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Accion INNOVATION SUMMIT 2023

02-05 March 2023,
Sofitel Dubai
The Palm Jumeirah
Dubai

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Pathology of UX:

Measuring Psychological Complexity of User Experience Design

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Arathi Shamabhatta

CoE Head, Experience Design

4 Ps - Passionate, People, Problem, Product

Art & Design + Communication + Psychology + Therapy

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The Background

Complexities of the Digital Product Engineering

Complexities of Digital Product Engineering

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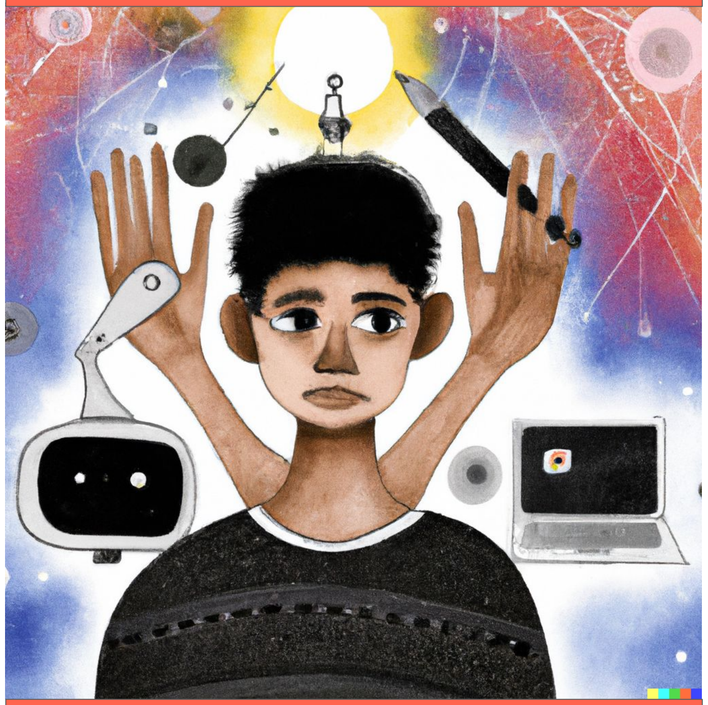
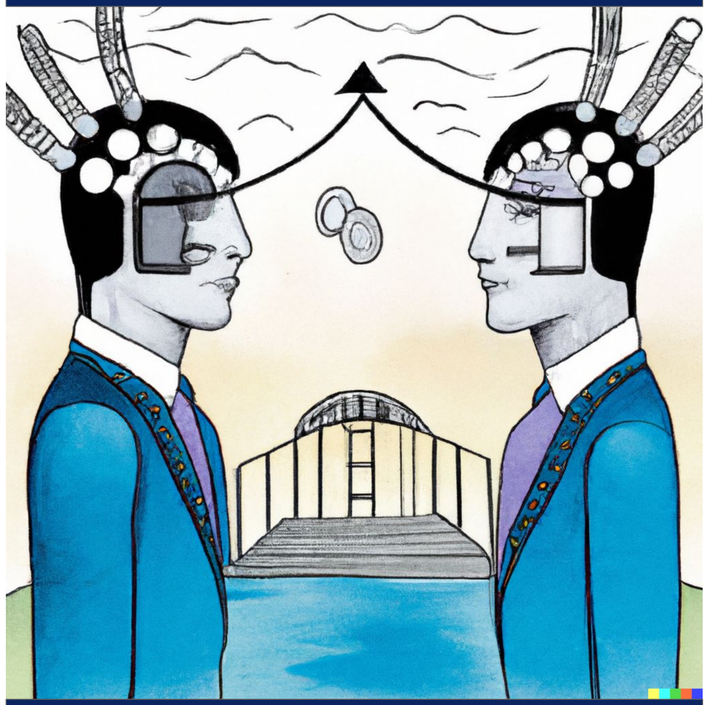
Substance Complexity



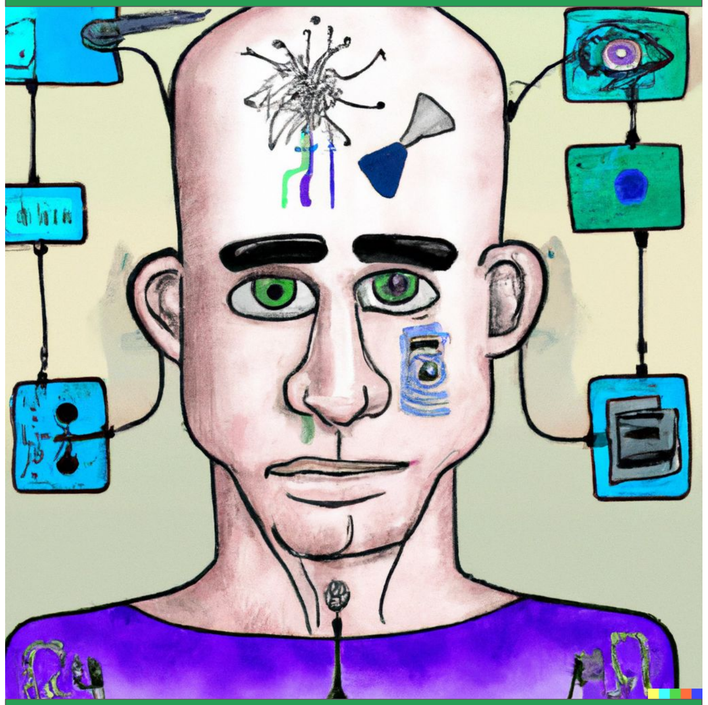
- Users keep wanting more features
- Products should allow new features to be added with minimal effort

Dynamic Complexity



- Users keep changing their minds
- Products should allow changes to features with minimal effort

Psychological Complexity



- Users have complex cognitive and emotional needs
- Products should minimize cognitive and emotional burden on users

Illustrations Generated by Dall-E

“FOMO”

“The fear of missing out!”

Extracts from the Summit..

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From Smart cities to Cognitive

User Churn Rate

Just ~~do it~~ ask

Automation is useless if you automate the wrong things

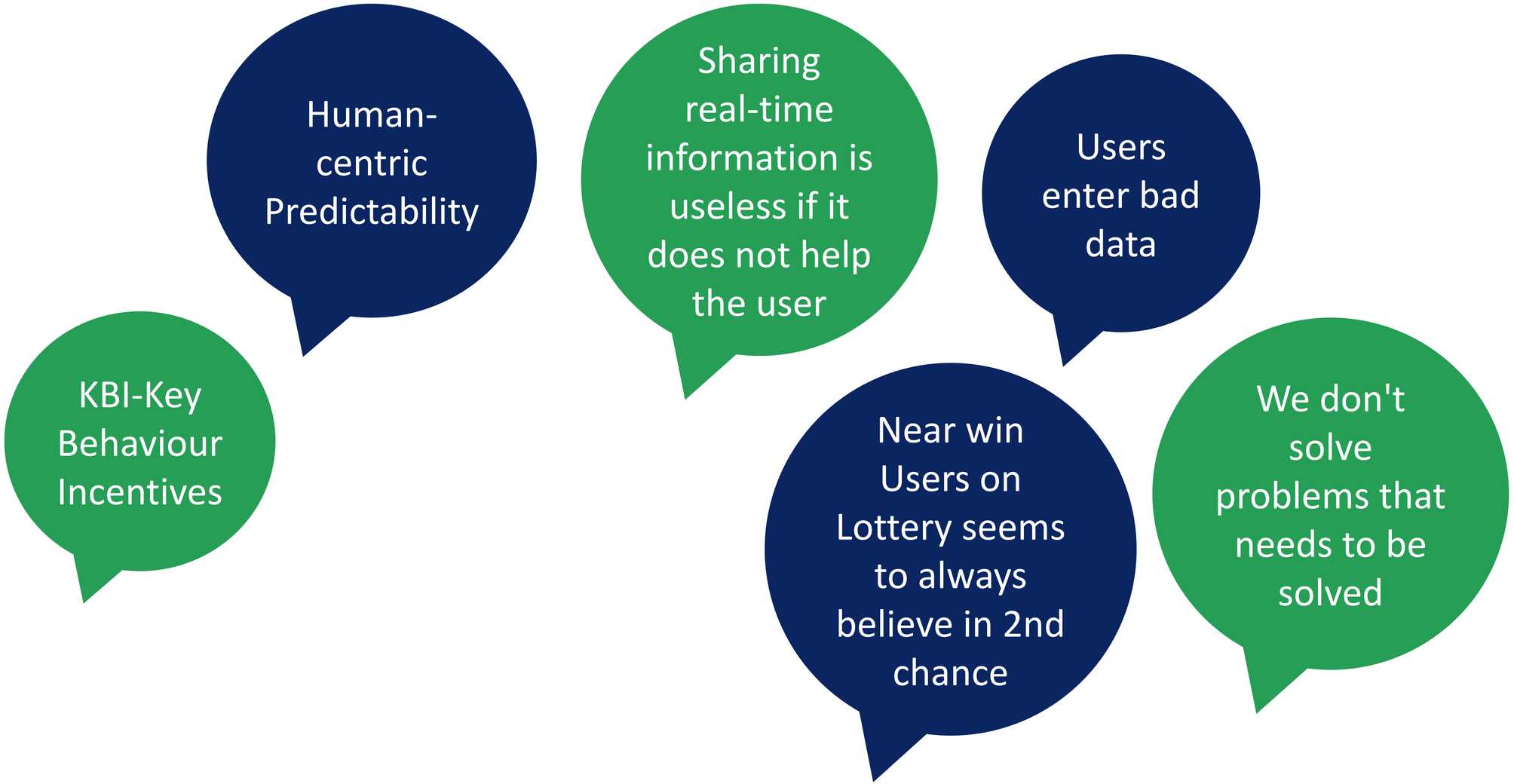
User Engagement

Visualization of data is the biggest challenge

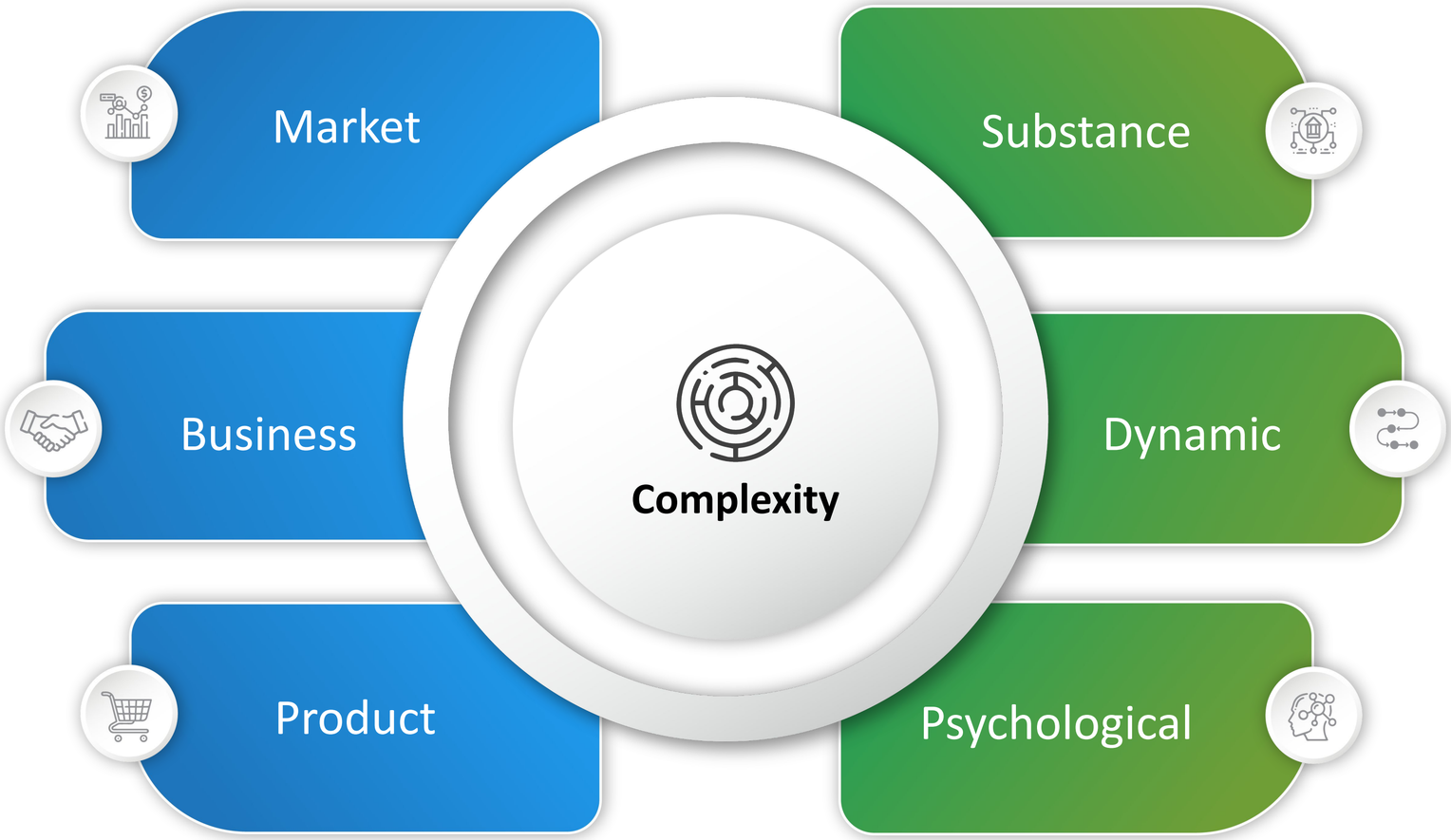
Discovery Maps of Data visualization

POC’s are important

Extracts from the Summit..



Complexities in our Business Environment



3 Types of Business Scenarios at Accion Labs

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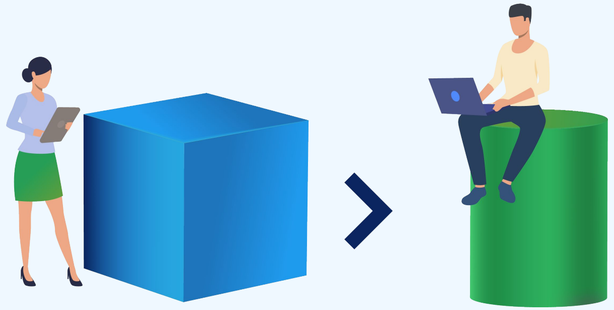
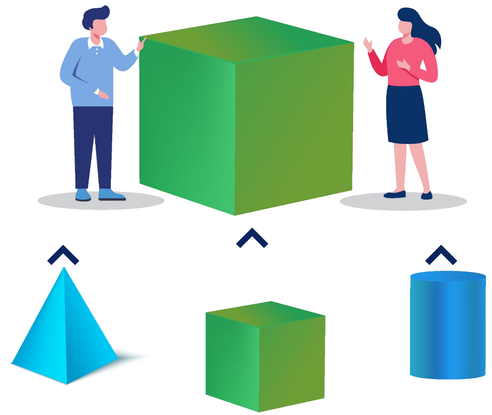
New Product

Re-engineering & Modernization



Product Portfolio Rationalisation



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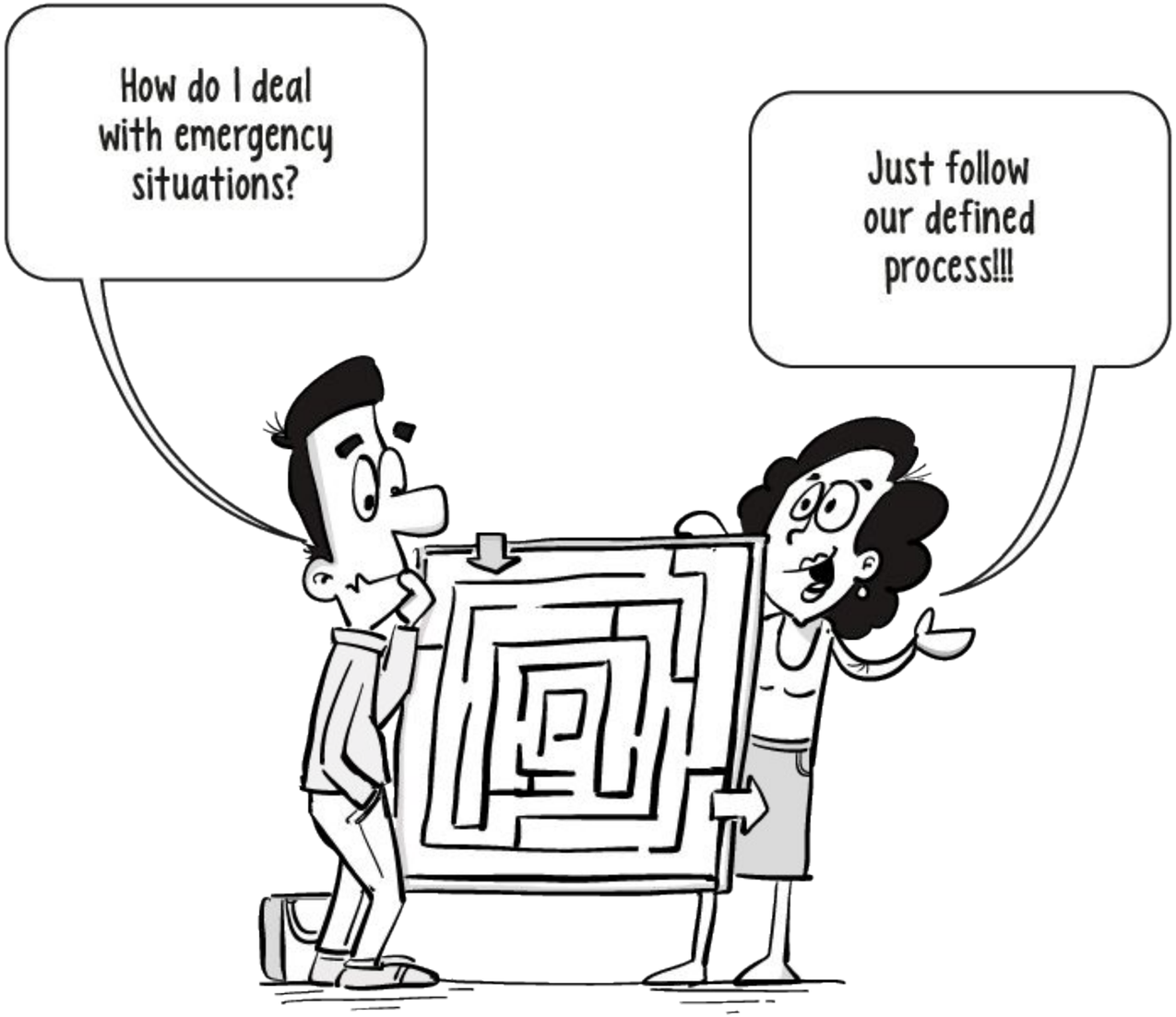
User Acceptance Issues

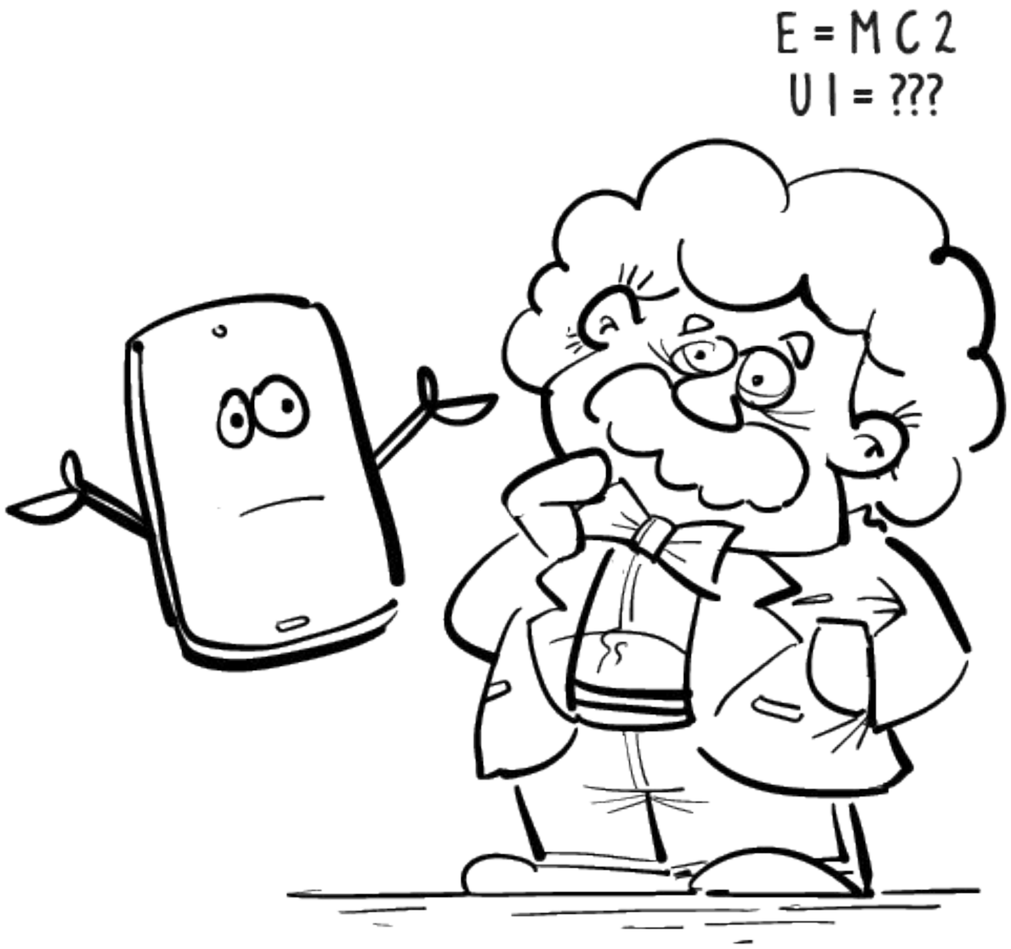
What are the concerns of the Customers about digital products?

What are the symptoms of an unhealthy digital product?

“Customers can't figure out the User Interface!”



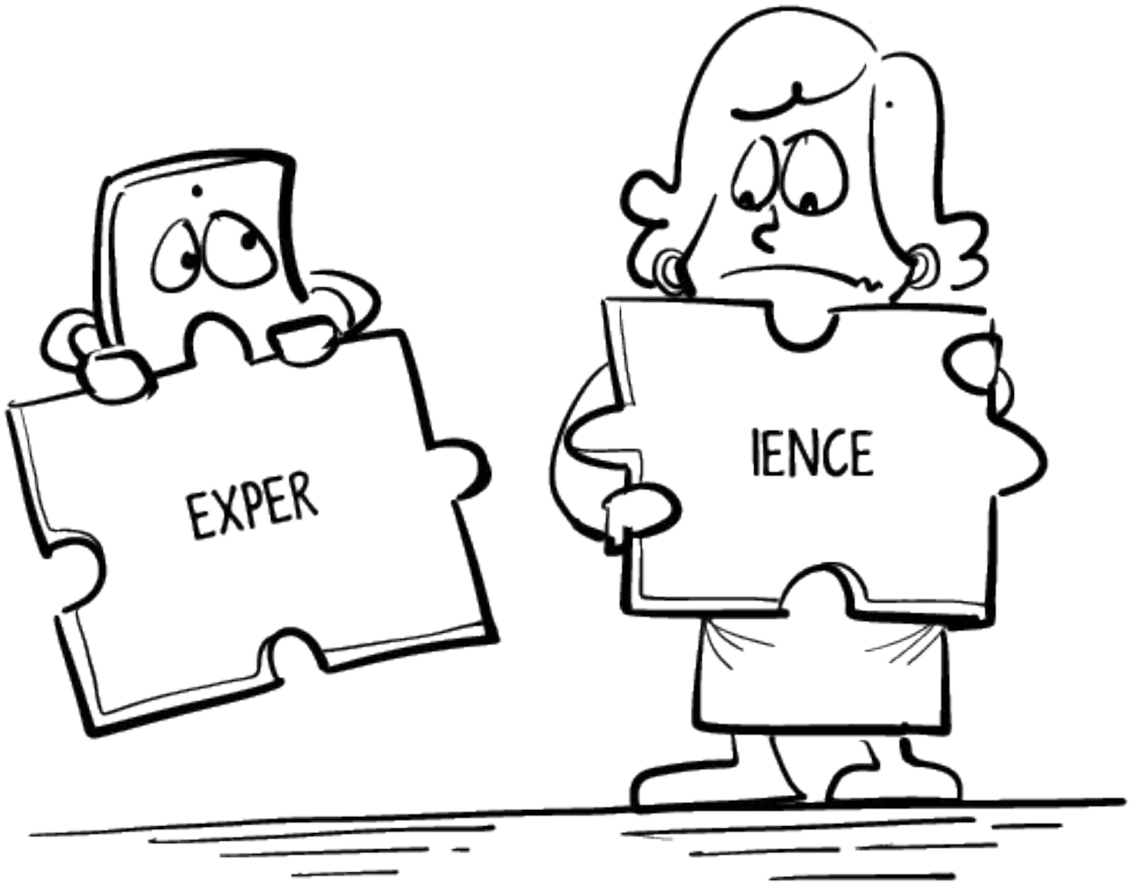
“The Use Interface is not intuitive enough!”



“The product is not user-friendly!”

“There is no wow factor!”

“Experience is not seamless!”



“It’s not easy to use!”

“80% of our users uninstall the mobile app in just 7 days!”

“There is so much junk data entered by the users!”

“We have released these features last year and our customers are still not using them!”

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The Problem Statement

How do you design a product in a way that it actually works for the users and they accept it?

What is the proof that the design decisions are working?

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Conventional Method

How is the problem of user acceptance solved today?

Conventional methods used to measure User Acceptance

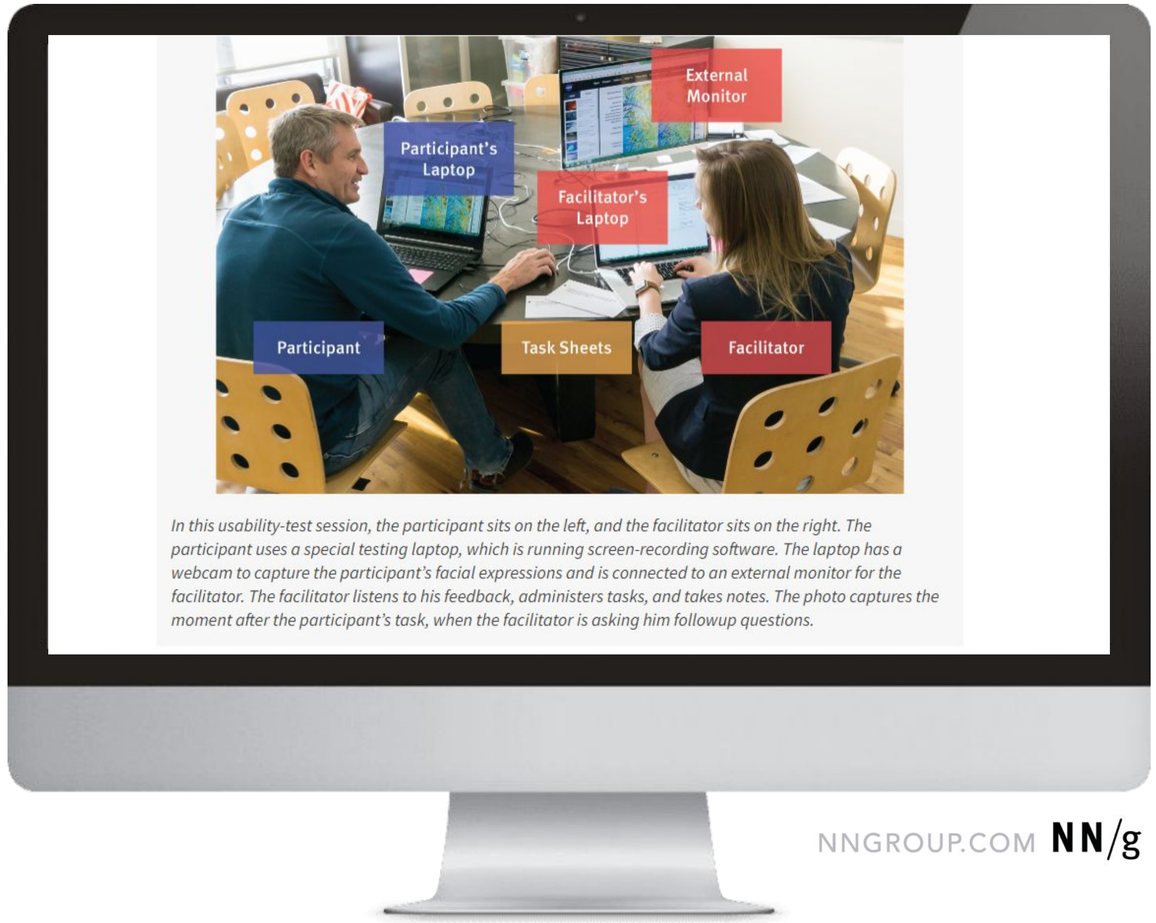
Qualitative User Test

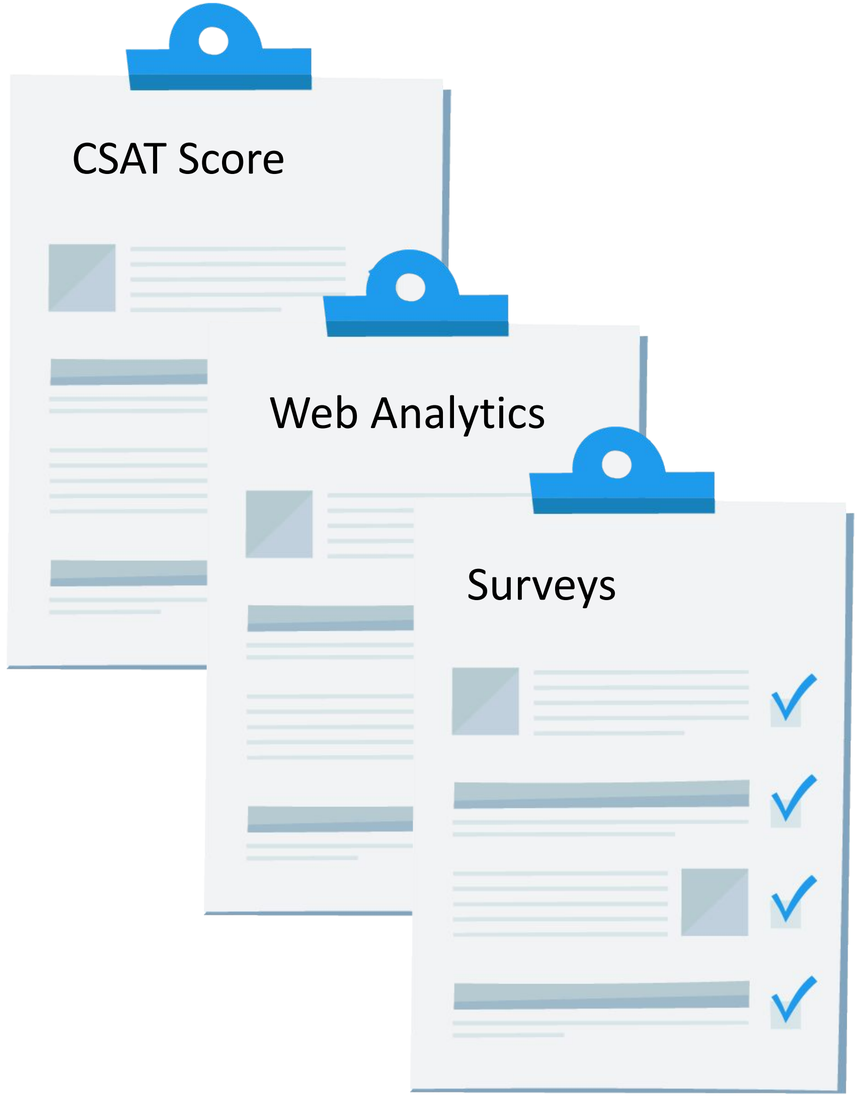
- It is an analysis of **behaviours** and **cognition**. It is used to formulate a hypothesis
- 1-on-1 Interviews, Observations, Focus Groups
- Manual Process
- Humans are involved in conducting test and data analysis

Quantitative User Test

- It is an analysis of **numerical data** in large quantities. It is used to test or confirm a hypothesis
- Statistical data (ratings, rankings, scales)
- Partially automated
- Humans are involved in data analysis, tests can be automated

A peek into conventional User Testing environment





Conventional Quantitative User Testing measures

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User Acceptance Metrics

- Completion rate
- Time on task
- Error rate
- Conversion rate
- Net Promoter Score (NPS)
- Usability score
- Engagement metrics
- Customer satisfaction (CSAT)

Internationalization Metrics

- Translation accuracy
- Localization completeness
- Language support
- Geographic reach
- Compliance with internationalization standards

Accessibility Metrics

- Compliance with accessibility guidelines
- User satisfaction with accessibility
- Time to complete tasks for users with disabilities
- Error rate for users with disabilities
- Assistive technology support

Definitions of the metrics to refer back

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User Acceptance Metrics

- **Completion rate:** the percentage of users who successfully complete a task or workflow.
- **Time on task:** the amount of time it takes users to complete a task or workflow.
- **Error rate:** the number of errors users make while completing a task or workflow.
- **Conversion rate:** the percentage of users who take a desired action, such as making a purchase or signing up for a service.
- **Net Promoter Score (NPS):** a measure of how likely users are to recommend a product or service to others.
- **Usability score:** a subjective measure of how easy a product or service is to use, often based on a standardized questionnaire.
- **Engagement metrics:** measures of user behavior such as pageviews, click-through rates, and time spent on site.
- **Customer satisfaction (CSAT):** a measure of how satisfied users are with a product or service.

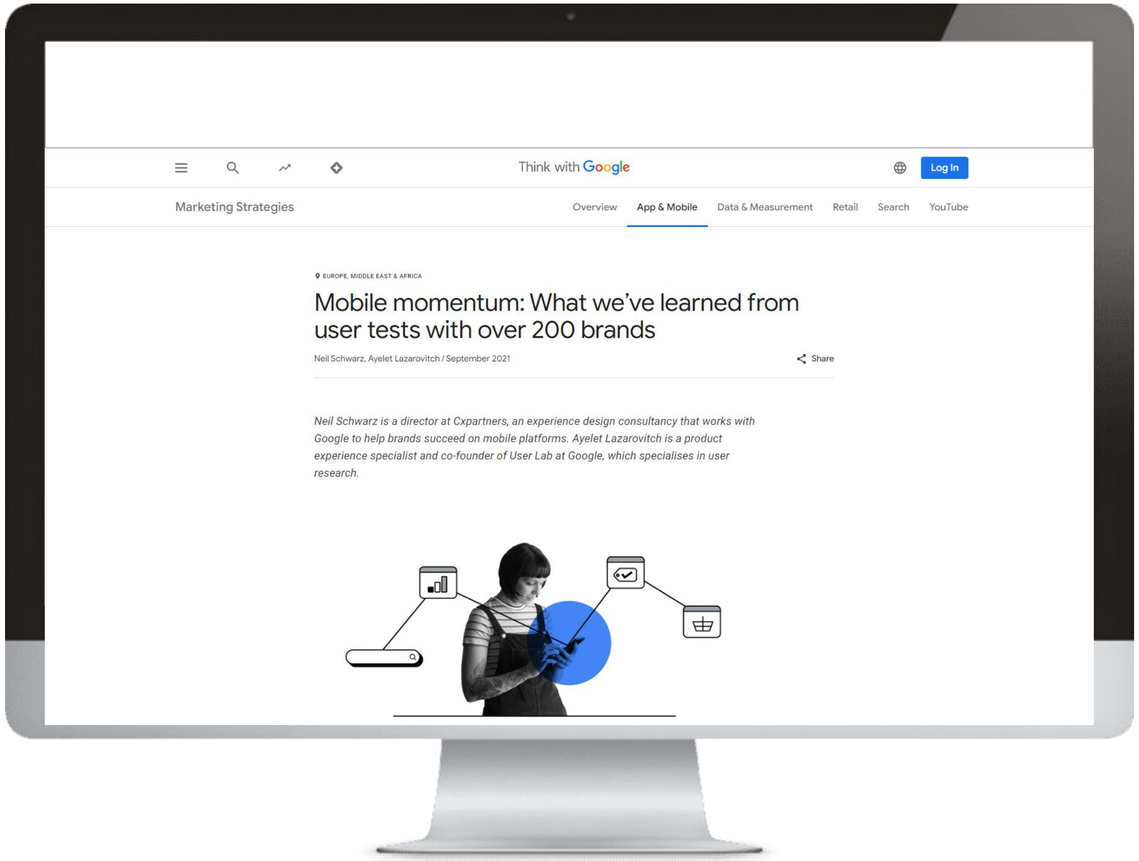
Internationalization Metrics

- **Translation accuracy:** the percentage of translated content that accurately conveys the intended meaning and tone of the original text.
- **Localization completeness:** the percentage of a product or service that has been fully adapted to meet the cultural and linguistic needs of a target audience.
- **Language support:** the number of languages a product or service supports.
- **Geographic reach:** the number of countries or regions a product or service is available in.
- **Compliance with internationalization standards:** the degree to which a product or service meets established internationalization standards, such as the Unicode standard for character encoding.

Accessibility Metrics

- **Compliance with accessibility guidelines:** the degree to which a product or service meets established accessibility guidelines, such as the Web Content Accessibility Guidelines (WCAG).
- **User satisfaction with accessibility:** the degree to which specially abled users are satisfied with the accessibility features of a product or service.
- **Time to complete tasks for users with special abilities:** the amount of time it takes for specially abled users to complete tasks or workflows compared to users without disabilities.
- **Error rate for users with special abilities:** the number of errors specially abled users make while completing tasks or workflows compared to users without disabilities.
- **Assistive technology support:** the degree to which a product or service supports assistive technologies, such as screen readers or speech recognition software.

Industry’s best practice standards about User Testing

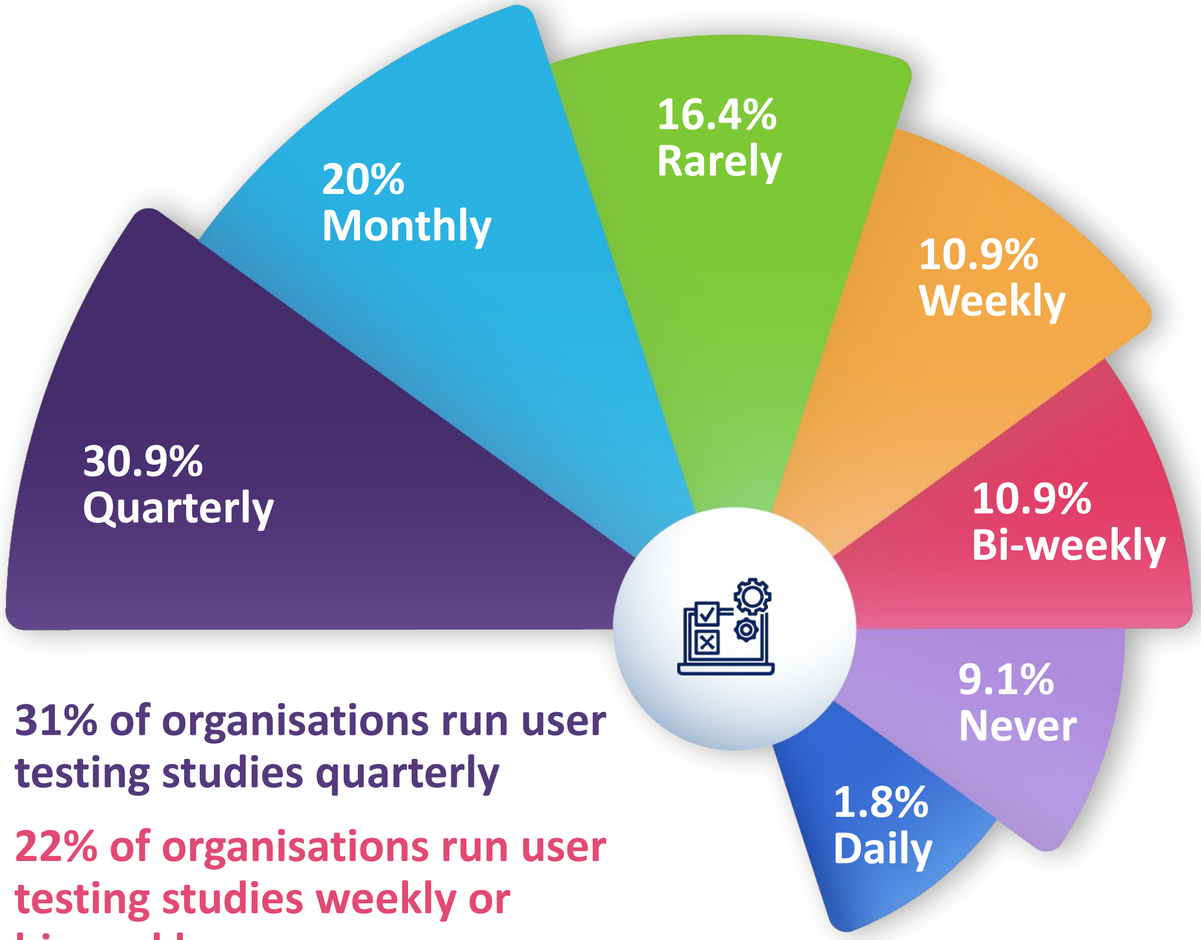


Source: https://www.thinkwithgoogle.com

Google and Cxpartners have conducted over 200 user-testing workshops across 19 countries in Europe, the Middle East, and Africa for clients ranging from florists to financial service providers. These workshops have led to amazing results — with brands often reporting double-digit increases to their mobile conversion rates after making the necessary changes.1 (In one instance, one firm nearly tripled its conversion rate)

HCI researchers at Google have enormous potential to impact the experience of Google users as well as conduct innovative research. Grounded in user behavior understanding and real use, Google’s HCI researchers invent, design, build and trial large-scale interactive systems in the real world.

Frequency of User Testing in traditional design world



31% of organisations run user testing studies quarterly

22% of organisations run user testing studies weekly or bi-weekly

20% run user testing studies monthly

16% rarely run user testing studies

User Fountain's 2020 Usability-Testing Industry Report

By Lydia Wright

August 3, 2020

Organizations conduct usability testing predominantly to evaluate desktop Web sites—with 82% of respondents stating that they're currently testing sites. The testing of prototypes is the next most common type of evaluation—with 70% of organizations doing usability testing of prototypes.

Source:
https://www.uxmatters.com/mt/archives/2020/08/user-fountains-2020-usability-testing-industry-report.php

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Limitations

What’s wrong with the Conventional Methods?

Limitations

Biggest limitation is cost and greatest contributor to cost is human beings

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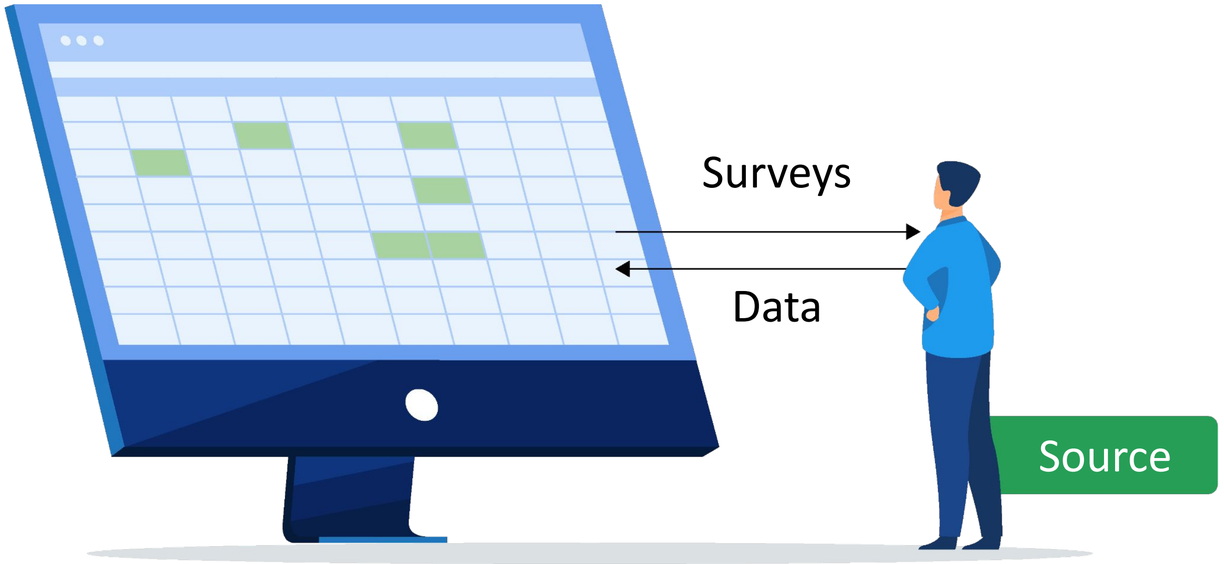
Conventional Quantitative User Testing Method



Conventional Qualitative User Testing Method

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Recommended Approach

Define metric to measure that can work for all scenarios

All we need is an URL or access to a test environment

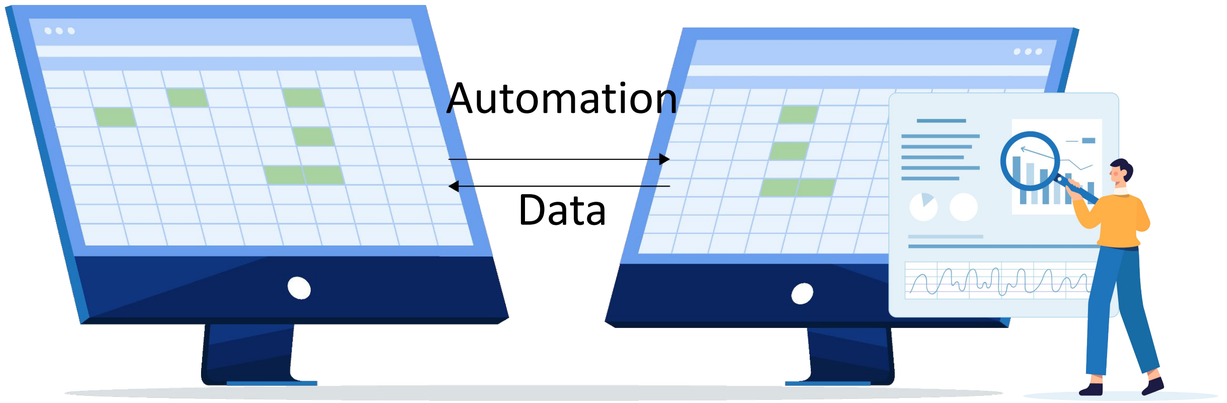
We define a set of Quantitative metrics thats can be used

01 To measure any state of a digital product
Example: WIP product, New Product, Existing product, Future product

02 It should be independent of any functionality/ features
Example: eCommerce product, Banking product

03 It should be automated to remove the cost of human intervention

04 Most importantly, it should de-risk the user acceptance issue of the product and improve SDLC process



Accion Labs Quantitative User Testing

Accion Labs' Quantitative User Testing automation measures

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Basic Terminology

Terminologies used in the context of User Experience

Conventional Quantitative Metrics measures

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01 Task

- It is an outcome achieved by performing certain actions
- It is a series of actions performed by the users
- Any feature/ functionality can be converted to task

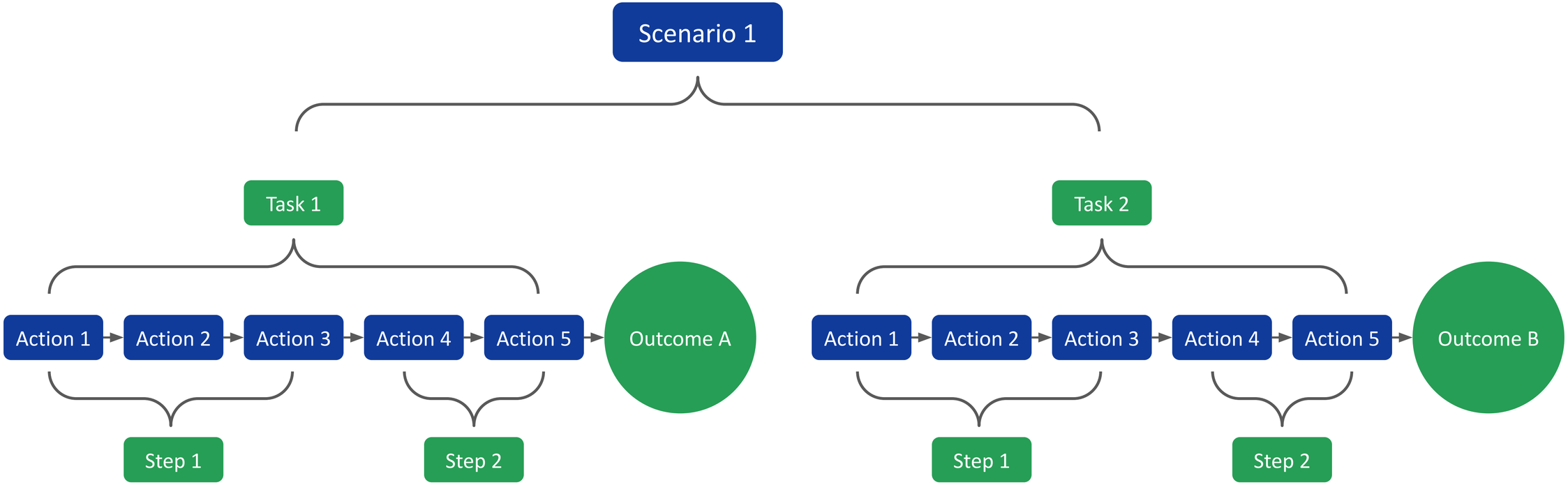
02 Action

- It is what an user does to complete a task
- Actions are specific interface elements or events such as login, submit form

03 Outcome

- It is a result that the user wants to achieve by performing a task

Structural Representation



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Specific Terminology

Terminologies used in the context of quantitative and qualitative metrics for psychological complexity

Quantitative & Qualitative Metrics for Psychological Complexity

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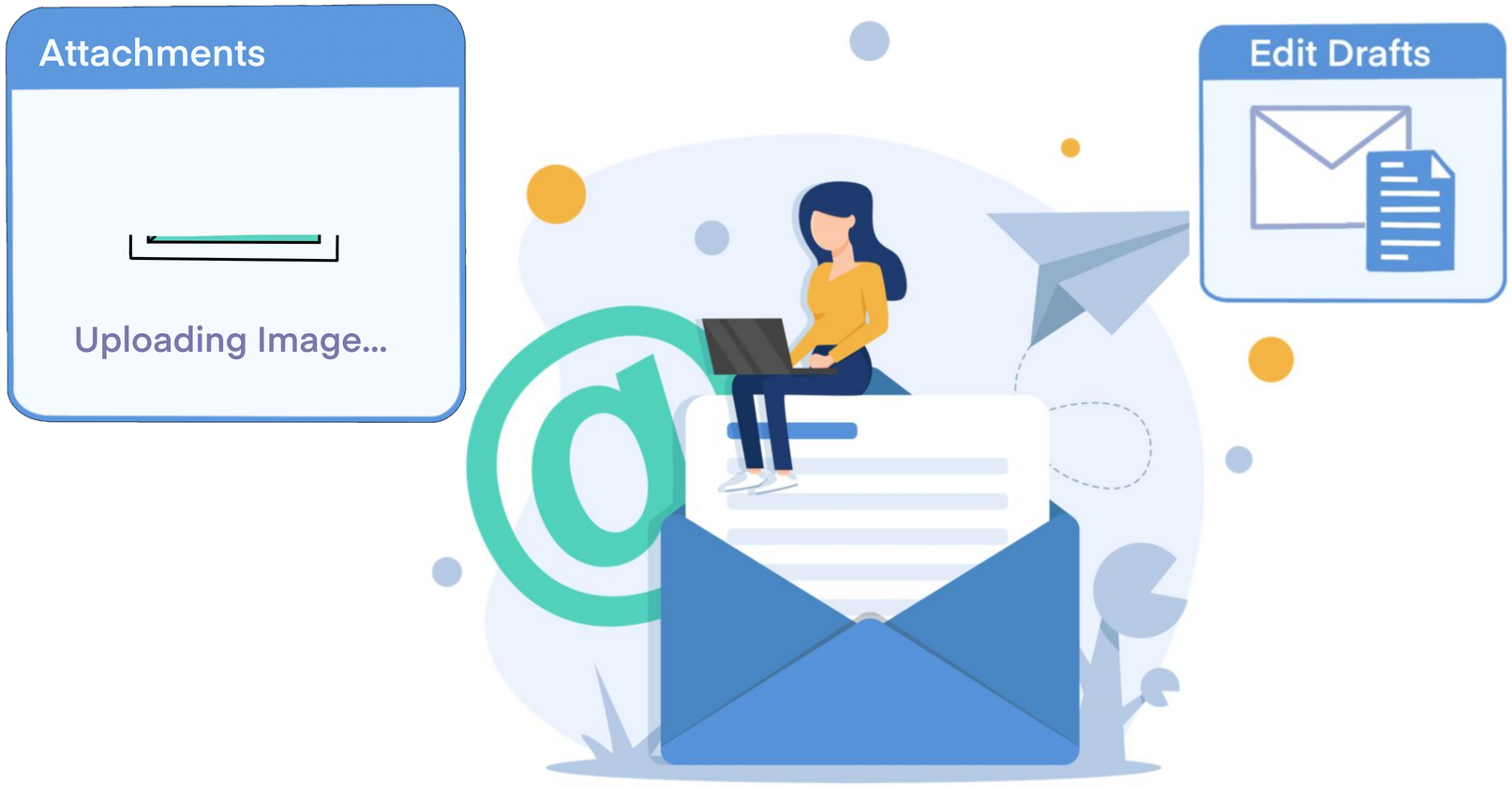
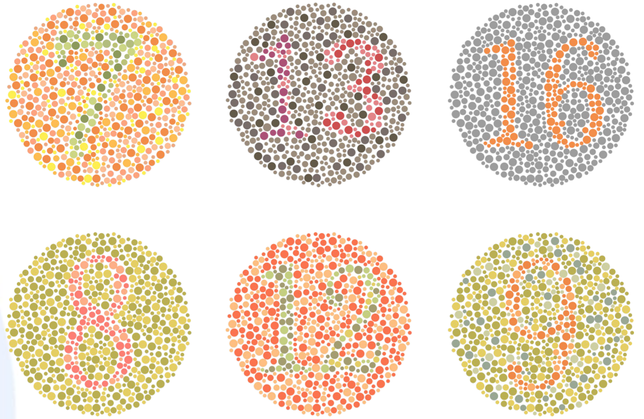
Responsiveness



Accessibility



About 8% of All men and about 0.5% of all women are suffering from color blindness (colour vision deficiency)
https://iristech.co/statistics/

Effort

1. Register
1min

2. Login
20sec

3. Search Product
1min

4. Select Product
30sec

5. Add to Cart
10sec

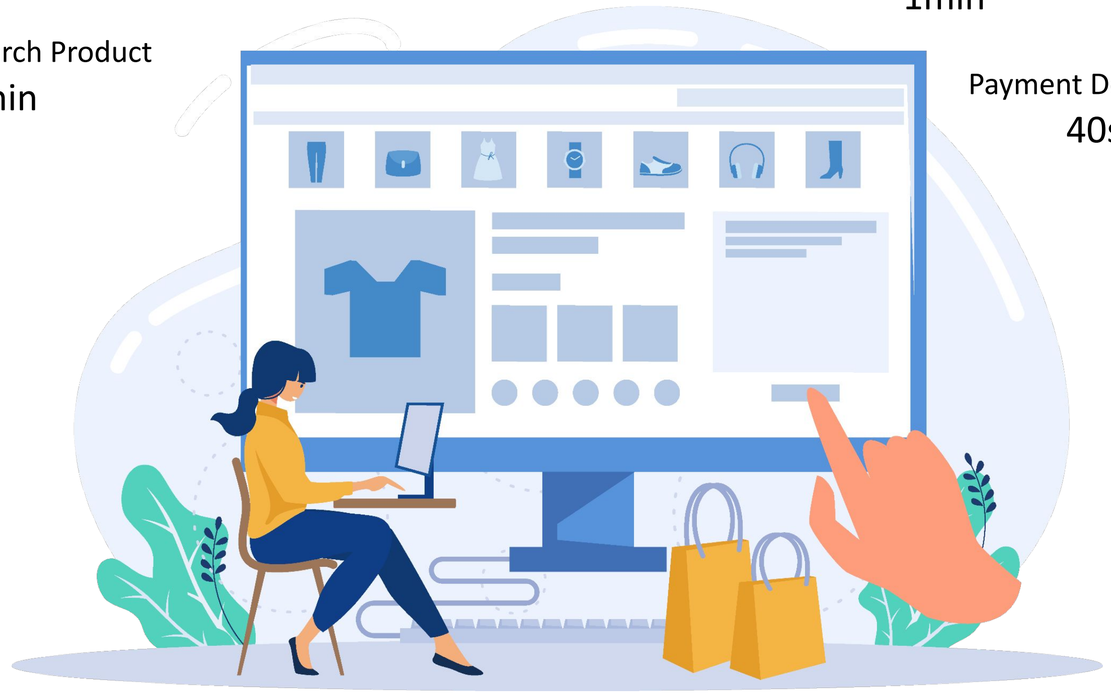
6. Add Address
40sec

7. Add Payment
1min

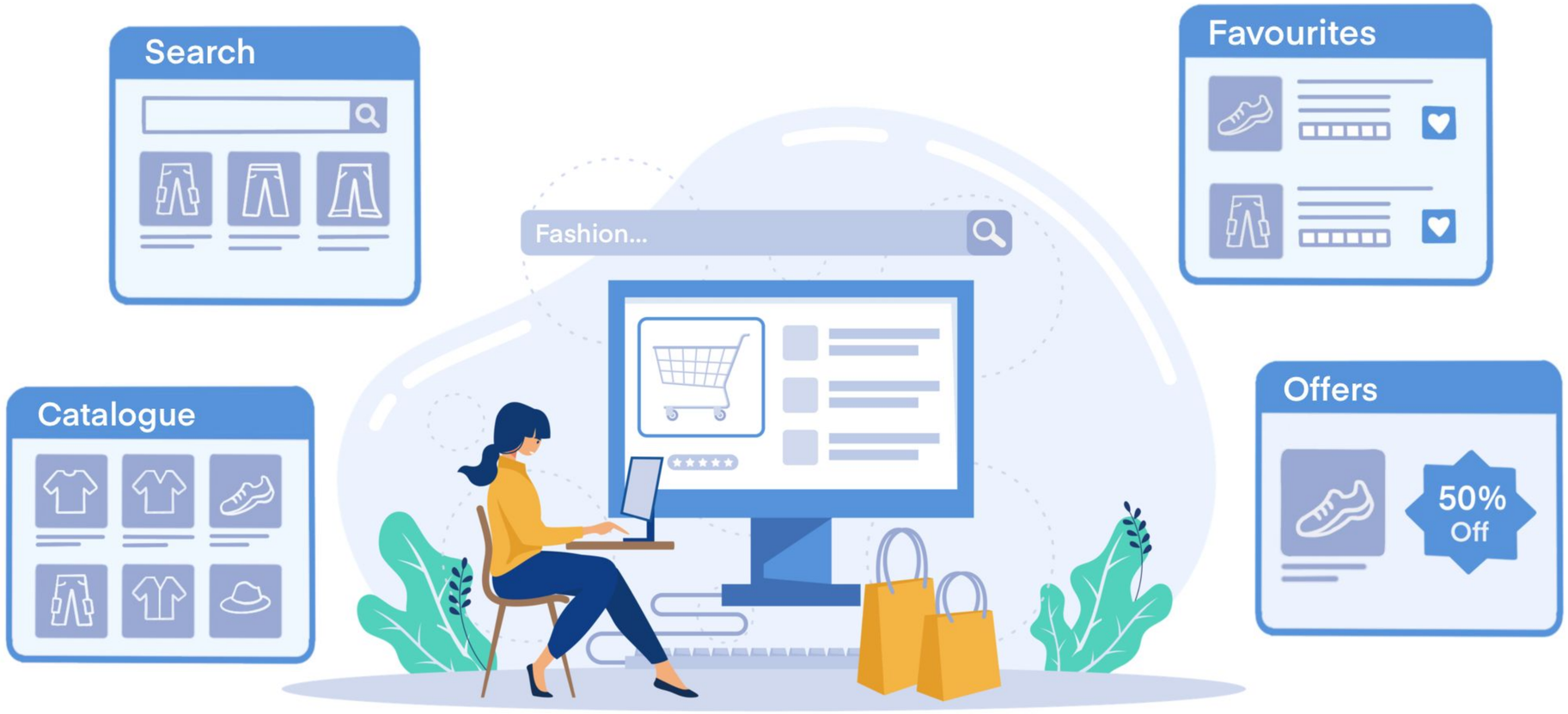
8. Payment Done
40sec

9. Checkout
10sec

10. Delivery

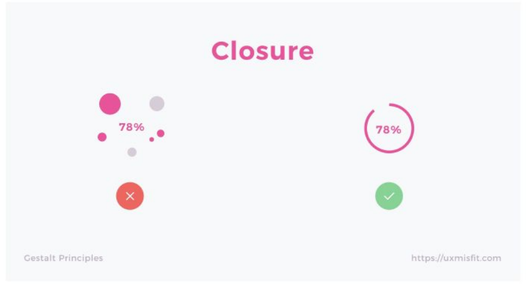


Consistency



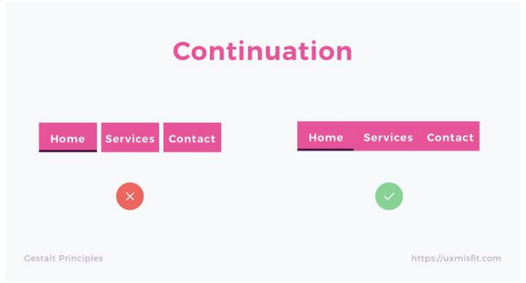
Aesthetics - Design Principles for visual freedom

Closure
The human brain ignores gaps and tries to understand the bigger context.



Common Fate
Elements which move inthe same direction seem to be in a group.

Continuity
Elements which are ordered in a line or curve seem to be group.



10 Usability Heuristics

Visibility
Show system status, tell what's happening

Mapping
Use familiar metaphors & language

Freedom
Provide good defaults & undo

Consistency
Use same interface and language throughout

Error Prevention
Help users avoid making mistakes

Recognition
Make information easy to discover

Flexibility
Make advanced tasks fluid and efficient

Minimalism
Provide only necessary information in an elegant way

Error Recovery
Help users recognize, diago-nize and recover from errors

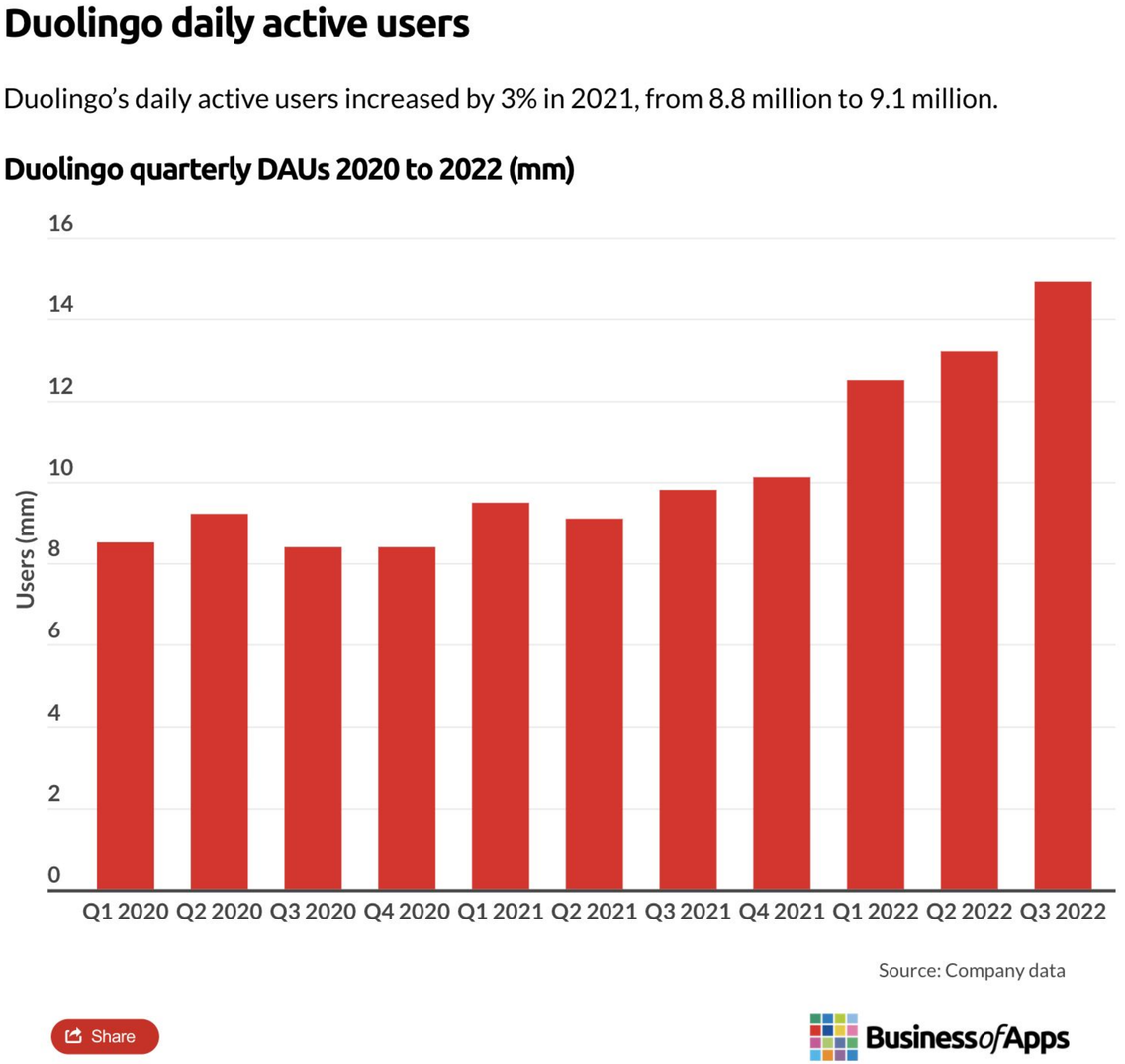
Help
Use proactive and in-place hints to guide users

Based on Nielsen's ten heuristics. Updated by Scott Klemmer and Janaki Kumar.

Credits: Accionite

Emotional Intent: Gamification for pleasure

According to Forbes, 80% of smartphone users play mobile games on their device, and nearly 50% play games every day



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Deep Dive

Let's look at an example of how to use these metrics and measure an unhealthy digital product

The Symptom: The product is not intuitive enough

And for this let's use the analogy of a healthcare system

Consider “The product is not intuitive enough” as a symptom of an unhealthy digital product

Now the illness underlying these symptoms could be one or many of the below disorders (disorder in the task/actions) or deficiencies (aesthetics/emotional intent)

1. Consistency
2. Responsiveness
3. Accessibility
4. Effort
5. Aesthetics
6. Emotional Intent

And the Pathology report will help you diagnose the illness with scores and patterns in the disorders and deficiencies

The Pathology Report

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Digital Products Diagnostic Center

Patient Name: **Digital eCommerce**		**Pathology** (Group of Metrics)								
		Consistency	Responsiveness		Accessibility		Effort		Aesthetics	Emotional Intent
Tasks		Facility in Progress	System Delay	Network Calls	Internationalization Compliance	WCAG Compliance	User Actions Count	User Actions Time	Facility in Progress	Facility in Progress
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

The Pathology Report - Quantitative Metrics

Digital Products Diagnostic Center							
Patient Name: **Digital eCommerce**		Symptom (patient's view): **It is not easy to use!**					
Task Extraction		**User Actions Needed**		**Consistency** (in User Actions)	**Effort (**by User)	**Responsiveness** (by System)	**Accessibility** (Issue in Compliance)
1	To buy a product first time on Digital eCommerce	1	Register	high/medium/low	high/medium/low	high/medium/low	passed/failed
		2	Login				
		3	Search the product				
		4	Select the product				
		5	Add to cart				
		6	Add delivery address				
		7	Add payment mode				
		8	Make payment				
		9	Check out				
		10	Receive product at address	NA	NA	NA	NA

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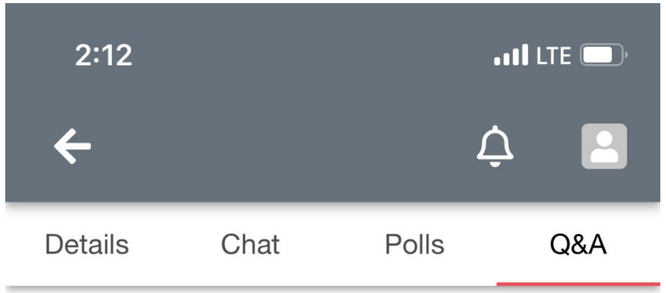
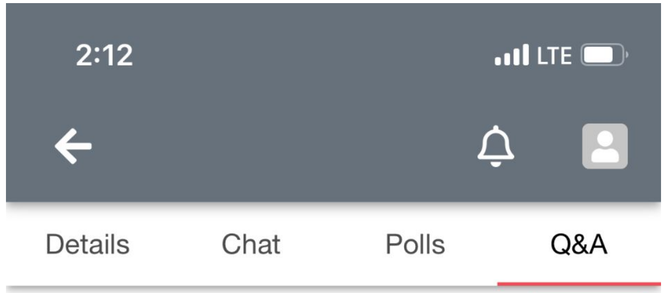
Q & A





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Thank you

arathi.bhatta@accionlabs.com