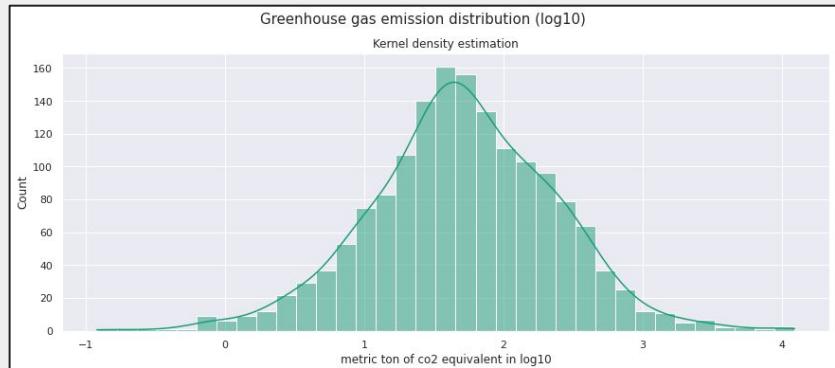
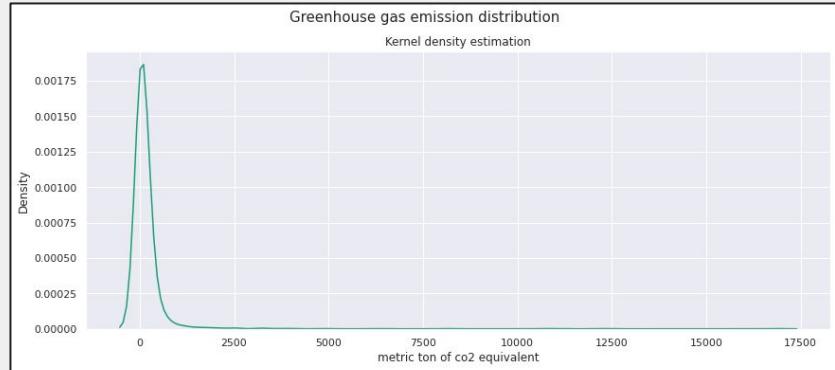
TotalGHGEmissions

Nettoyage des outliers

<= 0 eq CO2	Suppression des bâtiments
> 1000 eq CO2	<ul style="list-style-type: none">- Conservation de l'University of Washington- Conservation des hôpitaux- Suppression de bâtiments sans explications

Transformation

- Utilisation du logarithme pour *normaliser* la distribution
- Remplacement de la target **TotalGHGEmissions** par sa transformée



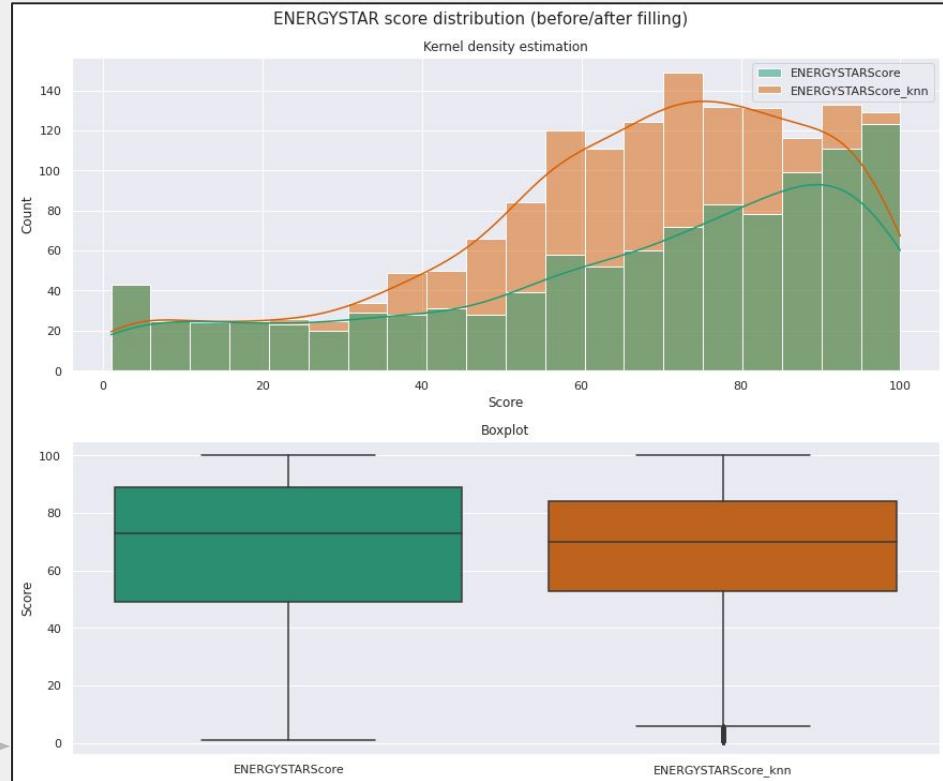
ENERGYSTAR score

ENERGYSTAR

- Note entre 1 et 100
- Aperçu de la performance énergétique
- Basé sur des données de taille, d'emplacement, de nombre d'occupants, etc.

25% de données manquantes

Remplissage par KNN



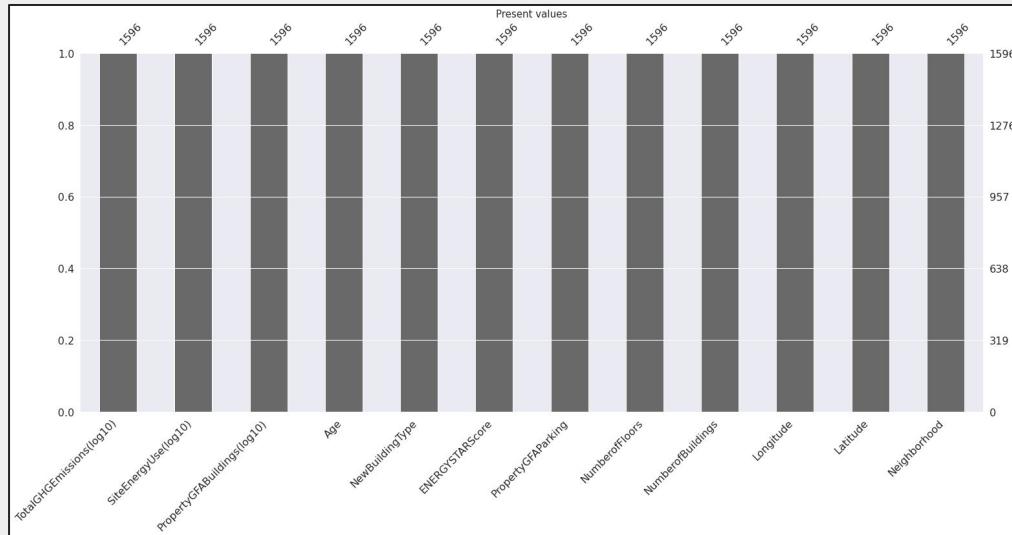
Jeu de donnée final 1/2

2
TARGETS

- ***TOTALGHGEmissions***
(log10)
- ***SiteEnergyUse*** (log10)

10
FEATURES

- ***Age***
- ***NewBuildingType***
- ***PropertyGFABuilding(s)***
- ***PropertyGFAParking***
- ***NumberofFloors***
- ***NumberofBuildings***
- ***Longitude***
- ***Latitude***
- ***Neighborhood***
- ***(ENERGYSTARScore)***



BATIMENTS

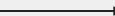
1596

47% du jeu total

One hot encoding

Objectif
Transformation d'une variable qualitative en nouvelles variables quantitatives (booléennes).

ID	Neighborhood
0	DOWNTOWN
1	NORTH
2	BALLARD
3	BALLARD
4	DOWNTOWN
...	...



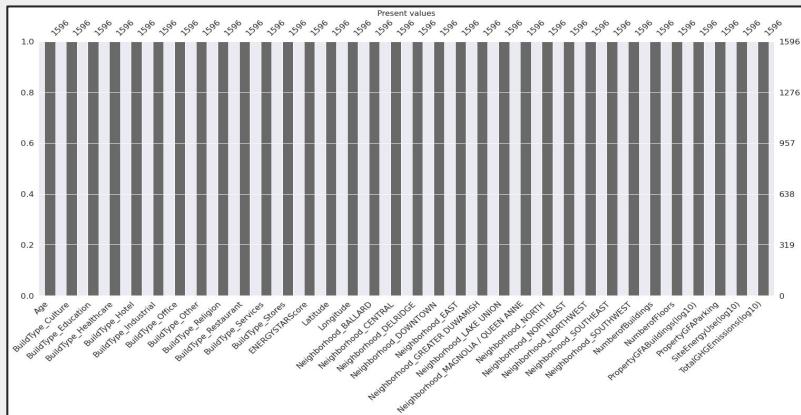
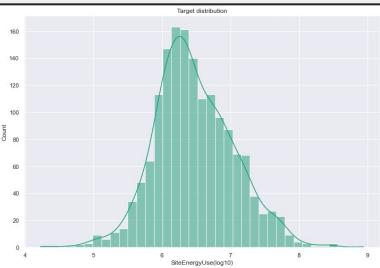
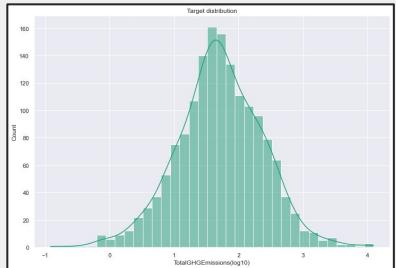
ID	DOWNTOWN	NORTH	BALLARD
0	1	0	0
1	0	1	0
2	0	0	1
3	0	0	1
4	1	0	0
...

VARIABLES ENCODÉES

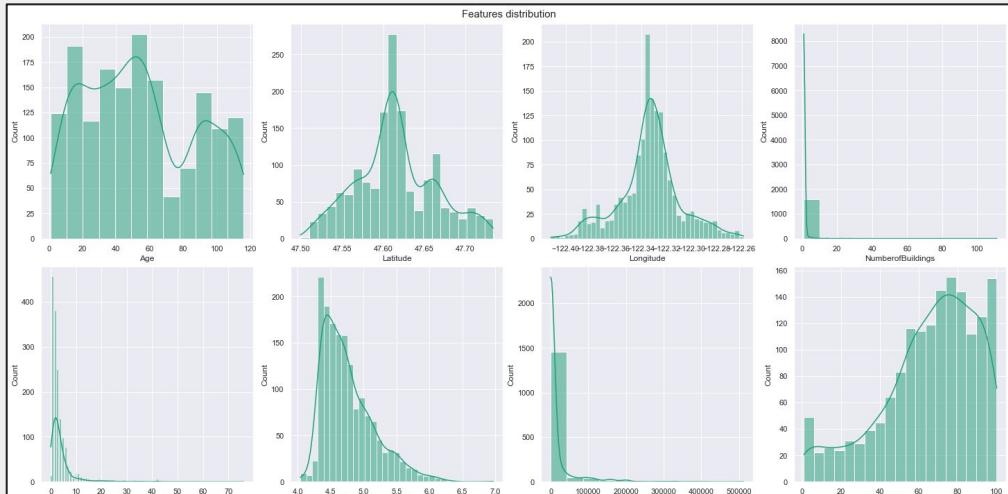
Neighborhood et *NewBuildingType*

Jeu de donnée final 2/2

2 TARGETS



10 FEATURES



2 VARIABLES ENCODÉES

A detailed black and white architectural wireframe drawing of a modern skyscraper. The building features a complex, multi-layered facade with a grid of windows and structural elements. The perspective is from a low angle, looking up at the tall tower.

03

MODELISATION

Jeux d'entraînement et de test

Nouvelles variables		
x	10 features	10 dimensions
y	1 target	1 dimension

Objectif		
-	Un jeu d'entraînement pour l'apprentissage des modèles	
-	Un jeu de test pour tester la performance des modèles	

Séparation du jeu de donnée		
x_train	80% de x	Jeu d'entraînement
y_train	80% de y	
x_test	20% de x	Jeu de test
y_test	20% de y	

Standardisation

Objectif

Mise à l'échelle des **features** :

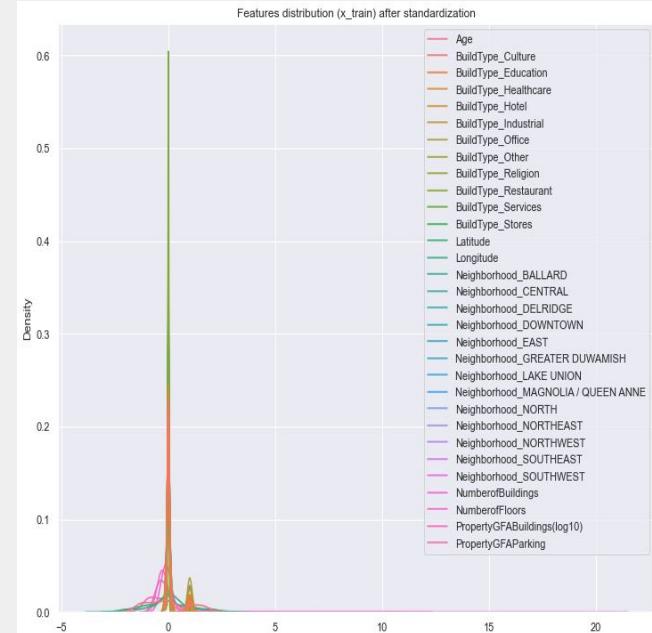
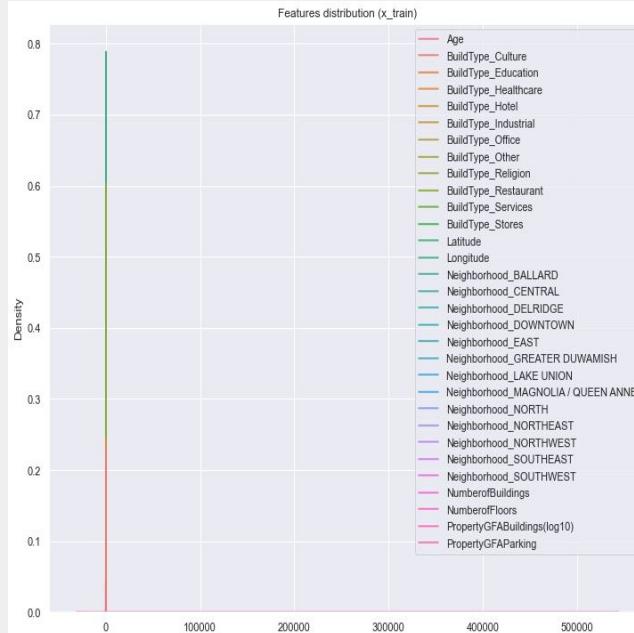
- Indépendance de leurs distributions (unités)
- Leur donner une moyenne de 0 et un écart-type de 1

Méthode

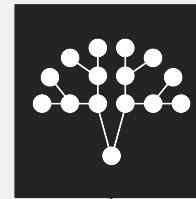
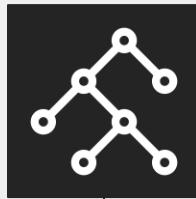
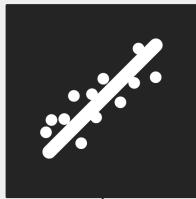
Soustraire aux variables leur moyenne et diviser par leur écart-type :

$$x_{stand} = \frac{x - \mu}{\sigma}$$

Standardisation de x_train



Modèles de machine learning



Linear regression

Explique de manière linéaire une variable Y en fonction de variables explicatives X.

$$Y_i = a_0 + a_1 X_{i1} + a_2 X_{i2} + \dots + a_p X_{ip} + \varepsilon_i$$

Random forest

Bagging : effectue un apprentissage sur de multiples arbres de décision parallèlement entraînés.

XGBoost

Gradient boosting : effectue un apprentissage sur de multiples arbres de décision séquentiellement entraînées pour réduire leurs erreurs.

Linear regression

ÉTAPES	
1	Utilisation du modèle Linear Regression (<i>sklearn</i>)
2	Entrainement du modèle sur x_train
3	Prédiction sur x_test
4	Comparaison de y_test et y_predict avec différentes métriques

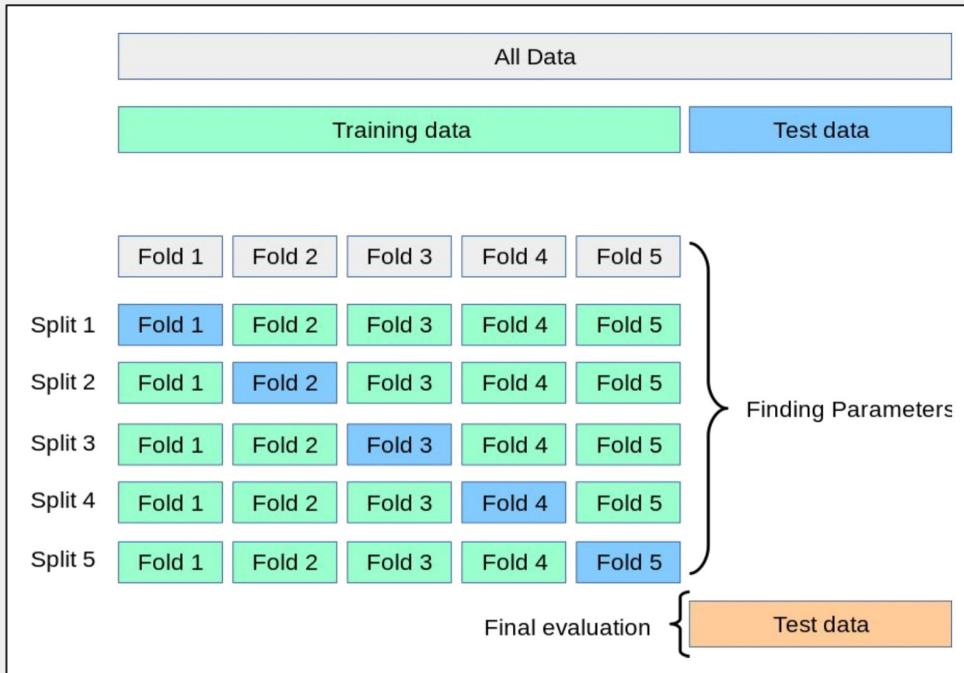
Random forest

ÉTAPES		GridSearchCV
1	Utilisation du modèle Random Forest Regressor (<i>sklearn</i>) avec paramètres par défaut	- Recherche d'une sélection de paramètres du modèle sur x_train
2	Recherche des meilleurs paramètres avec GridSearchCV (<i>sklearn</i>)	- Utilisation de 3 folds
3	Comparaison du modèle avec paramètres standard et paramètres trouvés sur x_test et sélection du meilleur	- Entraînement sur une partie de x_train (moins de valeurs)
4	Prédiction sur x_test	- Comparaison des métriques sur x_test
5	Comparaison de y_test et y_predict avec différentes métriques	

XGBoost

ÉTAPES		GridSearchCV
1	Utilisation du modèle XGBRegressor (<i>xgboost</i>) avec paramètres par défaut	- Recherche d'une sélection de paramètres du modèle sur x_train
2	Recherche des meilleurs paramètres avec GridSearchCV (<i>sklearn</i>)	- Utilisation de 3 folds
3	Comparaison du modèle avec paramètres standard et paramètres trouvés sur x_test et sélection du meilleur	- Entraînement sur une partie de x_train (moins de valeurs)
4	Prédiction sur x_test	- Comparaison des métriques sur x_test
5	Comparaison de y_test et y_predict avec différentes métriques	

Validation croisée



Cross validation & GridSearchCV

Recherche des hyperparamètres

PARAMÈTRE	DEFINITION	MODÈLE
n_estimator	Nombre d'arbres dans la forêt.	RandomForest & XGBoost
max_depth	La profondeur maximale des arbres individuels.	
min_samples_split	Le nombre minimum d'échantillons requis pour diviser un nœud interne.	RandomForest
min_samples_leaf	Le nombre minimum d'échantillons requis pour être à un nœud de feuille.	
bootstrap	Utilisation d'échantillons bootstrap lors de la construction des arbres.	XGBoost
learning_rate	Réduction de taille de pas utilisée pour empêcher le surapprentissage.	
subsample	Le ratio des sous-échantillons des instances d'entraînement.	
colsample_bytree	Le ratio des sous-échantillons des colonnes lors de la construction de chaque arbre.	

Métriques d'évaluation

MÉTRIQUE	DEFINITION	FORMULE
R Squared (R²)	Coefficient de détermination. Proportion de la variance de la target qui s'explique par les features.	$R^2 = 1 - \frac{RSS}{TSS}$
Mean Absolute Error (MAE)	Moyenne des valeurs absolues des erreurs.	$\frac{1}{n} \sum_{i=1}^n y_i - \hat{y}_i $
Mean Absolute Percentage Error (MAPE)	Pourcentage moyen d'écart entre les valeurs prédites et les valeurs réelles.	$\frac{1}{n} \sum_{i=1}^n \left \frac{y_i - \hat{y}_i}{y_i} \right $
Mean Squared Error (MSE)	Moyenne des carrés des erreurs.	$\frac{1}{n} \sum_{i=1}^n (y_i - \hat{y}_i)^2$
Root Mean Squared Error (RMSE)	Racine carrée de la moyenne des carrés des erreurs.	$\sqrt{\frac{1}{n} \sum_{i=1}^n (y_i - \hat{y}_i)^2}$

GridSearchCV

		SiteEnergyUse		TotalGHGEmissions	
		R ²	MAE	R ²	MAE
Random forest	Default	59.40 %	0.271	40.77 %	0.391
	Réglé	60.27 %	0.273	39.19 %	0.405
XGBoost	Default	57.59 %	0.279	37.67 %	0.395
	Réglé	58.69 %	0.278	39.00 %	0.408

Sélection du modèle réglé si au moins R² plus performant

Comparaison : SiteEnergyUse

SiteEnergyUse	R ²	MAE	MAPE	RMSE
Linear regression	53.74 %	0.284	4.45 %	0.414
Random forest	60.27 %	0.273	4.30 %	0.384
XGBoost	58.69 %	0.278	4.36 %	0.391

Random forest est le modèle le plus performant

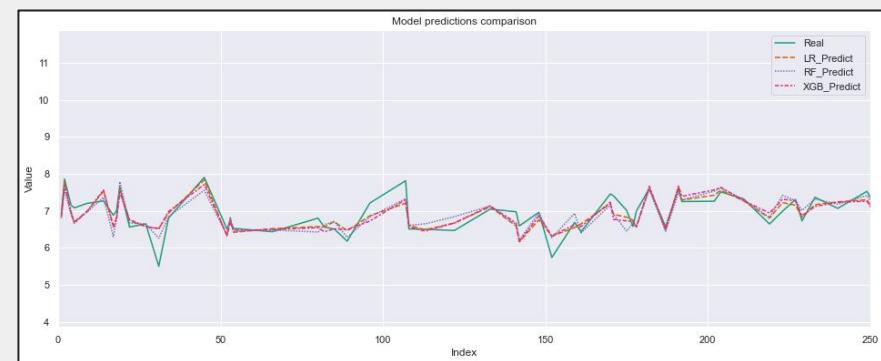
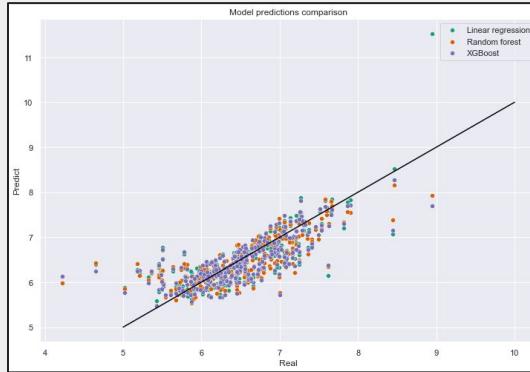
Comparaison : TotalGHGEmissions

TotalGHGEmissions	R ²	MAE	MAPE	RMSE
Linear regression	31.54 %	0.419	59.55 %	0.556
Random forest	40.77 %	0.391	61.61 %	0.517
XGBoost	39.00 %	0.408	58.42 %	0.525

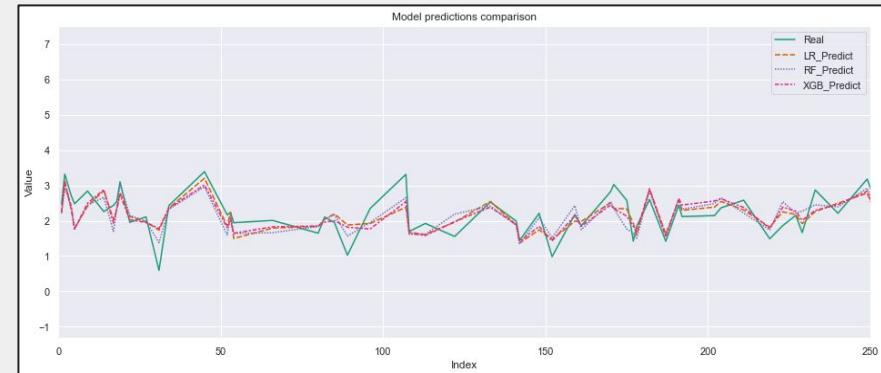
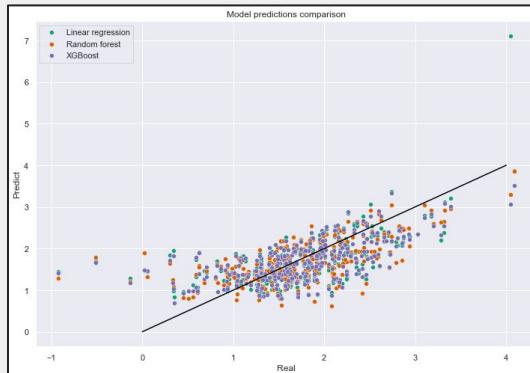
Random forest est le modèle le plus performant

Comparaison : valeurs

SiteEnergyUse



TotalGHGEmissions

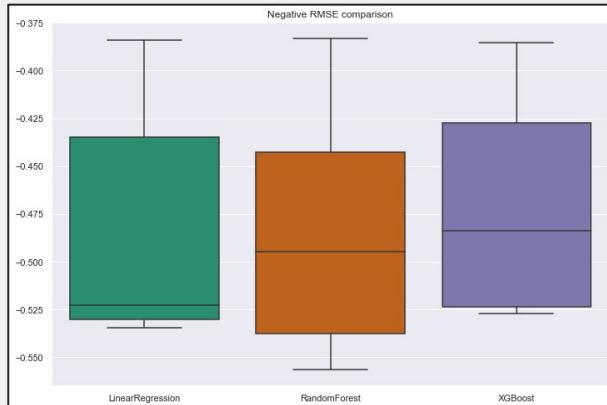


Comparaison avec la validation croisée

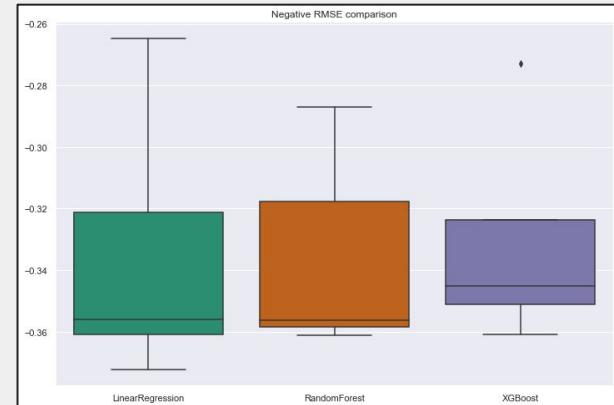
Validation croisée

- Validation croisée de chaque modèle sur **x** (pas de split)
- Utilisation de **5 folds**
- Affichage des résultats de chaque itération

SiteEnergyUse



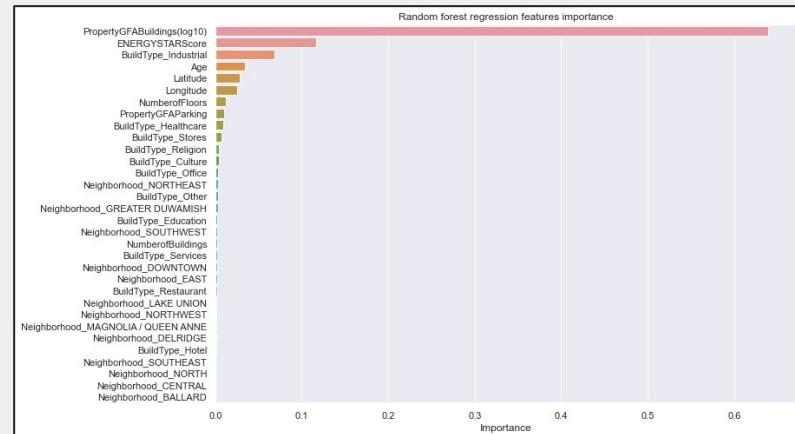
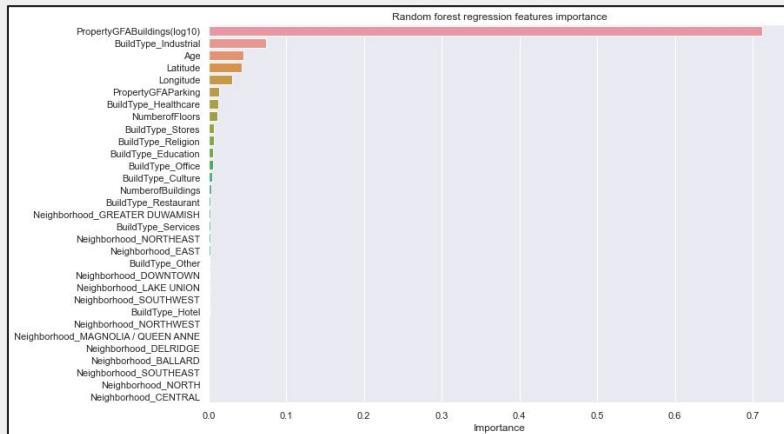
TotalGHGEmissions



En moyenne XGBoost est plus performant

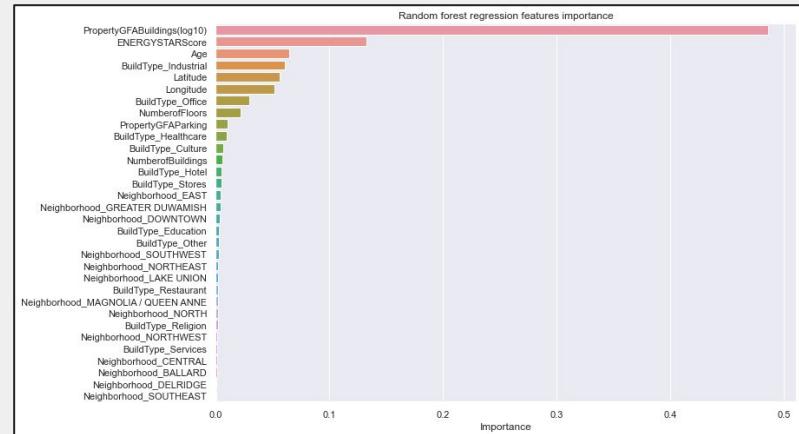
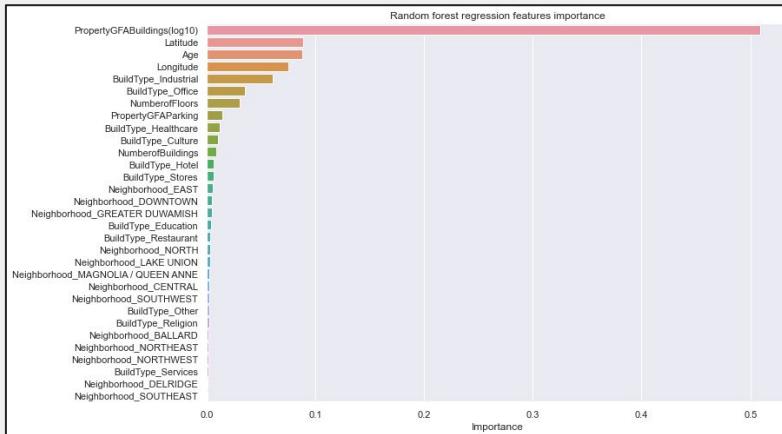
ENERGYSTAR score : SiteEnergyUse

Random forest	R ²	MAE	MAPE	RMSE
AVEC ENERGYSTAR	53.38 %	0.357	47.38 %	0.459
SANS ENERGYSTAR	40.77 %	0.391	61.61 %	0.517



ENERGYSTAR score : TotalGHGEmissions

Random forest	R ²	MAE	MAPE	RMSE
AVEC ENERGYSTAR	72.85 %	0.217	3.38 %	0.317
SANS ENERGYSTAR	60.27 %	0.273	4.30 %	0.384



04

CONCLUSION



Conclusion

Conclusion

- Prédiction des variables cibles avec différents modèles
- Les modèles random forest et XGBoost sont les plus performants
- Meilleures prédition sur la variable *SiteEnergyUse*
- Impact important de l'ENERGYSTAR score

Améliorations

- Attention au choix du jeu d'entraînement
- Utilisation d'un jeu de validation
- Transformer les variables qui présentent une asymétrie (box cox, etc..)
- Étudier la réduction de features

MERCI!

CONTENTS OF THIS TEMPLATE

This is a slide structure based on a business presentation

You can delete this slide when you're done editing the presentation

Fonts	To view this template correctly in PowerPoint, download and install the fonts we used
Used and alternative resources	An assortment of graphic resources that are suitable for use in this presentation
Thanks slide	You must keep it so that proper credits for our design are given
Colors	All the colors used in this presentation
Infographic resources	These can be used in the template, and their size and color can be edited
Customizable icons	They are sorted by theme so you can use them in all kinds of presentations

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You can describe the topic of the section here

03

CHANGE MANAGEMENT

You can describe the topic of the section here

04

IMPLEMENTING CHANGES

You can describe the topic of the section here

“This is a quote, words full of wisdom that someone important said and can make the reader get inspired.”

—**SOMEONE FAMOUS**



01

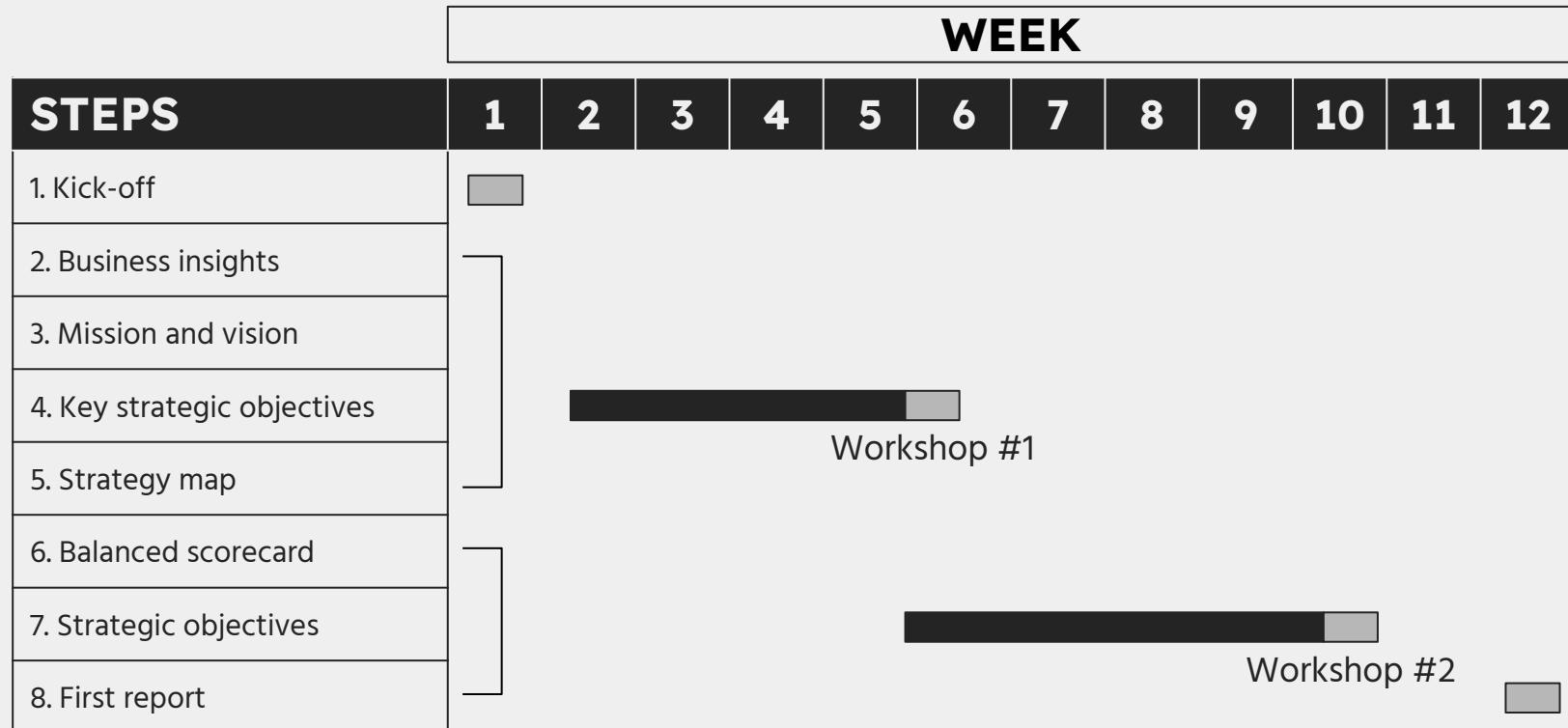
PROJECT & STRATEGY

You can enter a subtitle here if you need it

PROJECT & STRATEGY DEFINITION

You can give a brief description of the topic you want to talk about here. For example, if you want to talk about Mercury, you can say that it's the smallest planet in the entire Solar System

STRATEGIC PLANNING PROJECT PLAN



STRATEGIC PLANNING PROJECT PLAN

MISSION

Mercury is the closest planet to the Sun and the smallest planet of them all—it's only a bit larger than the Moon

VISION

Venus has a beautiful name and is the second planet from the Sun. It's hot and has a poisonous atmosphere

OBJECTIVES

Earth is the third planet from the Sun and the only one that harbors life in the Solar System. This is where we all live

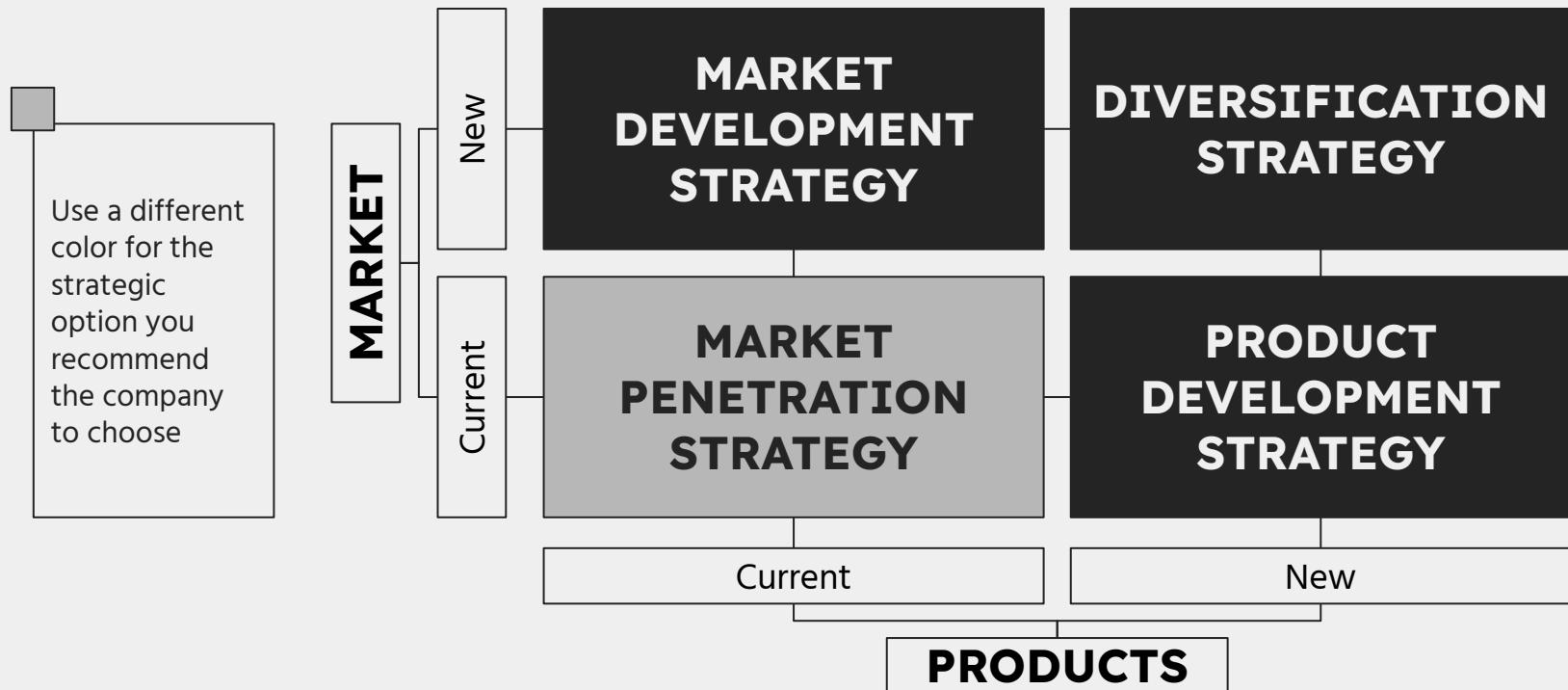
KEY INITIATIVES

Despite being red, Mars is actually a cold place. It's full of iron oxide dust, which gives the planet its reddish cast

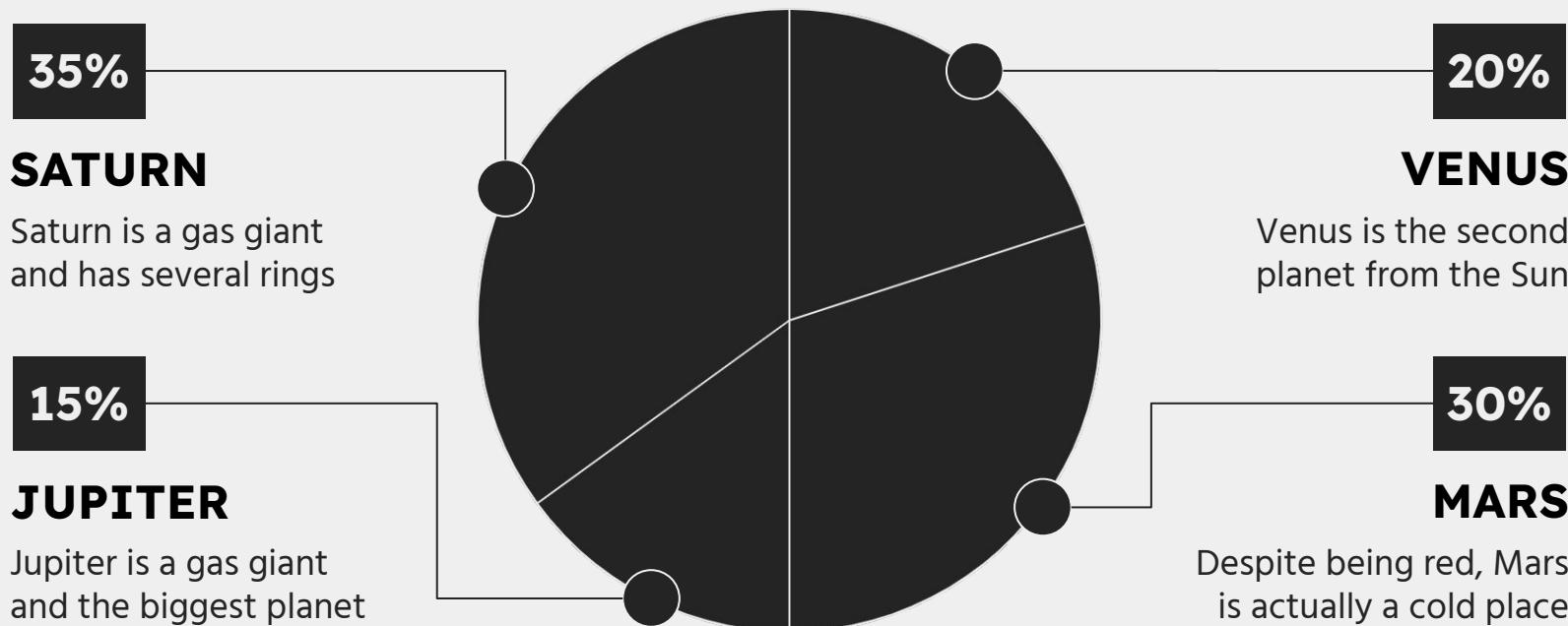
STRATEGY MAP & BALANCED SCORECARD

PERSPECTIVES	STRATEGIC OBJECTIVES			
FINANCIAL	F1 - Insert your own text	F2 - Insert your own text	F3 - Insert your own text	F4 - Insert your own text
CUSTOMER	C1 - Insert your own text	C2 - Insert your own text	C3 - Insert your own text	C4 - Insert your own text
INTERNAL PROCESS	I1 - Insert your own text	I2 - Insert your own text	I3 - Insert your own text	I4 - Insert your own text
LEARNING & GROWTH	L1 - Insert your own text	L2 - Insert your own text	L3 - Insert your own text	L4 - Insert your own text

STRATEGIC OPTIONS: RISKS



IMPACT OF THE RISKS



Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)

CORPORATE STRATEGIES



MARS

Despite being red, Mars is actually a cold place. It's full of iron oxide dust



VENUS

Venus has a beautiful name and is the second planet from the Sun



MERCURY

It's the closest planet to the Sun and the smallest in the Solar System

KEY DRIVERS OF THE PROFIT

	DESCRIPTION	EXAMPLE
SITUATION	You need to provide a neutral description with facts that you know your audience will agree on	Our company has been selling its products in the US for 10 years, with an annual profit growth above 10%
COMPLICATION	The complication is a desired change of the current situation	With a market share already above 40%, profit growth will be limited in the US
QUESTION	The question that implicitly results from the complication	Maybe we should we enter the European market?

DECISIONS: NEW MARKET, NEW PRODUCT,

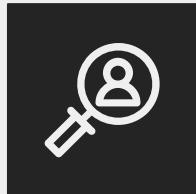


STRATEGIC PERSPECTIVES



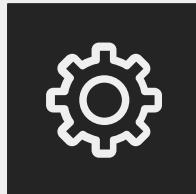
JUPITER

Jupiter is a gas giant and the biggest planet of them all



MARS

Despite being red, Mars is actually a very cold place



VENUS

Venus is the second planet from the sun and is terribly hot



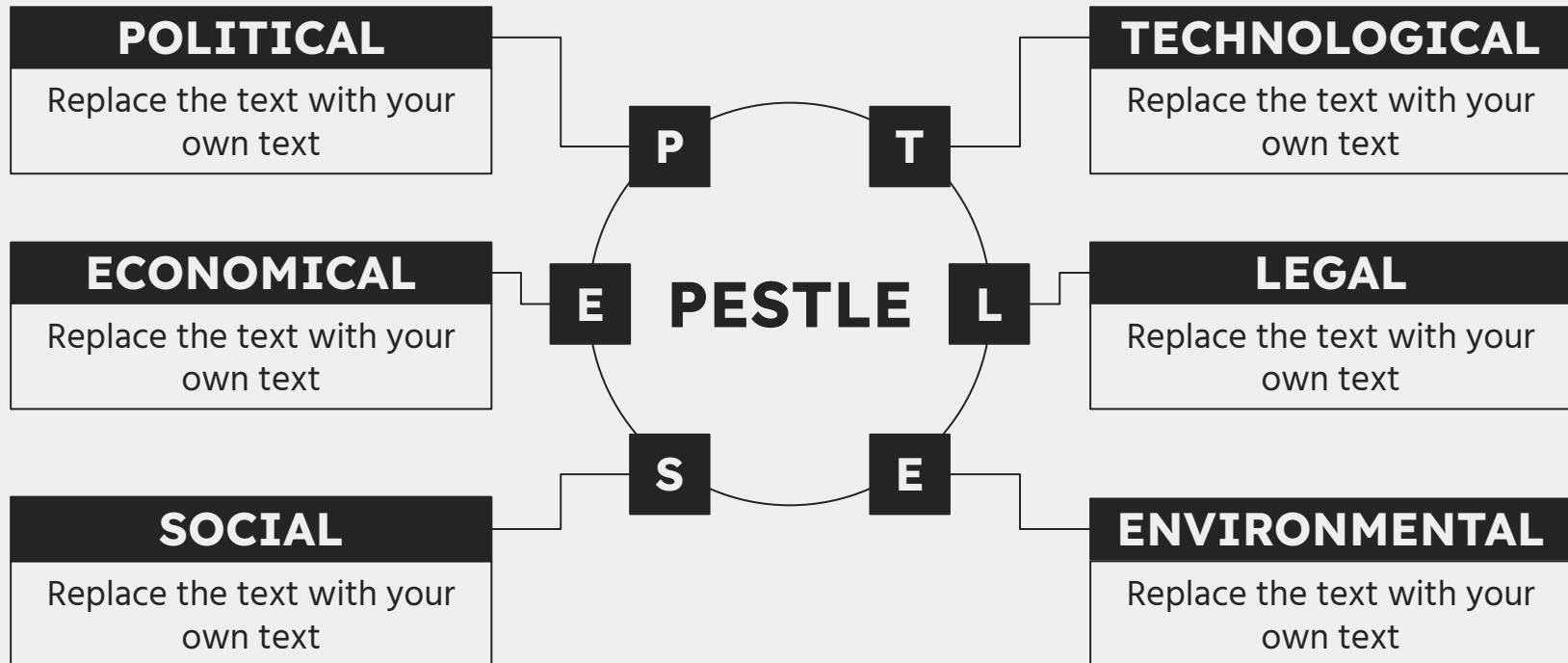
MERCURY

It's the closest planet to the Sun and the smallest of them all

AWESOME

WORDS

STRONG BUSINESS PLAN



STRONG BUSINESS CASE

PROJECT COSTS

\$4M

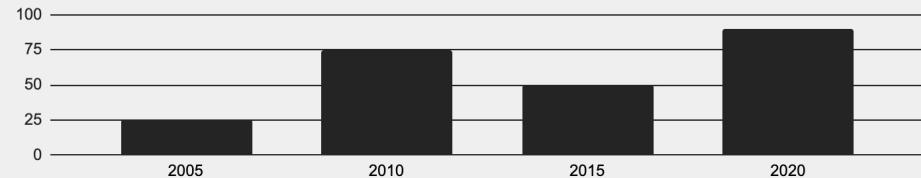
TANGIBLE BENEFITS

\$9M

PRESENT

\$8M

CASH FLOW



Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**

CHANGE IMPACT



Low



Medium



High

Mercury is the closest planet to the Sun and the smallest of them all

INTANGIBLE BENEFITS

Insert your own text here

STRATEGIC ALIGNMENT

Insert your own text here

MANAGER

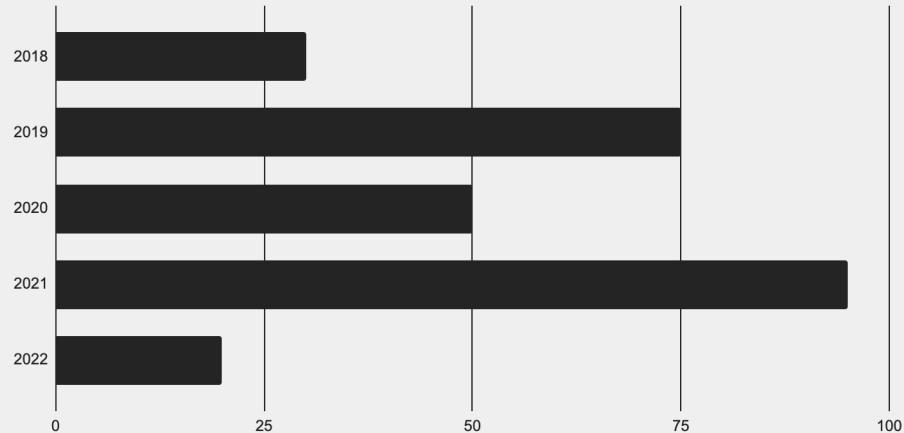
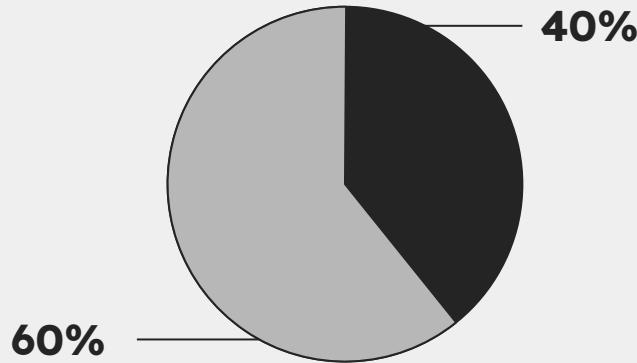
Project manager name

SPONSOR

Sponsor name

FINANCIAL MODEL

FINANCIAL MODEL



VENUS

Venus is the second planet from the Sun

MARS

Despite being red, Mars is a very cold place

Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**

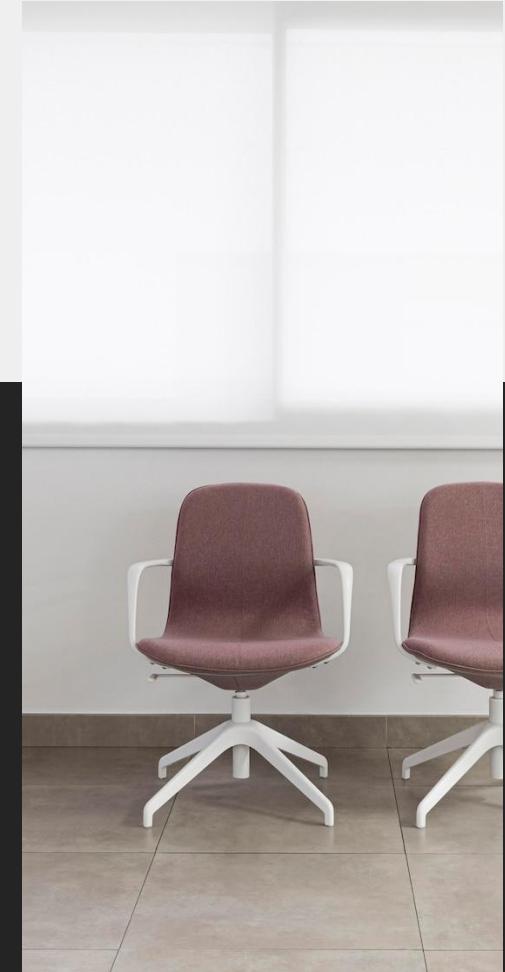
PRICING STRATEGY

	BASIC	STANDARD	ADVANCED	LEADING
LEVEL	1	2	3	4
PERCENTAGE	20%	70%	10%	<1%
DESCRIPTION	- Insert your description here - Insert your description here - Insert your description here	- Insert your description here - Insert your description here - Insert your description here	- Insert your description here - Insert your description here - Insert your description here	- Insert your description here - Insert your description here - Insert your description here

02

CONSULTING PROPOSAL

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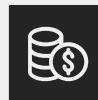


CONSULTING PROPOSAL



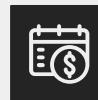
SERVICES

Mercury is the closest planet to the Sun



FEES

Venus is the second planet from the Sun



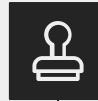
INVOICES

Despite being red, Mars is actually a cold place



EXPENSES

Jupiter is the biggest planet of them all



MATERIALS

Saturn is composed of hydrogen and helium



TERMS

Neptune is the farthest planet from the Sun

A PICTURE IS WORTH A THOUSAND WORDS



A PICTURE ALWAYS REINFORCES THE CONCEPT

Images reveal large amounts of data, so remember: use an image instead of a long text. Your audience will appreciate it



ANSWERS AND SUPPORTING ARGUMENTS

HOW CAN THE COMPANY REDUCE ITS COST BY 10%?

REDUCE COSTS BY \$5 MILLION THROUGH
OPERATIONAL IMPROVEMENTS

OUTSOURCE NON-CORE FUNCTIONS

Evaluate cost and service level of potential partners

Select non-core functions

Choose one partner for each function

SIMPLIFY CORE FUNCTIONS

Design current processes

Compare current process to best-in-class benchmarks

Adopt best practices based on benchmarks

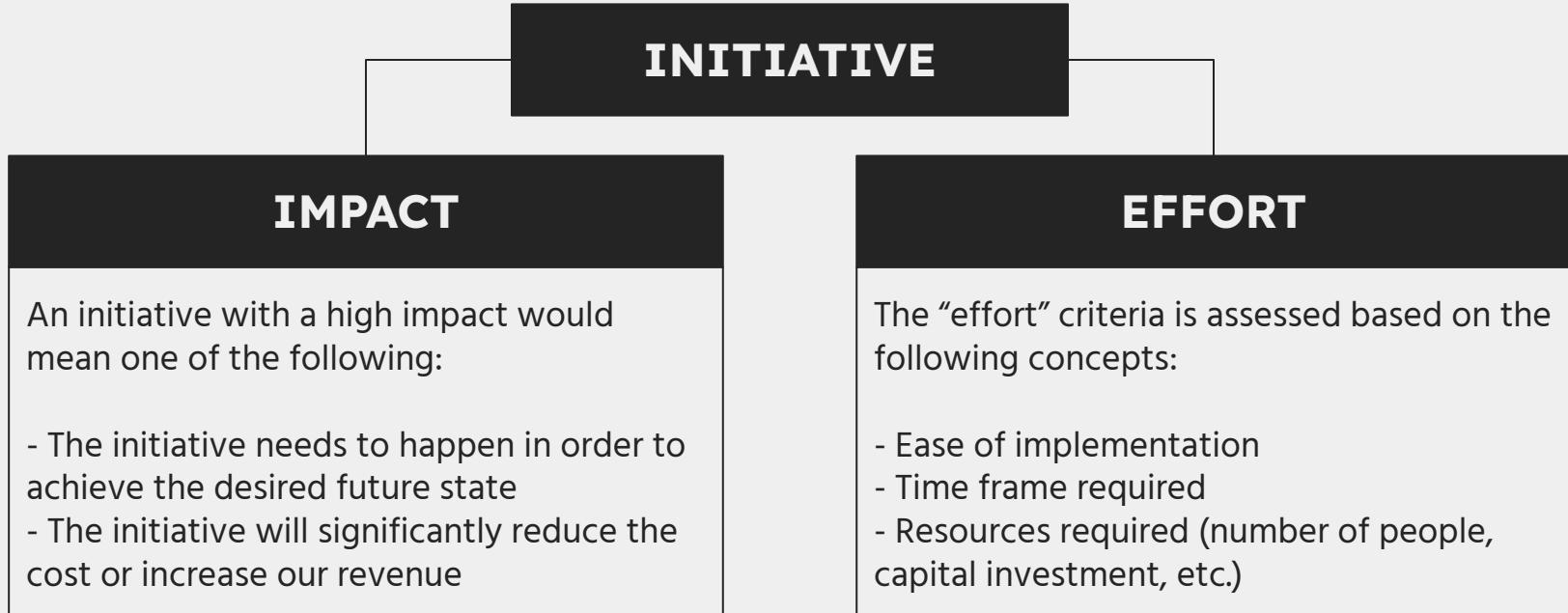
REVIEW SUPPLIER COST

Select and review current supplier costs

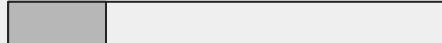
Evaluate cost of potential alternative suppliers

Negotiate supplier contracts/choose options

INITIATIVE PRIORITIZATION MATRIX: IMPACT & EFFORT



PRIORITIZATION MATRIX

	INITIATIVE	IMPACT	EFFORT
1	List all your potential initiatives		Very high
2	List all your potential initiatives		High
3	List all your potential initiatives		Low
4	List all your potential initiatives		High
1	List all your potential initiatives		Very high
2	List all your potential initiatives		High

A photograph of a modern office hallway. The ceiling and walls are made of light-colored wood panels. There are dark blue doors on the right side. The floor is made of light-colored tiles. In the background, there is a meeting room with a table and chairs.

03

CHANGE MANAGEMENT

You can enter a subtitle here if you need it

CHANGE MANAGEMENT APPROACH

Do you know what helps you make your point clear?

Lists like this one:

- They're simple
- You can organize your ideas clearly
- You'll never forget to buy milk!

And the most important thing: the audience won't miss the point of your presentation



BUSINESS CASE

Mercury is the closest planet to the Sun

1

BUSINESS NAME

Jupiter is the biggest planet of them all

2

Your logo here

Venus is the second planet from the Sun

3

XX / XX / XX

4

Saturn is composed of hydrogen and helium

5

Mars is actually a very cold place

6

Neptune is the farthest planet from the Sun

COMPETITOR COMPARISON TABLE

ATTRIBUTES	COMPETITOR A	COMPETITOR B	MY BUSINESS
PRICE	\$360	\$320	\$300
QUALITY	Low	Medium	High
CUSTOMER AGE	20-40	18-45	18-50
REPUTATION	Bad	Average	Good
LOCATION	Spain	Italy	USA

TARGET



NAME

Anna Wilson

AGE

XX years old

JOB

Lawyer

HOBBY 1



XX%

HOBBY 2



XX%

HOBBY 3



XX%

HOBBY 4



XX%

VENUS

Venus has a beautiful name and is the second planet from the Sun. It's terribly hot, even hotter than Mercury, and its atmosphere is extremely poisonous. It's the second-brightest natural object in the night sky after the Moon

MARS

Mars is actually a cold place

60%

40%

MERCURY

Mercury is the smallest planet

IMPLEMENT, TRACK & MANAGE PROGRESS

MANAGE PROGRESS

	PROGRESS	STATUS	LINK
VENUS	<div style="width: 40%;"><div style="width: 10px; background-color: #ccc;"></div><div style="width: 30px; background-color: #fff;"></div></div>	40% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	www.yourlinkhere.com
MARS	<div style="width: 35%;"><div style="width: 10px; background-color: #ccc;"></div><div style="width: 25px; background-color: #fff;"></div></div>	35% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	www.yourlinkhere.com
NEPTUNE	<div style="width: 70%;"><div style="width: 20px; background-color: #ccc;"></div><div style="width: 50px; background-color: #fff;"></div></div>	70% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	www.yourlinkhere.com
JUPITER	<div style="width: 15%;"><div style="width: 5px; background-color: #ccc;"></div><div style="width: 10px; background-color: #fff;"></div></div>	15% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	www.yourlinkhere.com
EARTH	<div style="width: 85%;"><div style="width: 25px; background-color: #ccc;"></div><div style="width: 60px; background-color: #fff;"></div></div>	85% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	www.yourlinkhere.com
CERES	<div style="width: 60%;"><div style="width: 15px; background-color: #ccc;"></div><div style="width: 45px; background-color: #fff;"></div></div>	60% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	www.yourlinkhere.com

CHANGE MANAGEMENT STRATEGY & PLAN

SIZE OF THE CHANGE						CHANGE COMPLEXITY
Extreme	Insert name of the change	Insert name of the change	Insert name of the change			
High			Insert name of the change	Insert name of the change	Insert name of the change	
Medium				Insert name of the change		
Moderate						
Low						
1 TEAM IMPACTED		1 BUSINESS UNIT	1 DIVISION	HALF COMPANY	EXTREME	

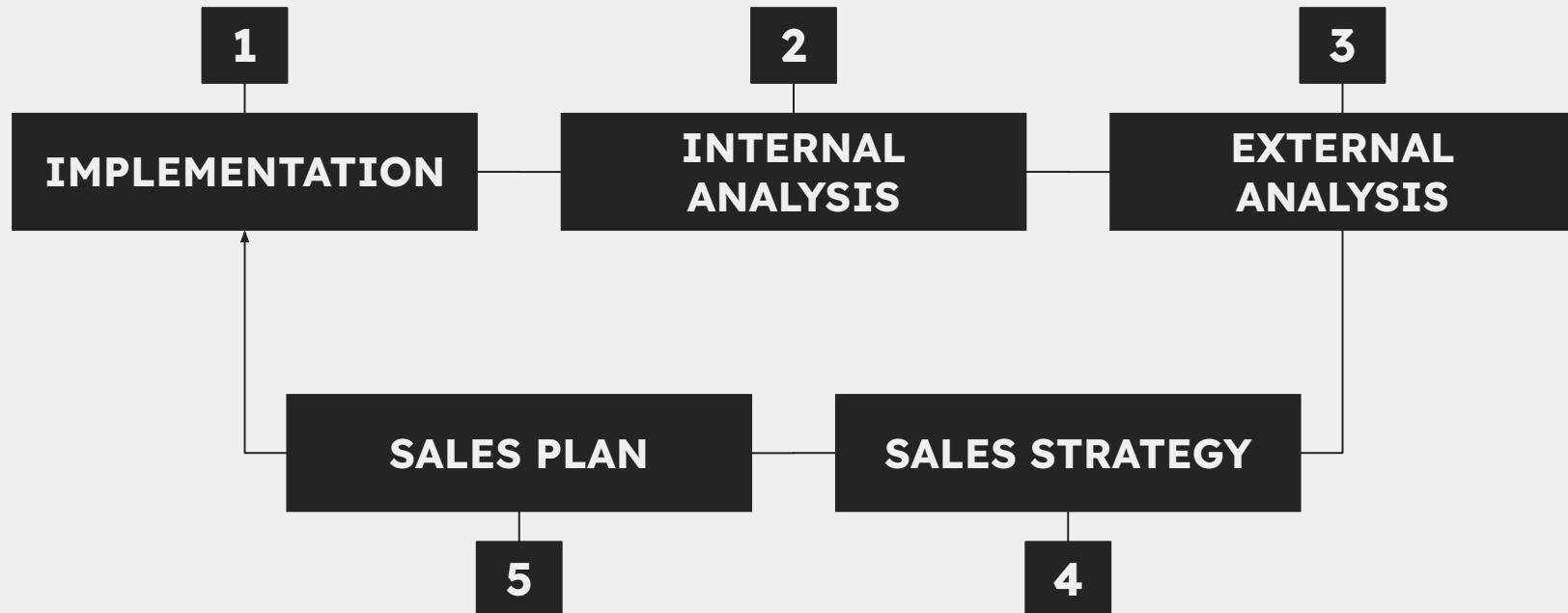
04

IMPLEMENTING CHANGES

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SALES AND STRATEGY PLAN



\$489,300

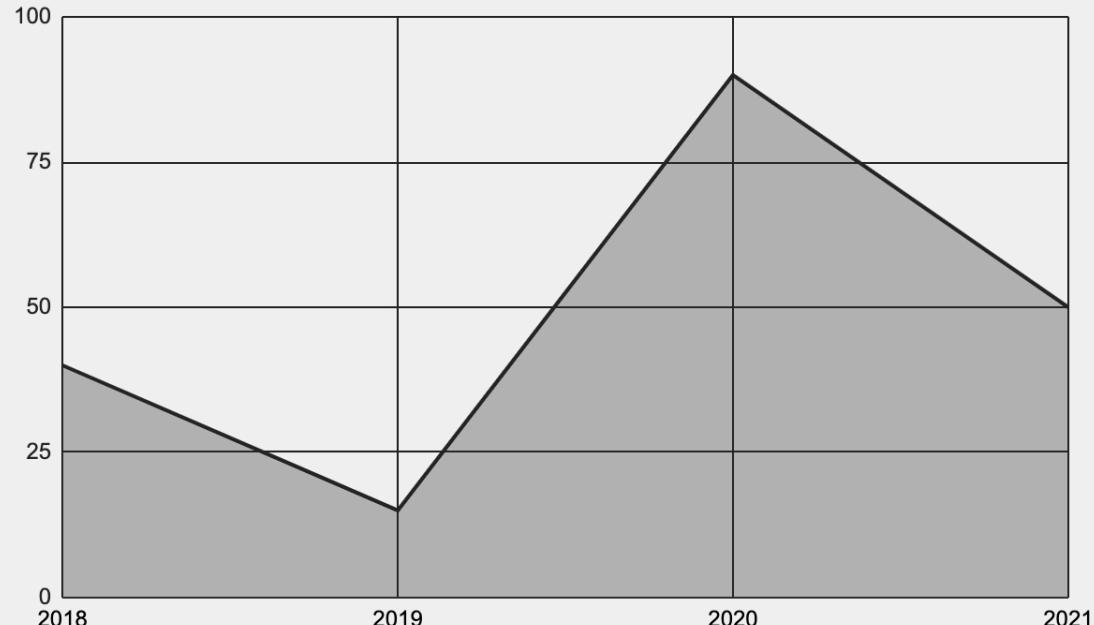
Big numbers catch your audience's attention

ABOUT THE TERMS OF THE AGREEMENT

MARS

Despite being red, Mars is actually a cold place. It's full of iron oxide dust, which gives the planet its reddish cast

* Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**



\$20,000

Mars is actually a cold place

\$15,000

Venus has a beautiful name

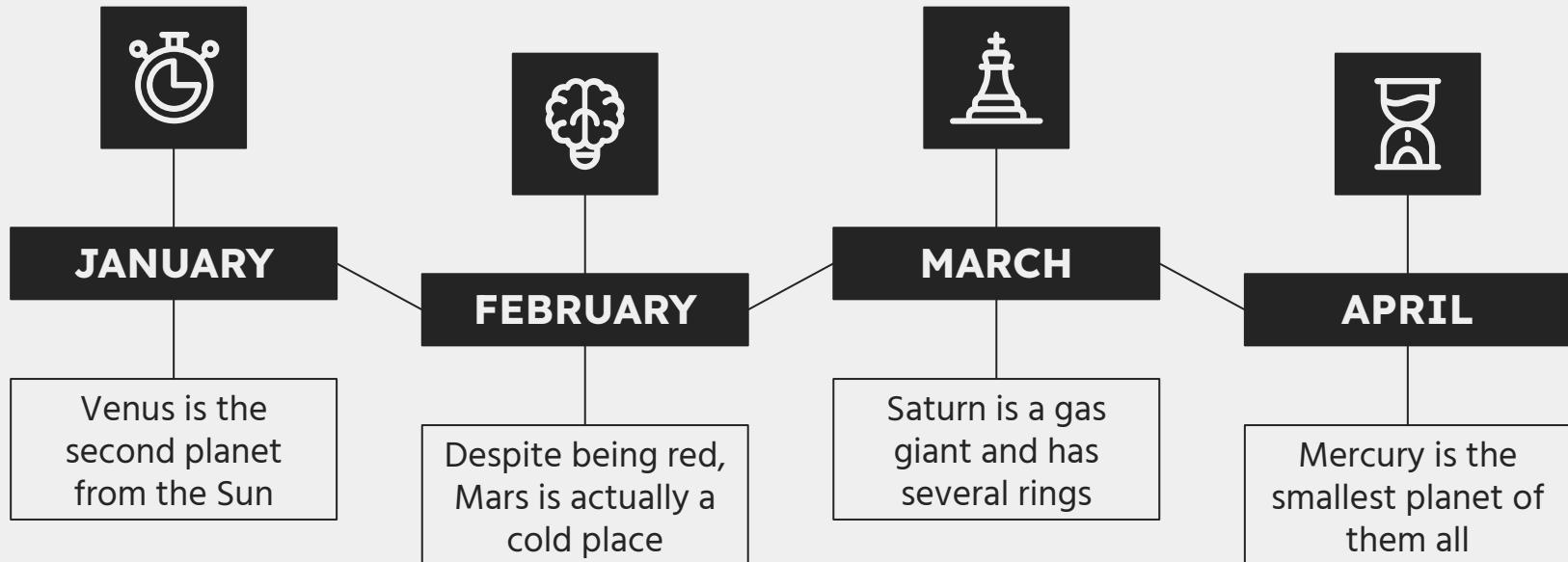
\$10,000

Mercury is the smallest planet

\$45,000

Saturn has several rings

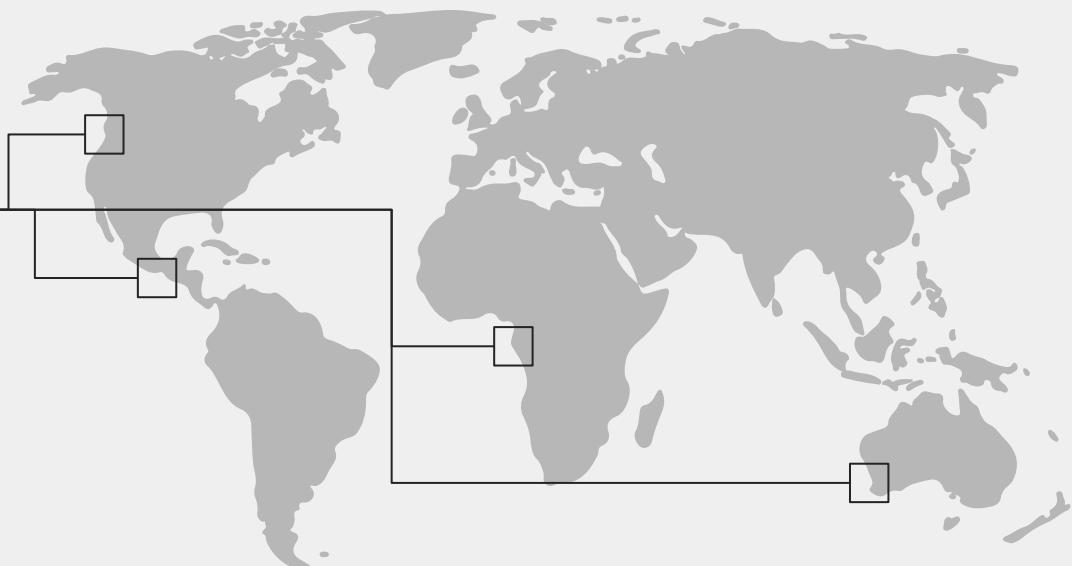
MANAGEMENT APPROACH



STRATEGIC ALLIANCES

VENUS

Venus is the second planet from the Sun and has very high temperatures



ANSWERS AND ARGUMENTS

WRITE YOUR QUESTION

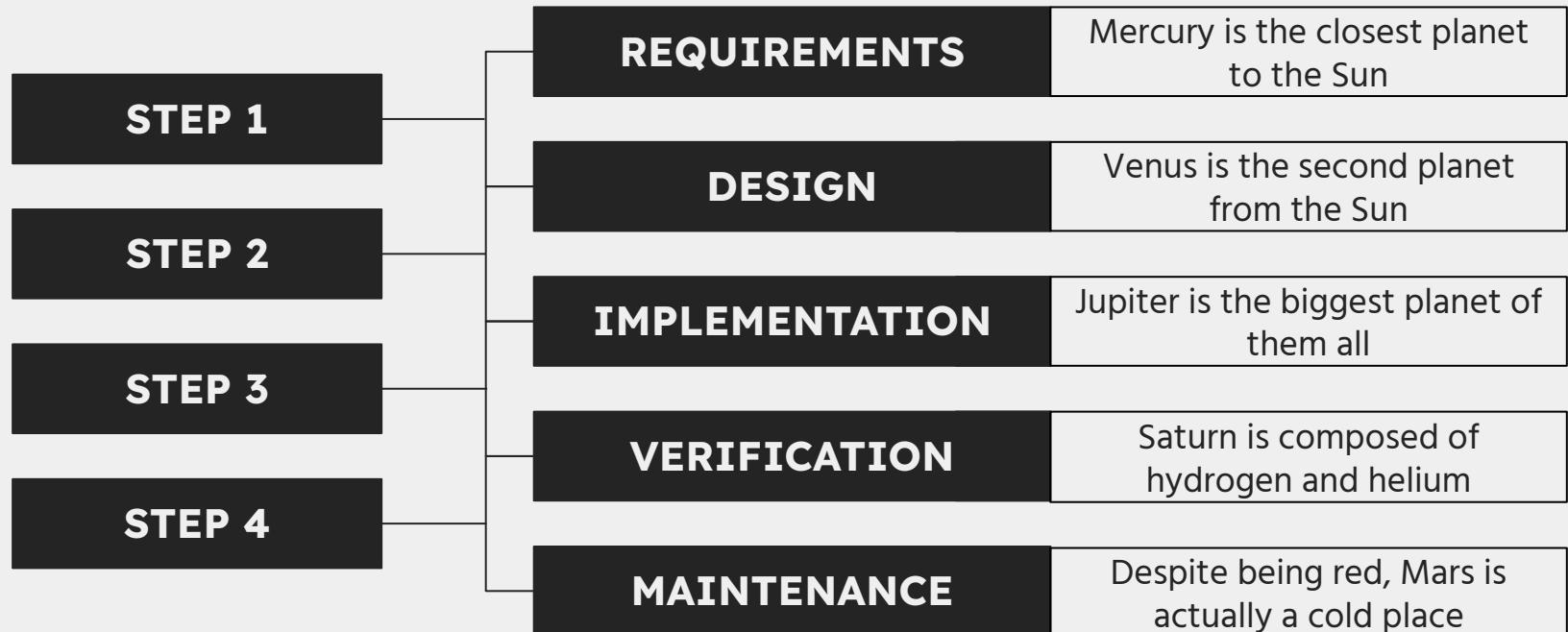
ANSWER 1

Mercury is the closest planet to the Sun and the smallest of them all. This planet's name has nothing to do with the liquid metal.
Mercury was named after a god

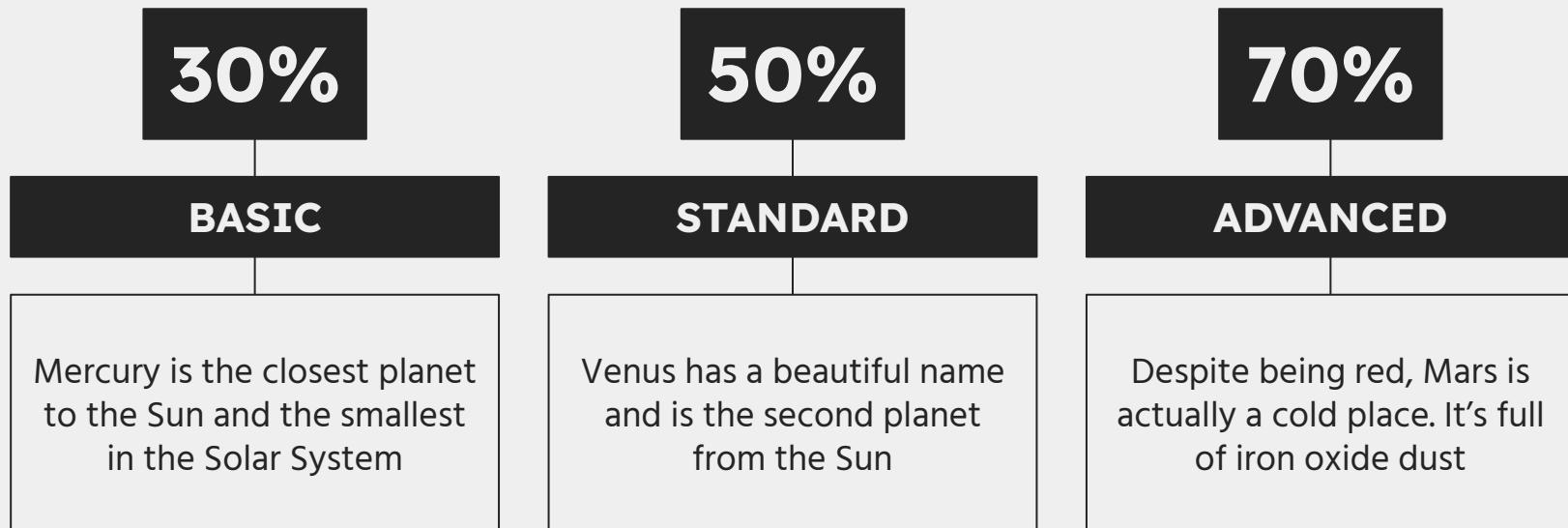
ANSWER 3

Jupiter is a gas giant and the biggest planet in the Solar System. It's the fourth-brightest object in the night sky. It was named after the Roman god of the skies and lightning

WATERFALL MANAGEMENT PLAN



MATURITY MODEL



PROFITABILITY RATIOS



TOP 10 QUESTIONS OF BUSINESS PLAN

1

What is your situation?

6

Who are the key players?

2

What is your vision?

7

How to make a difference?

3

How to reach your vision?

8

What is your marketing plan?

4

What do you offer?

9

What are your economics?

5

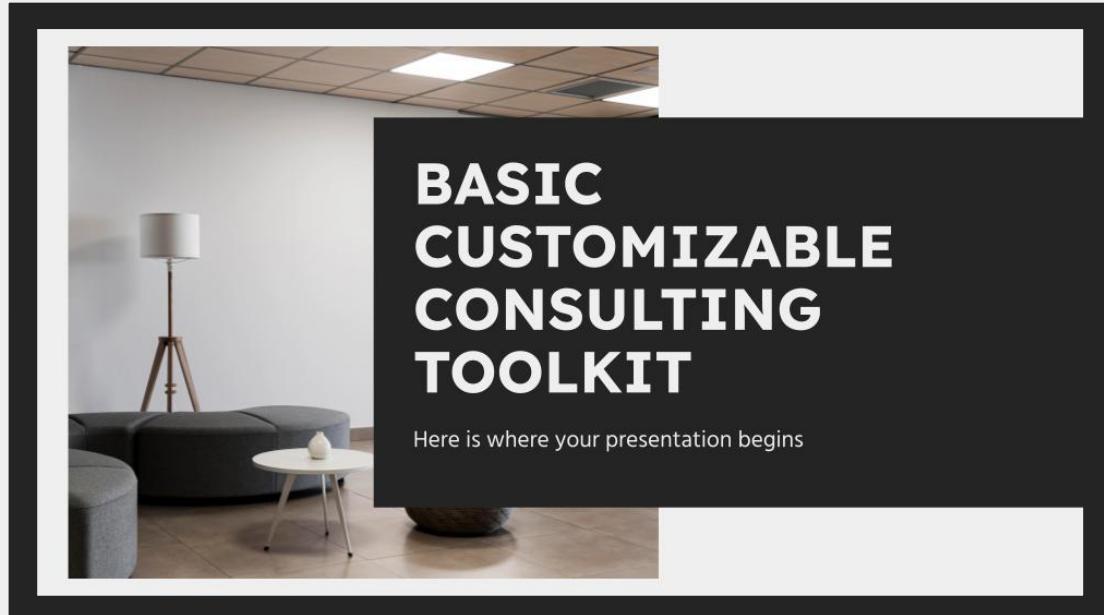
How big is the market?

10

What do you need to start?

DEMO SOFTWARE & APP

You can replace the image on the screen with your own work. Just right-click on it and select "Replace image"



OUR TEAM



TIMMY JIMMY

You can replace the image on
the screen with your own

JENNA DOE

You can replace the image on
the screen with your own

THANKS

Any questions?

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- High angle desk arrangement with laptop
- Front view of office desk with computer and chair
- Flat lay desk assortment with copy space
- Desk arrangement with laptop high angle
- Minimal home desk design
- Minimalist desk arrangement and chair
- Desk arrangement with laptop on table
- Empty conference room with copy space

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- Minimalist empty room in a business building
- Workplace chair with copy space
- Office chairs in empty office
- High angle laptop on table
- Empty hallway in a office building
- Front view workplace chair with copy space
- Corporate building with minimalist empty room
- Empty conference room with black office chairs
- People collage design

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#b7b7b7



#efefef

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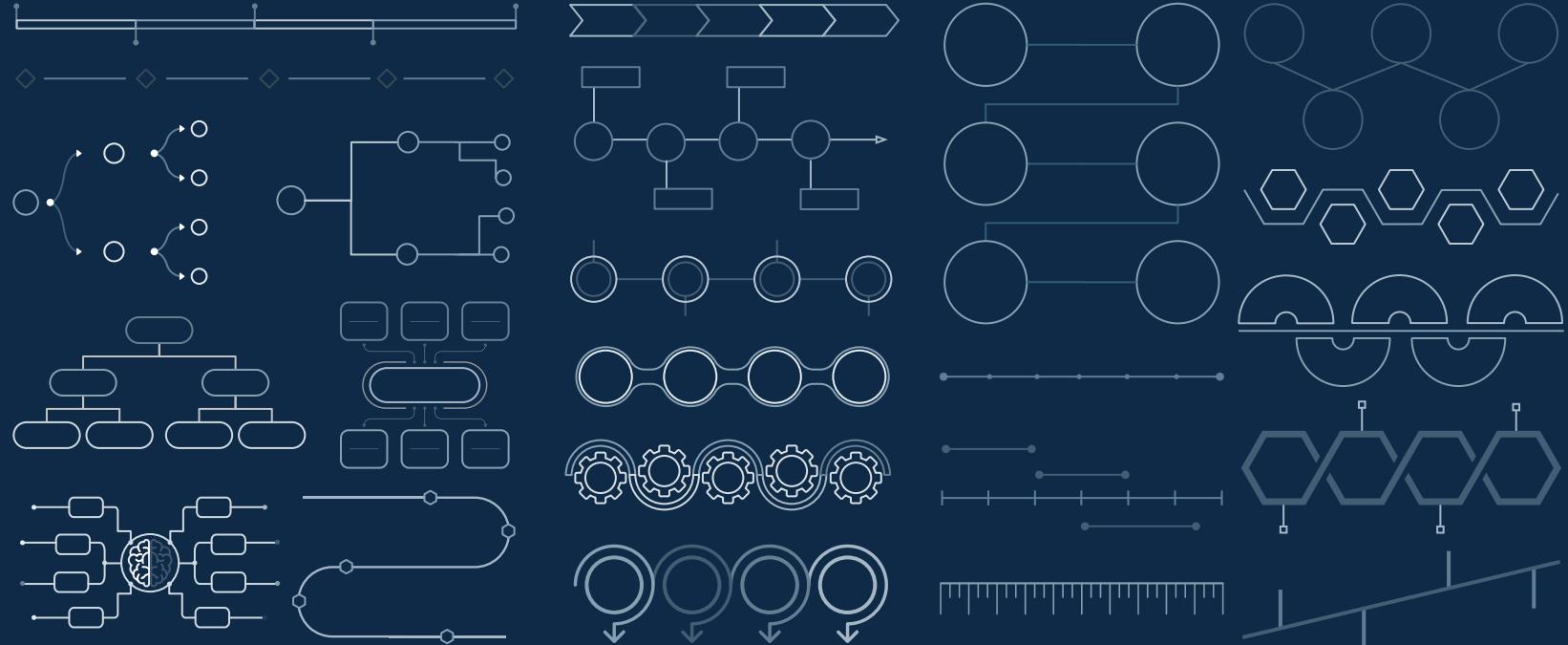
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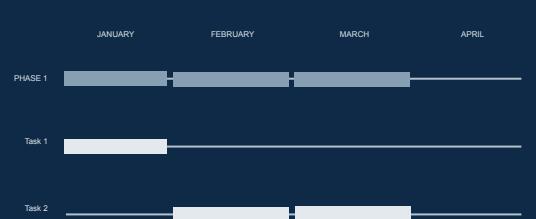
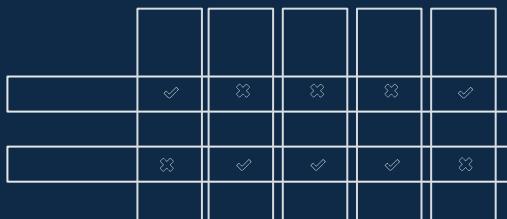
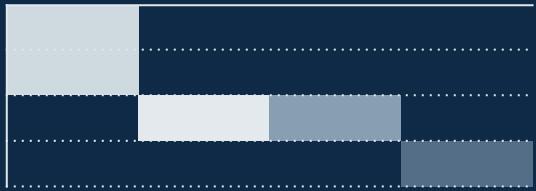
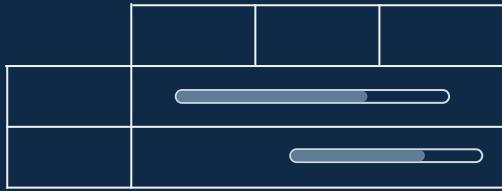
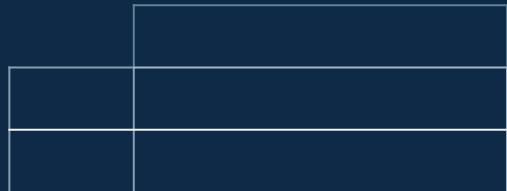
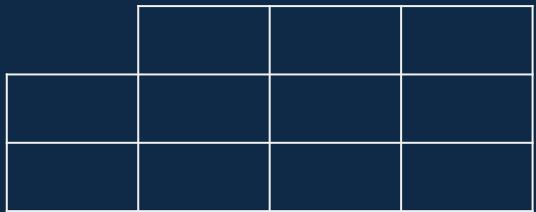
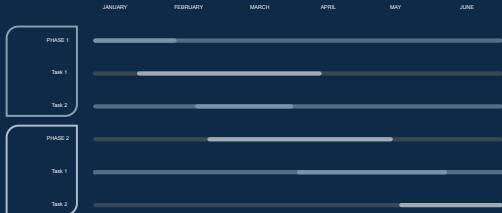
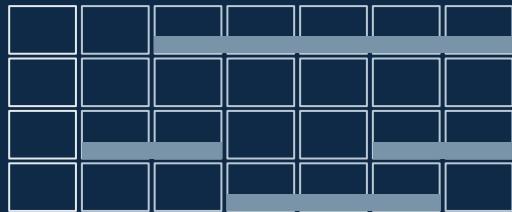
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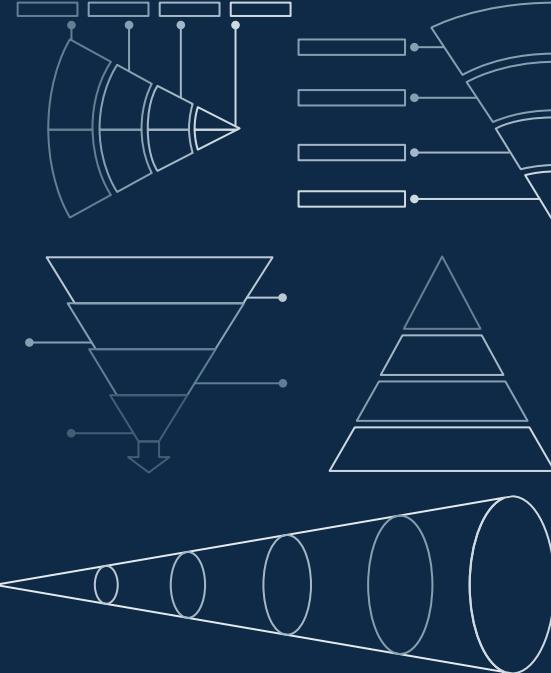
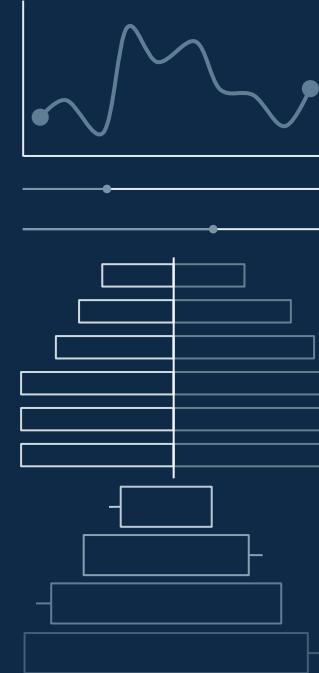
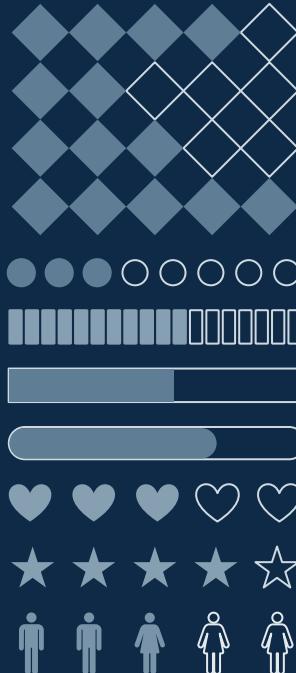
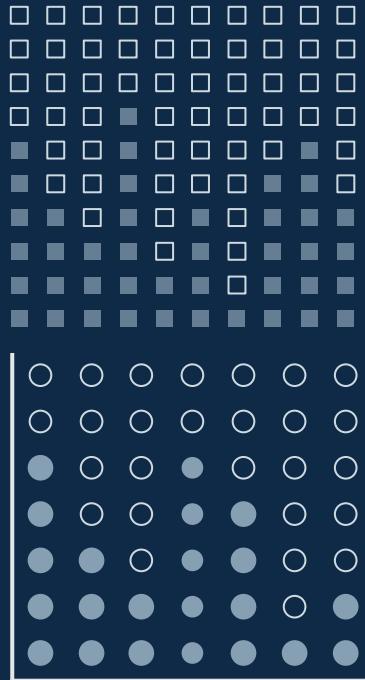












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