

# Data Science Workshop

## Lecture 8: Research in Business

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Knowledge Education Development

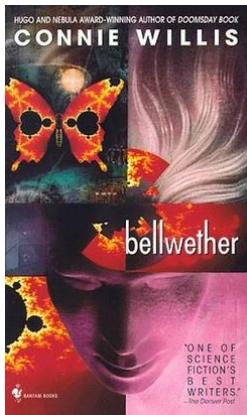
**Warsaw University  
of Technology**

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**MSc program in Data Science has been developed  
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# Research in Business



Management cast a cold eye in our direction. “The Niebnitz Grant Committee is looking for outstanding creative projects with the potential for significant scientific breakthroughs, which is what GRIM is all about. Now I’d like you to get in groups and write down five things you can do to win the Niebnitz Grant.”

“Pray,” Bennett said.

I grabbed a piece of paper and wrote down:

1. Optimize potential.
2. Facilitate empowerment.
3. Implement visioning.
4. Strategize priorities.
5. Augment core structures.

“What is that?” Bennett said, looking at the list. “Those make no sense.”

“Neither does expecting us to win the Niebnitz Grant.” I handed it in.

“Now let’s get busy. You’ve got divergent thinking to do. Let’s see some significant scientific breakthroughs.”

Connie Willis *Bellwether*.

## Meaning of research

- Understanding of our business future tasks.
  - Identification of problems.
  - Creation of solutions.
- The understanding of the tasks is out of guesses and our previous experience with similar tasks.

## Role of research

- Usually, management has a firm conviction about the problem's source.
- Usually, the management is wrong, and the conviction is not based on research.
- The research has to support the correct definition of the problem.

## Why does not business carry on research?

- A lack of time.
- A lack of funds.
- A lack of needs.

## Research in marketing?

- Marketing research is not statistical data analysis.
- It is a questioning of a limited number of people and analysing their responses.
- It is also an intentional aspiration to gather important information to support Business Case.

# Quantitative and qualitative research

- Quantitative research
  - Measurable data.
  - Large population.
  - Closed-ended questions.
- Qualitative research
  - An insight into the issue.
  - Cannot be extended to the whole population.
  - In focus groups.
  - Open-ended questions.



## Types of research

- Data gathering.
- Data mining.
- Opinion interpretation.
- Assumptions challenge.

## Data gathering

- Research before introducing a new product to the market.
  - A lack of users.
  - An uncertain target group.
- General questions directed to a potential target group.
  - A survey (e.g. during a purchase of similar products).
- The main aim
  - A gathering of information to support business decisions.

# Data mining

- Obtaining new information about the product.
- A data collected from the users.
  - Shadowing
  - Focus groups
- The main aim
  - A discovery of the users' views and beliefs.

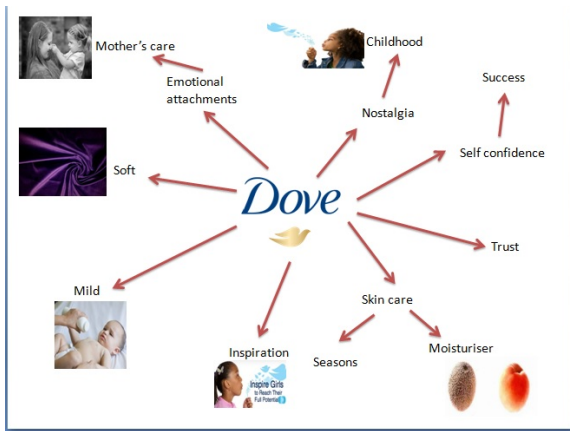
## Interpretation of opinions

- An attempt to interoperate qualitative data.
  - Voting with dots.
    - Evaluation of priorities
  - Image interpretation.
  - Zaltman metaphor elicitation technique (ZMET)
    - Exploring the users' emotions.
- The main aim
  - An interpretation of the results.

# Image interpretation



# ZMET



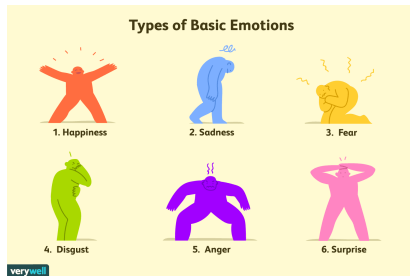
<https://thefreemindconfluence.wordpress.com/2018/01/16/dove-brand-zmet-analysis/>

## Assumptions challenge

- An assumptions challenge eliminates threats of wrong assumptions that may harm the whole project/process.
  - Roast
    - Allows us to find lacks in the project.
  - 5 Why questions.
    - Allows us to redefine the problem.
- The main aim
  - Finding of lacks and weaknesses in the project.

# Task

- In group
  - Prepare an image interpretation for your project.
  - Find emotions that your project stirs up.
  - Use members of other groups as the testers.



<https://www.verywellmind.com/an-overview-of-the-types-of-emotions-4163976>



## Need of empathy



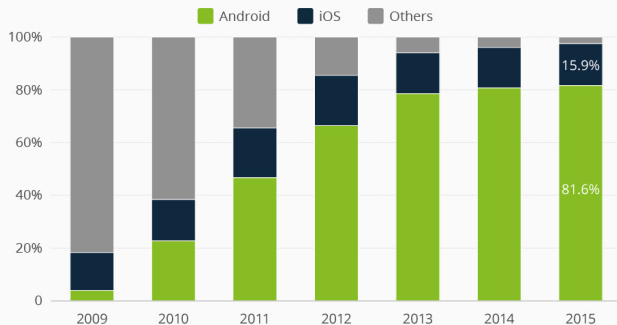
## Use case

- A mobile app development company wants to introduce a new application.
- What technical aspects should be analysed?
- How important is a human factor in this research?

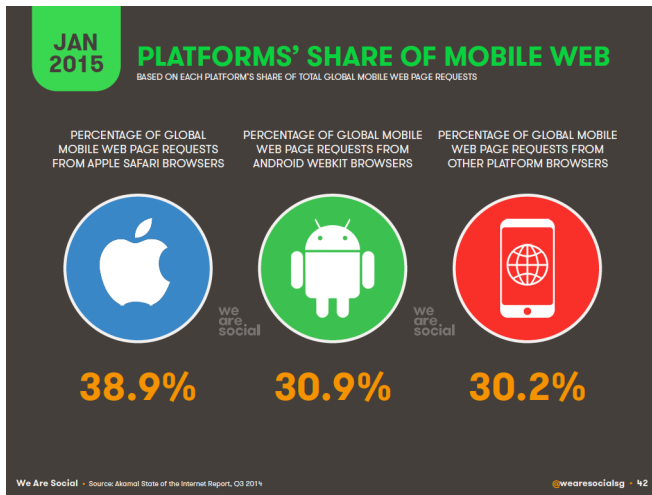
# Platform

## Android and iOS Are the Last Two Standing

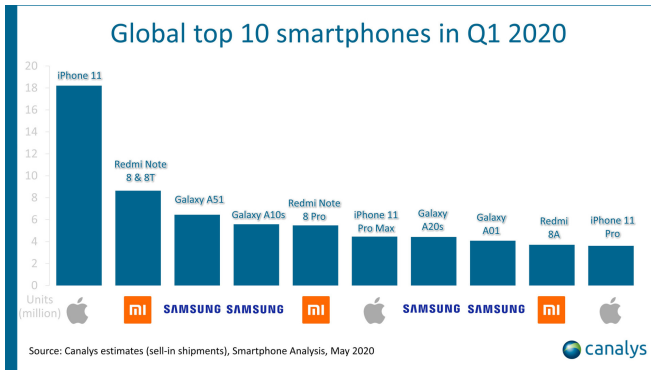
Worldwide smartphone operating system market share (based on unit sales)



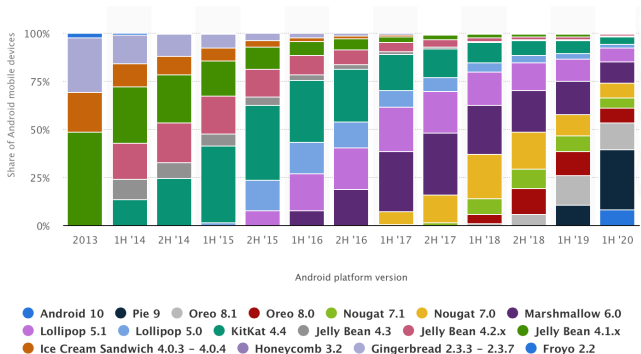
## Traffic share



# Models



# Version



<https://www.statista.com>

## Conclusions

- Each project, including a technical one, must be analysed in the context of the users' needs and habits.
- Business must understand the clients.
- Therefore, empathy is necessary for each business.

## References



B. R. Ingle.

*Design Thinking for Entrepreneurs and Small Businesses:  
Putting the Power of Design to Work.*

Apress, 2013.



P. Kotler and K. K. Lane.

*Marketing Management.*

Pearson Education, 2016.





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