

# Final Presentation

Capgemini Consulting

*Group II*



ÉCOLE  
POLYTECHNIQUE  
UNIVERSITÉ PARIS-SACLAY

# Who are we?



**Sebastien Moeller**

Senior Data Scientist



**Viktor Malesevic**

Data Scientist



**Alessandro Girelli**

Data Scientist



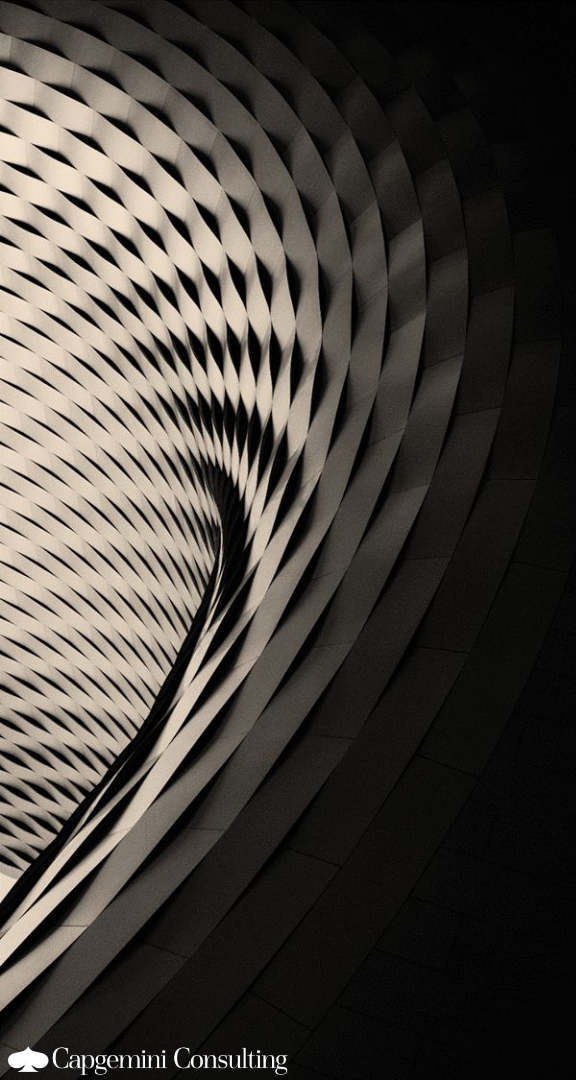
**Katie Chang**

Consultant



**Cyprien Nielly**

Project Manager



1. // **A Quick Recap: Context,  
Objectives & Methodology**

2. // **Results of the Study**


3. // **Business Case**

4. // **Next Steps**



## **AGENDA**





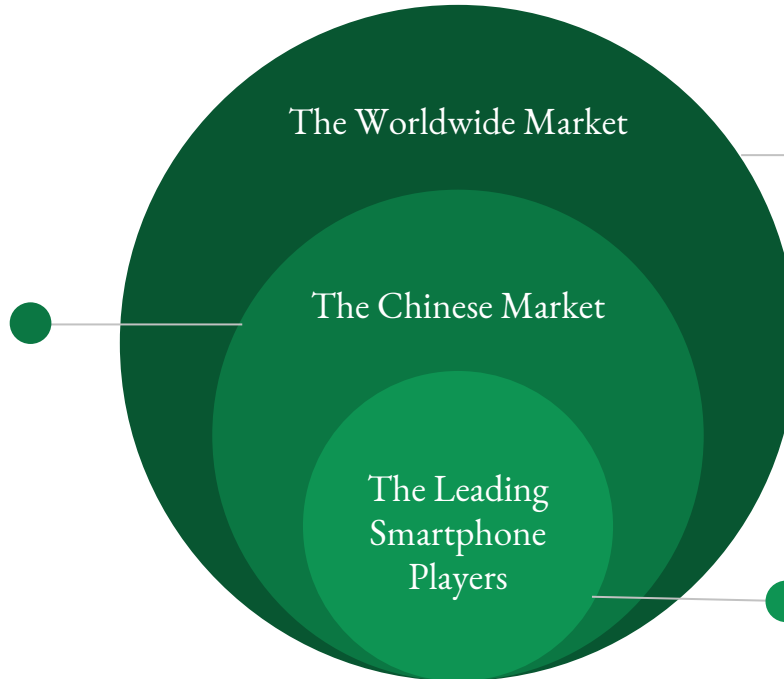
# 1. A Quick Recap: Context, Objectives & Methodology

# Smartphone industry is competitive enough...



## In the current largest smartphone market...

Chinese players dominate the domestic market, neither Apple or Samsung takes up more than 10%.



## Around the world...

Saturated leading smartphone players are struggling in the face of emerging Chinese competitors who are doubling their year-to-year market share growth.

## For Apple and Samsung...

Apple's revenue growth in smartphone has been dropping.

Samsung's worldwide smartphone shipment has saturated.

# Why customer satisfaction can be a major boost for you



Both Apple and Samsung are good at...

What was overlooked by Apple and Samsung?

The after-sales activities



**Innovative Research and Development Technique**

... make your company one of the leading players in the market.



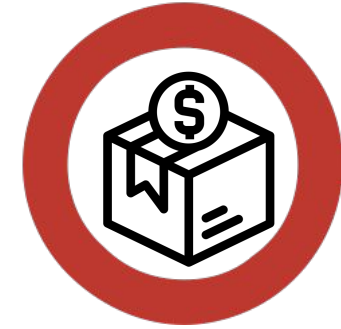
**Growing Revenue due to Customer Purchase**

... stabilizes your status as the industry icon among your competitors.



**High Customer Satisfaction Feedback**

... extends your ability to track and serve your customers way beyond the purchase activities.



**Steady Customer Repurchase Contributions**

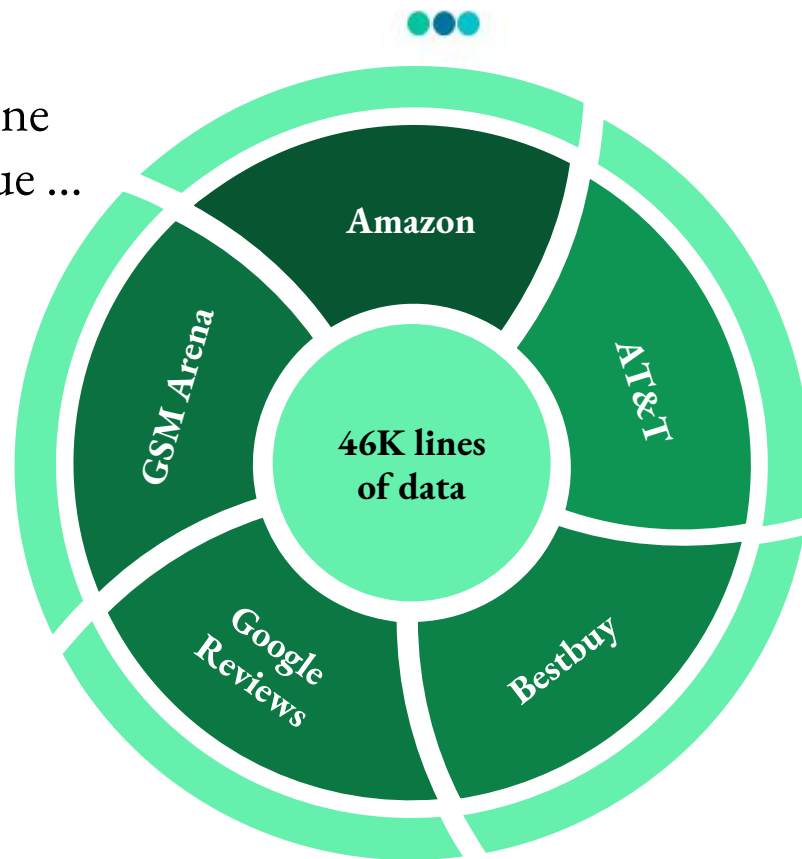
... guarantees you will always stay ahead of the game.

## Our goal is to:

- Keep track of the after-sales activities,
- Understand the customers,
- Ensure a high customer satisfaction rate, and
- Strengthen loyalty.

## Analyze web-scraped phone reviews: large and diverse data unexploited so far

Our belief is that online reviews can bring value ...



... and our methodology aims to provide **insights** into your customer concerns.



# A 3 steps methodology to overcome the challenge of analyzing big data



## 1. Collecting data

Web scraping 46,000 reviews from Amazon Reviews, Google Reviews & more.

## 2. Pre-processing

Data filtering, cleaning, and dimensionality reduction (Lemmatization, Stop words).

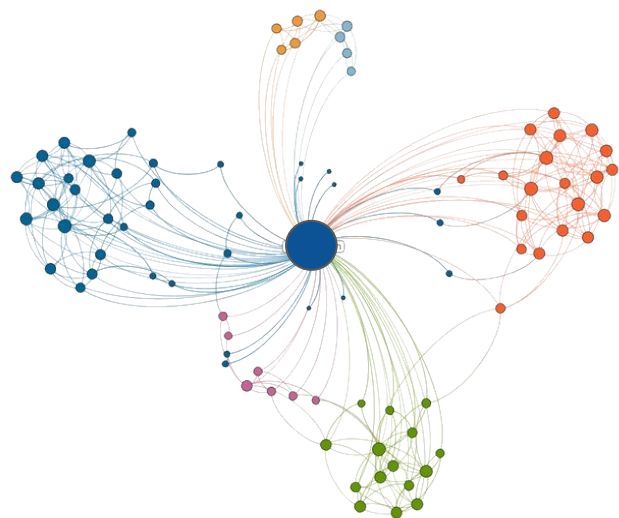
## 3. Extracting topics in an automated fashion

Extracting topics through statistical methods (NMF, LDA and Graph of Words).

## 2. Results of the Study: Graph of Words



# What is Graph of Words?

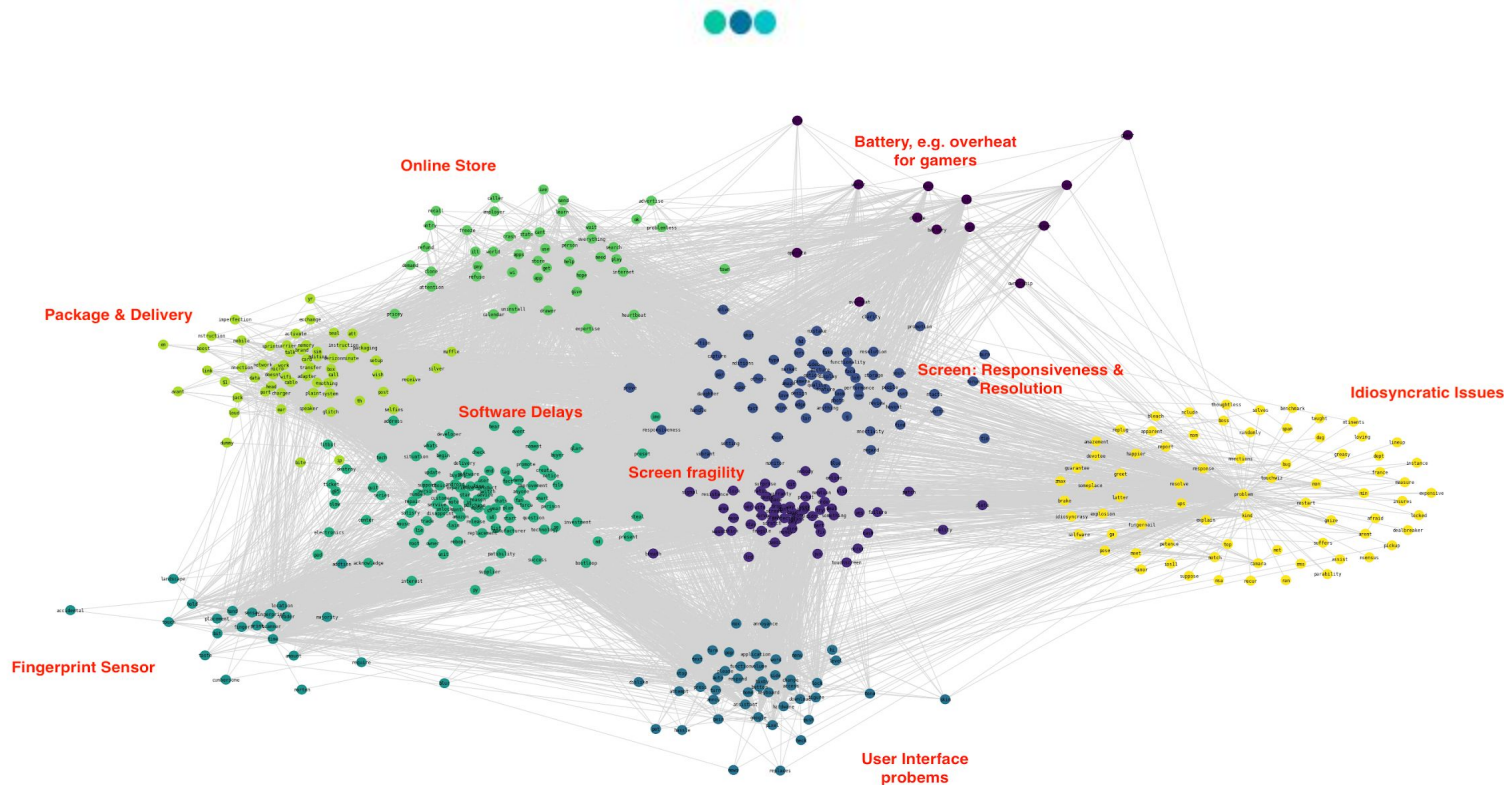


A **network** of the nouns appearing in the reviews together.

The model captures the position of words within a review, not just their appearance and frequency (LDA).

Can be “centered” around one word:  
in our case **problem** and its synonyms.

## 9 Topics extracted centered at “Problem” & synonyms



### 3. Business Case: After-Sales Optimization



# For internal stakeholders, we suggest to focus on after-sale services





# How our solution drives value for the after-sales stakeholders

## Customer



### Handle Defaults Fast and Efficiently

- Average handling time (between complaint and phone fixed/replaced)
- Percentage of “available immediately” pieces



### Increase Customer Satisfaction

- Churn rate
- Customer satisfaction rate

## Retailer



### Reduce Aftersales Work for Distributors

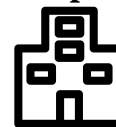
- Volume of inbound aftersale contacts through distributors



### Increase Distributor Satisfaction

- Distributor satisfaction rate
- % of your products promoted by retailer

## Company



### Optimize the cost of solving an issue

- Average money spent on each repair
- % usage of automated channels

### Gain Professional Experience and Reputation

- Better user Experience

# Benefits & Costs Matrix



Directly quantifiable

Not directly quantifiable

Benefits

▪ **Benefits:**

- Decrease **Volume of complaints**
- Decrease **Resolution time**
- Decrease **Returns / Repairs**

▪ **Benefits:**

- Improved **Brand Image**
- Enhanced **Innovation process**
- Valuable **Customer insights**
- Increased **Customer/ Employees/ Retailers/ Partners satisfaction**

Costs

▪ **Integration:**

- Consulting Cost (Data Science + Business)
- Change management

▪ **Run:**

- IT platform
- Operation

▪ **Risk:**

- **Brand image risks** in case of inadequate communications
- **Legal risks** when using customer reviews

### 3. Business Case: Current state vs our value proposition



# A currently expensive service due to low automation

## 2.7 millions € of expenses for only Battery, Camera, Screen issues

Each customer contact costs around 4€ and takes 120 sec in average

### Baseline - Projections

	2018
<b>Levers 1 and 2</b>	
<b>Volumes of contacts</b>	
Vol inbound contacts - Phone	205 200
Vol inbound contacts - Email	266 000
Vol inbound contacts - Social media	159 600
Vol inbound contacts - Web selfcare	129 200
<b>Total</b>	<b>760 000</b>
<b>Costs of contacts</b>	
Cost per inbound contact - Phone	5,00 €
Cost per inbound contact - Email	4,00 €
Cost per inbound contact - Social media	4,00 €
Cost per inbound contact - Web selfcare	0,10 €
<b>Total levers 1 &amp; 2</b>	<b>2 741 320,00 €</b>

## Currently only 17% of Web selfcare cases

Contacts through phone, mail or social media are much costlier

### Baseline - Hypotheses

#### Levers 1 & 2 - Decrease on inbound contacts through pro-active care

	2018
Total volume of inbound contacts	2 000 000
Concerned contacts (battery, camera, display)	38,0%
Yearly growth	1,50%
% Phone	27,0%
% Email	35,0%
% Social media	21,0%
% Web selfcare	17%

# Our promise: More than 800K€ saved per year from year 3

## Decrease from 120sec to 100sec average handling time per customer

Time and money saved through increase of web and selfcare cases over the costly alternatives



### Forecast - Assumptions

#### Levers 1 & 2 - Decrease on inbound contacts through pro-active and self-care

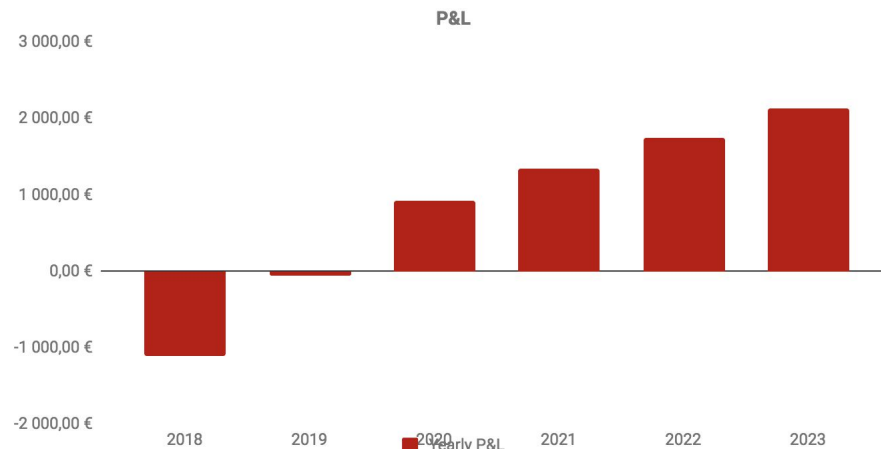
	2018
Impact on inbound volumes (phone, email, social media)	-16,0%
Impact on web & selfcare volumes	20,0%

#### Lever 2 - Decrease of contact costs through better processes

	2018
Average handling time	120
Time saved	20
Impact	-16,0%

## An increasing profit from year 3

Initial investment in IT and training brings long term profit for the After-Sales service



# Details

	2018	2019	2020	2021	2022	2023
<b>Levers 1 and 2</b>						
<b>Volumes of contacts</b>						
Vol inbound contacts - Phone	205 200	208 278	211 402	214 573	217 792	221 059
Vol inbound contacts - Email	266 000	269 990	274 040	278 150	282 323	286 558
Vol inbound contacts - Social media	159 600	161 994	164 424	166 890	169 394	171 935
Vol inbound contacts - Web selfcare	129 200	131 138	133 105	135 102	137 128	139 185
<b>Total</b>	<b>760 000</b>	<b>771 400</b>	<b>782 971</b>	<b>794 716</b>	<b>806 636</b>	<b>818 736</b>
<b>Costs of contacts</b>						
Cost per inbound contact - Phone	5,00 €	5,25 €	5,51 €	5,79 €	6,08 €	6,38 €
Cost per inbound contact - Email	4,00 €	4,20 €	4,41 €	4,63 €	4,86 €	5,11 €
Cost per inbound contact - Social media	4,00 €	4,20 €	4,41 €	4,63 €	4,86 €	5,11 €
Cost per inbound contact - Web selfcare	0,10 €	0,11 €	0,11 €	0,12 €	0,12 €	0,13 €
<b>Total levers 1 &amp; 2</b>	<b>2 741 320,00 €</b>	<b>2 921 561,79 €</b>	<b>3 113 654,48 €</b>	<b>3 318 377,26 €</b>	<b>3 536 560,56 €</b>	<b>3 769 089,42 €</b>

## Costs

	2018	2019	2020	2021	2022	2023
Implementation of the selfcare & pro-active care platforms	800 000	400 000				
Run costs for the selfcare & pro-active care platforms		300 000	315 000	330 750	347 288	364 652
Change management	300 000	105 000				
Operations		210 000	220 500	231 525	243 101	255 256
Inflation rate		5%	5%	5%	5%	5%

## P&L

	2018	2019	2020	2021	2022	2023
<b>Cost savings</b>						
Baseline	0,00 €	2 921 561,79 €	3 113 654,48 €	3 318 377,26 €	3 536 560,56 €	3 769 089,42 €
Forecast	0,00 €	1 955 051,59 €	1 657 281,57 €	1 405 656,68 €	1 193 078,60 €	1 013 544,33 €
<b>Total</b>	<b>0,00 €</b>	<b>966 510,20 €</b>	<b>1 456 372,91 €</b>	<b>1 912 720,58 €</b>	<b>2 343 481,97 €</b>	<b>2 755 545,09 €</b>
<b>Build &amp; runImplementation costs (BUILD + RUN)</b>						
Baseline	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
Forecast	1 100 000,00 €	1 015 000,00 €	535 500,00 €	562 275,00 €	590 388,75 €	619 908,19 €
<b>Total</b>	<b>1 100 000,00 €</b>	<b>1 015 000,00 €</b>	<b>535 500,00 €</b>	<b>562 275,00 €</b>	<b>590 388,75 €</b>	<b>619 908,19 €</b>
<b>Yearly P&amp;L</b>	<b>-1 100 000,00 €</b>	<b>-48 489,80 €</b>	<b>920 872,91 €</b>	<b>1 350 445,58 €</b>	<b>1 753 093,22 €</b>	<b>2 135 636,90 €</b>
<b>Cumulated P&amp;L</b>	<b>-1 100 000,00 €</b>	<b>-48 489,80 €</b>	<b>872 383,11 €</b>	<b>2 222 828,69 €</b>	<b>3 975 921,90 €</b>	<b>6 111 558,80 €</b>





## **4-1. Next Steps: Integration**

# Integration Timeline



April 2018				August 2018				December 2018				April 2019							
April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July				
IT Integration								Euros 1,200, 000											
		Model Building and Team integration																	
Change Management																Euros 500,000			
				Training of teams															
								Finalization											

## 4-2. Next Steps: Additional option

## High Tech Option: A dashboard of classified trends (4 months)

Cost 600,000 - 1,000,000 | Additional Profit 300,000 per year

### 1. Classifier

Continue the development of a classifier that labels reviews into topics

Trending topics

### 2. Real Time

Real-time web scraping and integration to dataset

Continuously updated topics

Time series software

### 3. Towards larger

Parallel programming to be able to exploit virtually all the reviews available online

Deeper insights

Hadoop cluster



- ☒ iPhone X
- ☒ iPhone 8
- ☒ Samsung S8
- ☒ Samsung S9

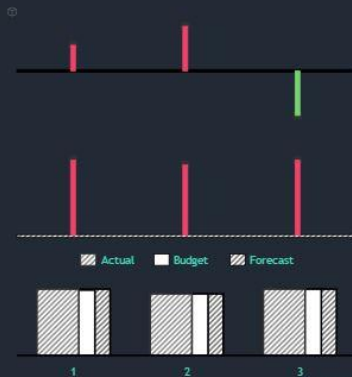
average decline  
compared to  
previous quarter

Forecast indicates  
increasing trend



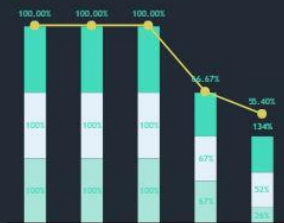
12.59%

Problem A



9.82%

Problem B



7.79%

Problem C



Software Hardware



## Problem Comments

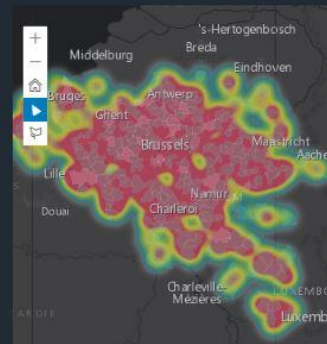
Problem A  
Whenever I restart I Problem A...  
Jan 5, 2017

Problem B  
Problem B happened and broken my  
phone!  
Jan 5, 2017

Problem C  
The new software update is causing  
Problem C  
Jan 5, 2017

## Geographical Problem Origin

Select



# Q & A