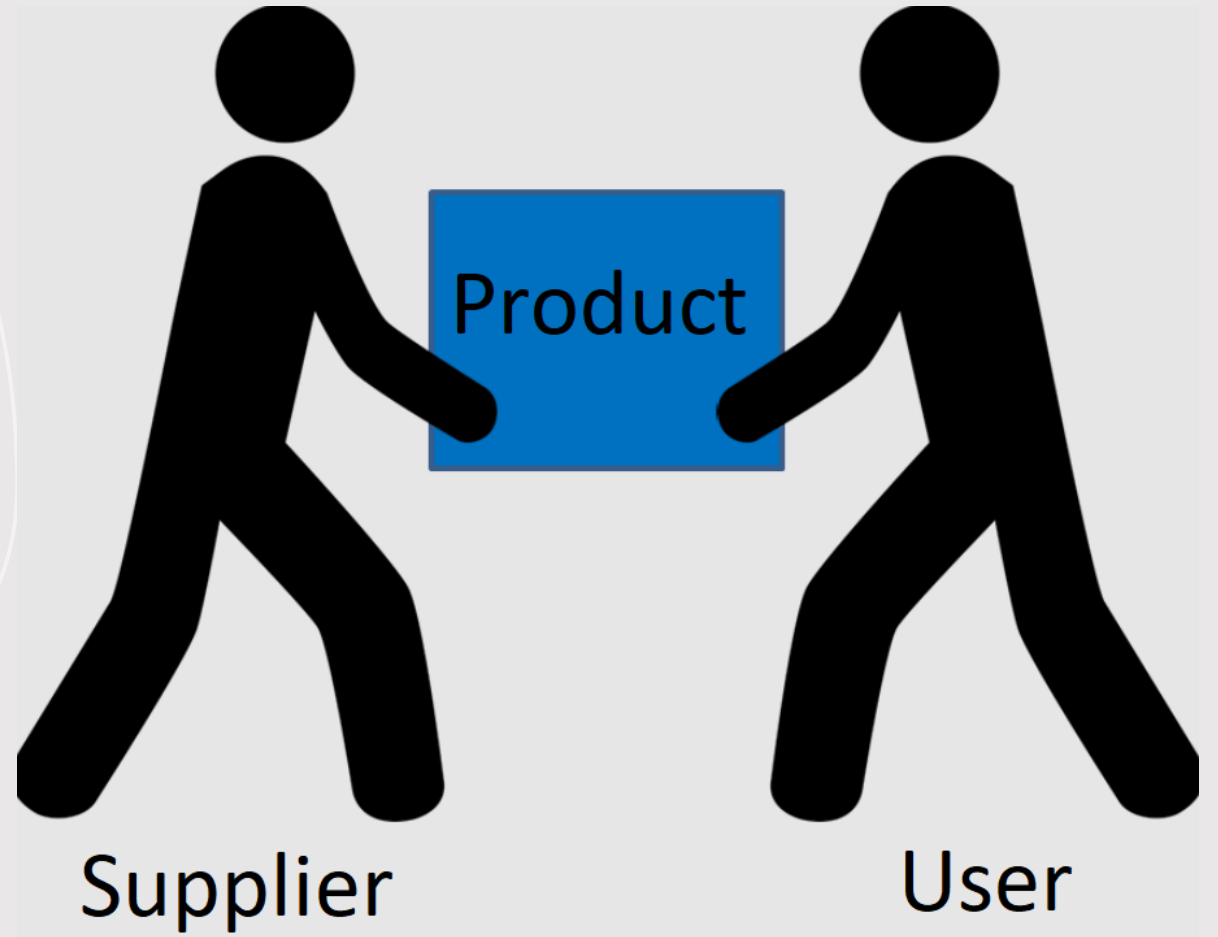# Connected System Design Project (EGE205)

User and Data Collection

User Definition

In product development, a user is a person who is intended to ultimately use a product.

Users typically **do not** possess strong technical **understanding** of a product. **But they know their problems and needs.**

Knowing and **understanding** your user is of paramount important. It will help you to design and develop a **product that works well for them**.

Who are your users? This will decide your **positioning** in the market. It will help you set goals on how to meet their needs and attract their interest. We will do this through a systematic process called STP (segmentation, targeting and positioning).
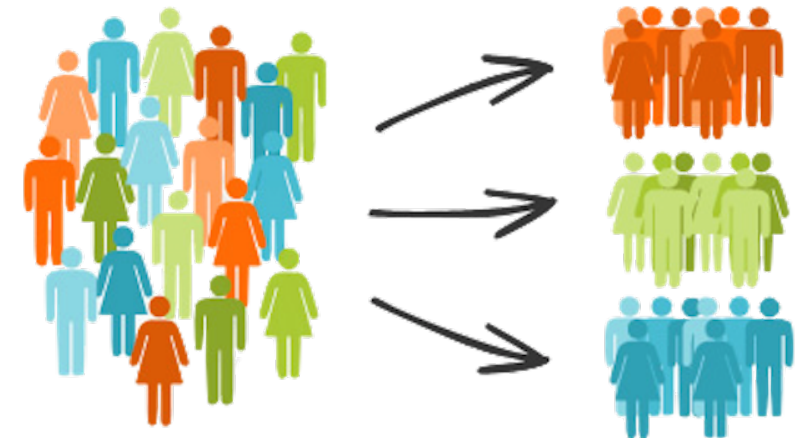
User Segmentation

User segmentation is the process of dividing a **large anonymous group** of users into **a number of smaller groups** based on certain characteristics. It's also sometimes called "market segmentation."

There are **five** basic ways to segment the users:

- Demographic B2C Segmentation
- Demographic B2B Segmentation
- Geographic Segmentation
- Psychographic Segmentation
- Behavioral Segmentation

User Segmentation

Demographic B2C

This is perhaps the most straightforward way of defining user groups. It does not look into the character and personality of a person. Instead, it looks at **identifiable non-character traits** such as:

- Age
- Gender
- Ethnicity
- Income
- Level of education
- Religion
- Profession/role in a company

User Segmentation

Demographic B2B

Demographic B2B segmentation can include:
- Company employee size
- Industry
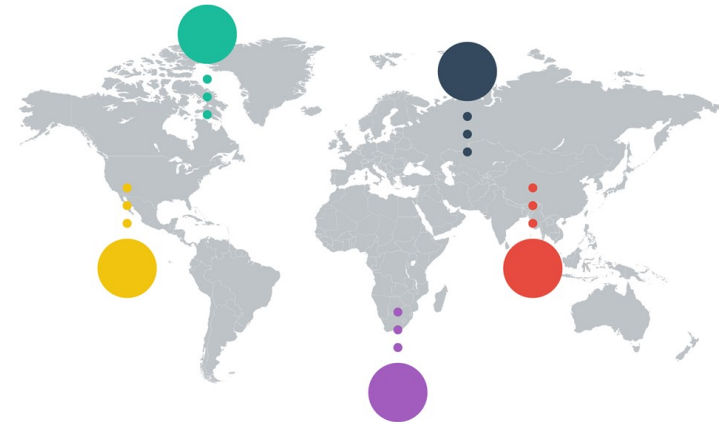- Role
- Operating hour
- Business model

User Segmentation

Geographic

- This is often one of the easiest way to identify and group users with regards to their **physical location.** This can be defined in any number of ways:
  - Country
  - Region
  - City
  - Postal code

User Segmentation

Psychographic

- This segment focuses on **users' personalities and interests**. It looks at the user and define them by their:
    - Personality traits
    - Hobbies
    - Life goals
    - Values
    - Beliefs
    - Lifestyles

User Segmentation

Behavioral

- This is possibly the most useful of all for e-commerce businesses. Here users are grouped with regards to their:
  - Spending habits
  - Purchasing habits
  - Browsing habits
  - Interactions with the brand
  - Loyalty to brand
  - Previous product ratings

User Group Decision

With the user segments in hand, it's time to decide which particular segment is worth **targeting**.

- Is the segment accessible by the means available, e.g. e-commerce platforms? (reachable)

- Does it have enough potential customers to yield enough profits? (sizeable)

- Does it have enough purchasing power for them to be converted for sales given the likely price point? (affordability)

- Is it willing to adopt new technology? (receptive to technology change)

- Is there a real need in the user segment that is noticeably different from other segments (perceptible user problems or needs)?

- Others factors to consider. For example, is your team able to serve the segment? Are there any physical, legal, social, or technological barriers that could prevent that?

Choose the User Segment for Your Group

Choosing a user segment for your project is a strategic decision.

A decision matrix can help you better understand the viability of your choice.

USER GROUP DECISION MATRIX TABLE

CRITERIA DESCRIPTION	Reachable	Sizeable	Affordability	Receptive to technology change	Perceptible user problems or needs	
	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	WEIGHTED SCORE
WEIGHT						0
PREFFERED USER GROUPS	Criteria 1 SCORES	Criteria 2 SCORES	Criteria 3 SCORES	Criteria 4 SCORES	Criteria 5 SCORES	
Team member 1: *Write the description of the preferred user group here*						0
Team member 2: *Write the description of the preffered user group here*						

Project Report (Part 1)

Task 1 – Targeted User Group Identification (Week 2)

1. Each team member to **indicate** and **describe** his preferred targeted user group based on **at least 1** user segment.
2. Work as a team to use a decision matrix table (refer to the template given on BrightSpace) to identify a targeted user group for your team.

Task 2 – Questionnaire Design (Week 3)

1. Discuss within the team to decide on at least 1 data collection method to be used.
2. Each team member to contribute at least 2 questions to the questionnaire.
3. Work as a team to combine and fine-tune all the questions into a single questionnaire.
4. Each team member to collect at least 5 data sample from the selected targeted user group using the finalized questionnaire.

Data Collection

Know more about the users

If you were the user, why would you choose a particular product over its competitors?

What features or benefits are most relevant to you? What motivates you to want the product?

You may have to **collect data** on the above issues to find out more about the users:

- what the users deem as important (the **gains** the users would like to have)

- where your competitors fall short (the **pains** that the users abhor)
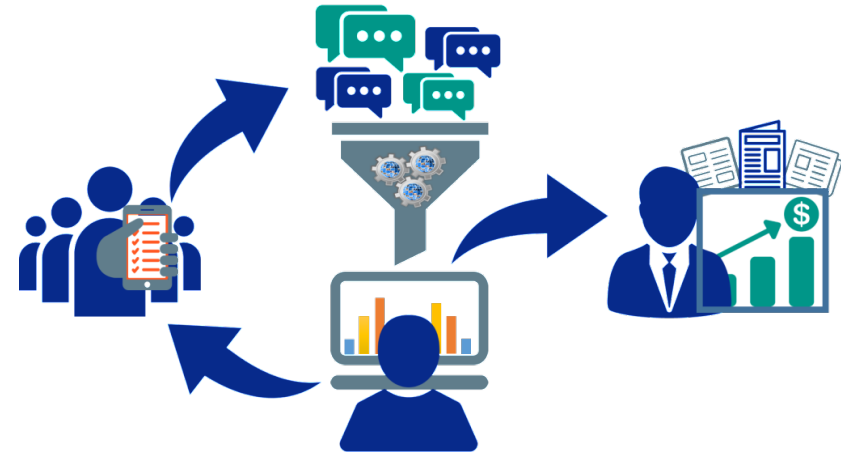
Hopefully, you will deliver only the most relevant, targeted solution to the chosen users with a well-positioned product.
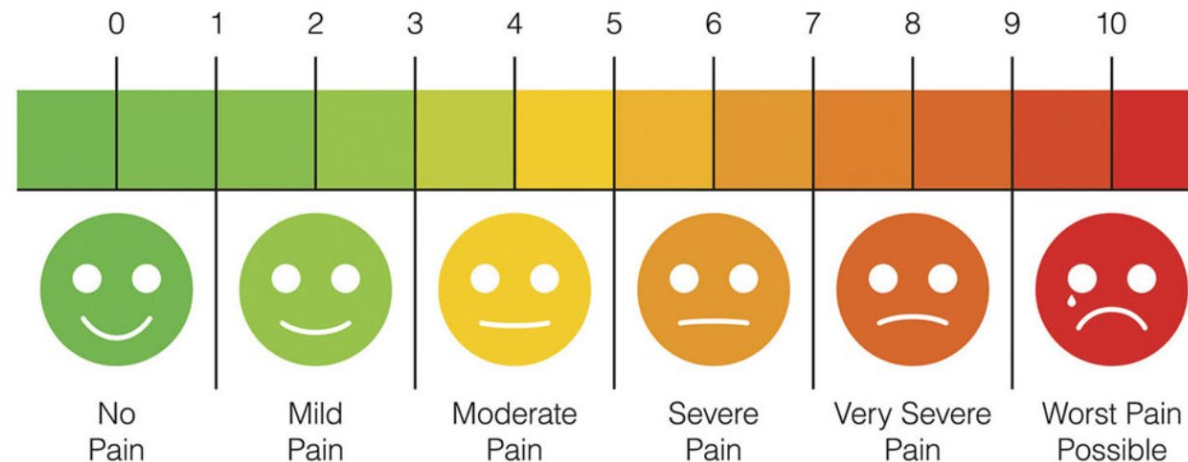
Definition of Data Collection

Data collection is process of **gathering** and **measuring** variables or factors in an environment. The purpose is to enable one to answer relevant questions and evaluate the outcomes.

Data Collection Methods

Common choices for data collection in a social setting are:

- In-person interviews
- Mail
- Phone
- Online questionnaire

Data Collection Methods

In-person interviews

- Pros: In-depth and a high degree of confidence on the data.

- Cons: Time consuming, expensive and can be dismissed as unreliable.

Mail

- Pros: Can reach anyone and everyone.

- Cons: Expensive, data collection errors and time lag.

Data Collection Methods

Phone

- Pros: High degree of confidence in the data collected and reach almost anyone.

- Cons: Expensive, cannot self-administer and need to hire an agency.

Online Survey

- Pros: Cheap, can self-administer and very low probability of data errors.

- Cons: Users may be wary of disclosing information online.

- Here is a sample link of Google Form.

Definition of a Questionnaire

- A **questionnaire** is a instrument that is made up of **a series of questions** which are **closed-ended** or **open-ended.**

- The goal is to **collect relevant data** from respondents which can then be used for a variety of purposes.

- There are **two** types of questionnaires
  - Exploratory questionnaire (qualitative)
  - Formal standardized questionnaire (quantitative)

Types of Questionnaire

Exploratory Questionnaire (Qualitative)

- These are also known as **unstructured questionnaires**. They are used to collect **qualitative data** which is information that can be observed and recorded but isn't numerical in nature. It is used to approximate and characterize.

- An **example of qualitative data** would be someone giving your feedback about your writing. They may mention things about the tone, clarity, word choice, etc. It helps you categorize your writing but you can't attach a number to the feedback.

Types of Questionnaire

Formal Standardized Questionnaire (Quantitative)

- They're also known as **structured questionnaires**. They are used to collect **quantitative data** which is information recorded as a count or numerical value. It can be used for mathematical calculations or statistical analysis.

- An example of **quantitative data** would be the answer to the following question, "how old are you?" which requires a numerical reply.

Question Types

- Multiple question types can be used in a questionnaire. Using various question types can **help increase responses** to your questionnaire as they tend to **keep participants more engaged**.

- Below are some of the question types that can be used to design a questionnaire.
  - Open-ended question
  - Multiple choice question
  - Dichotomous question
  - Scaled question
  - Pictorial question

Question Types

Open-ended Question

- This type of question is **open** for the respondent to **answer with more freedom**. Instead of presenting a series of answers choices, the **respondent writes** as much as they want. This is **ideal for exploratory questionnaires** which collect qualitative data.

Multiple choice Question

- This type of question **presents** the respondent with **a list of answer options** and they can select one or more. The challenge with multiple-choice questions is providing incomplete answer options. For example, you may ask what industry do you work in and list out 5 of the most common industries. There are more than 5 industries in the world so some people won't be represented in this situation. A simple solution to this problem is adding an "other" option.

Question Types

Dichotomous Question

- This type of question comes with only **two possible answers**. It tends to be a **yes or no question** but it can also be something like **agree/disagree** or **true/false**. It is usually **used for basic validation** without going too deeply into the motivations.

Scaled Question

- This type of question is common in questionnaires and is often used to **judge the degree of a feeling**. This can be used in both exploratory and standardized questionnaires because there are many different types of scaled questions such as:
  - Likert scale - measures agreement or disagreement to a particular statement.
  - Semantic differential scale - measures attitudes towards something.

Question Types

Pictorial Question

- The type of question is used in questionnaires **substitutes text for images**. Respondents are asked a question and shown pictures to choose from. It usually has a higher response rate than other question types.

Question To Avoid

- Some questions may **give poor data that can't be used** while others **may stop people** from completing the questionnaire. Below are some of the questions type to avoid.
  - Hypothetical question
    - Example: How would you respond to a problem that you discovered?
  - Embarrassing or offensive question
    - Example: Have you ever considered plastic surgery?
  - Extreme positive/negative question
    - Example: "Our product is easy to use" – Agree/Disagree"

Sample Questionnaire

Questionnaires

1. What is your age?

2. How often do you go to the gym?

3. How long have you been working out in the gym?

4. What features would you like to see in a smart gym equipment or facility?

5. ....

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Project Report (Part 1)

Reading References:

- https://www.digitaldoughnut.com/articles/2016/july/customer-segmentation-5-ways-to-divide-the-consum
- https://www.startups.com/library/expert-advice/defining-target-market-think-small
- https://www.questionpro.com/blog/what-is-a-questionnaire
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- https://ourworldindata.org
- https://data.worldbank.org

Connected System Design Project (EGE205)

End of User and Data Collection