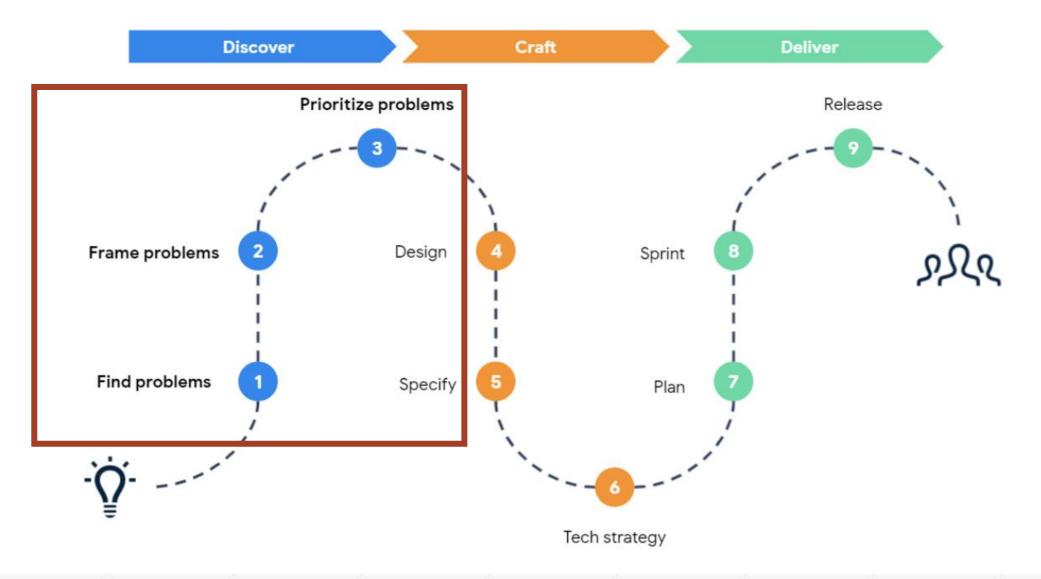
From ideas to users - Discover

REQUIREMENT ENGINEERING | Engenharia de Requisitos

From ideas to users



Find problems

Find problems

Discover – Find problems

Goals?

- Understand customer needs/goals
- Find market Opportunities

How?

- Competitive analysis
- Differentiator analysis
- Market Dynamics and research
- Feedback
- Creativity
- Introspection
- Data mining
- Current system analysis

Allows to understand where competitors have an edge and the areas that needs improvement:

- What are the best competitors doing right?
- What design features are creating engagement?
- What are our competitors' traffic sources?
- What are their demographics? Do we share a similar audience?

Market Analysis, similar solutions and competitions,

analyzing:

Market Positioning

- SWOT analysis
- Differentiator factors
- Feature Comparison
- UX
- Etc.



Parents trying to pass on life lessons to children — constitute a market.

Surgeons trying to repair a rotator cuff
— constitute a market.

Market Analysis, similar solutions and competitions,

analyzing:

Market Positioning

- SWOT analysis
- Differentiator factors
- Feature Comparison
- UX
- Etc.

STRENGTHS Things your company does well Qualities that separate you from your competitors Internal resources such as skilled,

as intellectual

proprietary technologies etc.

property, capital,

· Things your company lacks · Things your

WEAKNESSES

- competitors do better than you
- Resource limitations
- Unclear unique knowledgeable staff selling proposition Tangible assets such

OPPORTUNITIES

- **THREATS**
- Underserved markets for specific products
 - · Few competitors in your area
- · Emerging need for your products or services
- Press/media coverage of your company

- Emerging competitors
- Changing regulatory environment
- Negative press/ media coverage
- Changing customer attitudes toward your company

>>> WordStream _

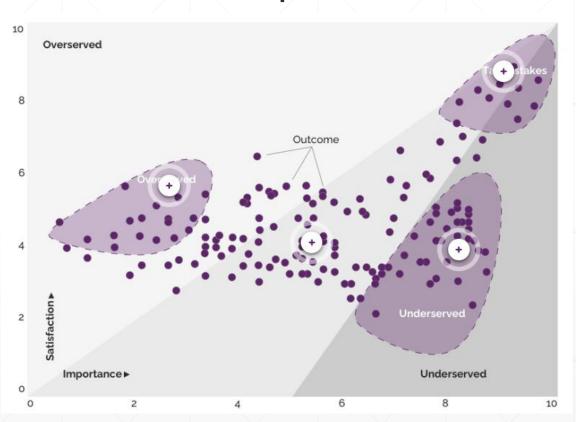
Image credits: wordstream

Market Analysis, similar solutions and competitions,

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- Etc.



Market Analysis, similar solutions and competitions,

analyzing:

Market Positioning

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- Etc.

Feature			Competition Analysis								
	PBS =				ĺ	ĺ					Corres
Plain text search	Market filter	Υ	N	Υ	N	Υ	N	Υ	N	N	
App higlights landing page (featured)	Market highlights	N	N	Υ	N	Υ	Υ	N	N	N	:
Free trial filter	Market filter	N/A	N	Υ	N	N	N	N	N	N	
Blue Print filter	Market filter	N	N	Υ	N	N	N	N	N	N	
App categories	Market filter	Υ	Υ	Υ	N	Υ	Υ	Υ	N	N	
App type (Instalation, integration,add-on?)	Market filter	N	N	Υ	N		N	N	N	N	
App Listing page	Market PLP	Υ	Υ	Υ	N		Υ	Υ	N	N	4
App detail page - description (related with #4)	Market PDP	Υ	Υ	Υ	N	Υ	Υ		N	N	4
App detail page - pricing	Market PDP	Υ	?	Υ	N			?	N	N	
App detail page - use cases	Market PDP	N	N	Υ	N				N	N	
App detail page - product details (related with #4)	Market PDP	Υ	N	Υ	N	Υ	Υ	Υ	N	N	
App detail page - product reviews	Market PDP	N	N	Υ	N	Υ	N	N	N	N	
App detail page - terms and conditions (related with #9)	Market PDP	Υ	N	Υ	N	Υ			N	N	2
App detail page - help documentation	Market PDP	N	?	Υ	N	Υ		Υ	N	N	3
App detail page - market brochure	Market PDP	N	?	Υ	N	Υ		Υ	N	N	3
App detail page - install/Contact to install	Market PDP	Υ	У	Υ	N	У	у	у	N	N	
App detail page - languages (related with #17)	Market PDP	N	N	Υ	N				N	N	
Marketplace management - create App	Developer portal (app)	+/-		Υ	N			N	N	N	
Marketplace management - create Integration	Developer portal (app)	N		Υ	N			N	N	N	-
Marketplace management - manage content	Developer portal (app)	+/-			N				N	N	(
Install/Configure wizard	App install	+/-			N				N	N	(
App localization (related with #17)	App management	N		?	Υ		Υ	Υ	N	N	
App Listing page sort	Market PLP	N	N	N	N	Υ	Υ	N		N	
App detail page - Related Products	Market PDP	N	N	N	N	Υ	Υ	N		N	
App detail page - User Questions	Market PDP	N	N	N	N	Υ	N	N		N	
Maketplace apps for fraud detection	Market Fraud	N	N	N	N	Υ		N		N	
Region filter	Market filter	N	N	N	N	N	Υ	Υ		N	
App Platform (Mobile, desktop, browser)	Atributes	N	N	N	N	N	Υ	N		N	
Marketplace App social sharing (FB, Twitter, etc.)	Market social	N	N	N	N	N	N	N	N	N	
App versioning release notes	Market ADP	N	N	N	N	N	N	N	N	N	
Industry types	Market Filter	N	N	N	N	N	N	N	N	N	

- Market Analysis, similar solutions and competitions, analyzing:
 - Market Positioning
 - SWOT analysis
 - Differentiator factors
 - Feature Comparison
 - UX
 - Etc.

UX/UI analysis to understand the diferences that could impact the business

Feedback

Feedback

- Listen from diferent departments, customers and stakeholders:
 - once a new feature is released
 - current system implementation
 - requests made

ALWAYS what they want to achieve and why, not how they want it built!!!

Creativity, Introspection and data mining

Creativity, Introspection and data mining

- Creativity Generate new ideas and problem solving from the system
- Introspection Use existing knowledge to extrapolate new potential requirements
- Data mining Use the data to find new markets, and how the users are using the system

ALWAYS test them with users (without development)

Current system analysis

Current system analysis

- Analyse current system and documentation to capture incomplete features, poor UX, business inconsistencies, and issues
- Monitor the system to automatically identify problems
- Technical analysis for non-functional improvements (security, performance, compatibility, scalability, maintenability, reliability, recovery, etc.)

From ideas to users

Frame Problems

Discover – Frame problems

Goals?

- Confirm Problems
- Assess their criticity

How?

- Previous studied elicitation techniques
 - Documentation analysis
 - Current system analysis
 - System monitoring
- Technical analysis
- Jobs-to-be-done
- User research (Includes previous elicitation techniques and more)

Frame Problems – Documentation and product analysis, system monitoring, technical analysis

- Analyse current system, documentation and system monitoring dashboards:
 - how does it work? How is it used? Who is using it? How often?
 - What is the root cause of the problem raised?
 - Is there an incomplete feature? Are there business inconsistencies?
- Technical analysis to understand if there is any technical constraint
 - Is it failing somewhere? Why?

From ideas to users

Frame Problems - JTBD

From ideas to users

Frame Problems – User Research

Discover – Jobs to be done

Jobs-to-be-Done is a theory of innovation based on the economic principle that people buy products and services to get "jobs" done, i.e., to help them accomplish tasks, achieve goals and objectives, resolve and avoid problems, and to make progress in their lives.*



*https://strategyn.com/

Discover – User Research

Process of gathering insights about users' behaviors, needs, and pain points through observation techniques and feedback methodologies

The goal of UX research is to understand your users and gain context and perspectives to help make informed decisions and build user-centered products.

All research methods are either quantitative or qualitative

- Quantitative: Collecting and analyzing numerical data to identify patterns, trends, and significance
- Qualitative: This type of interview provides experience data and shows consumers' emotional decisions. Reasons, motivations, and behaviors of individuals.

Discover – User Research

Previously lectured elicitation techniques

- Interviews
 - Can be supported by prototype testing
- Workshops
- Focus groups
- Observation
- User interface analysis

And more are introduced...

- Persona analysis
 - who is impacted by the problem? Who will be impacted by its resolution?
- Customer surveys
- Behavioral analytics
 - Event tracking, paths and customer journey funnels, screen recording, heat maps, etc.
- Feature data
 - How often specific features are used
- Etc.

Discover – User Research: workshops

Previously elicitation techniques

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Discover – User Research: Observations

- Observe how users perform their tasks
- Time consuming: time should be limited
- Important or high-risk tasks should be selected
- Can be silent (users cannot be interrupted) or interactive (asking questions allowed)
- Observed information should be documented for further analysis

Discover – User Research: workshops

Previously elicitation techniques

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Discover – User Research: interface analysis

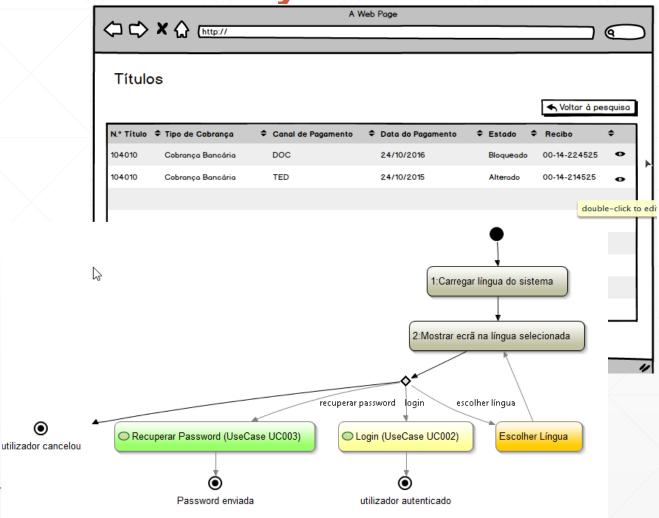
- Studying existing systems to discover user and functional requirements
- Uses screen shots if no direct interaction is possible
- Helps understanding how an existing system works

How are people calling the elevator and how do they select the floor? What they do while waiting?

Discover – User Research: interface analysis

Migh use wireframes to quickly validate ideas and communicate effictively

Wireframe: blueprint or schematic that helps communicate the structure of your app or website to the relevant stakeholders.



Discover – User Research: workshops

Previously elicitation techniques

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Persona analysis

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- Etc.

Discover – Persona analysis

who is impacted by the problem?

- Demographic data
- Profession/Department
- Company responsabilities
- Experience
- Environment

Who will be impacted by its resolution?

- Who uses the feature developed
- Other departments

Discover – Persona analysis

who is impacted by the problem?

- Demographic data
- Profession/Department
- Company responsabilities
- Experience
- Environment

Elevator exemple:

- James has 2 newborn kids and lives on the15th floor*
- Lisa enjoys parties at home and lives on the 10th floor*
- John lives is on a wheelchair and lives on the 1st floor*
- Is the same problem for all the personas?

Who will be impacted by its resolution?

- Who uses the feature developed
- Other departments

Elevator example

- People using the elevator
- Cleaning person
 - Recharging the hand sanitizer
 - Cleaning the mirrors
- Maintenance people
 - Make sure the music plays properly
 - More electricity system to maintain

Discover – User Research: workshops

Previously elicitation techniques

- Interviews
 - Can be supported by prototype testing
- Workshops
- Focus groups
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- User interface analysis

And more are introduced...

- Persona analysis
 - who is impacted by the problem? Who will be impacted by its resolution?
 - **Customer surveys**
- Behavioral analytics
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- Etc.

Discover – Surveys

Surveys

A survey is a research method used for collecting data from a pre-defined group of respondents to gain information and insights on various topics of interest.

Consists of questionnaire and survey design, logic and data collection.

A **research questionnaire** is typically a mix of close-ended questions and open-ended questions.

How to perform a survey?

- 1. Determine who will be part of the survey.
- 2. Decide the survey channel (mail, online, in-person, etc.)
- 3. Design the survey questions and layout (questionnaire).
- 4. Distribute the survey.
- 5. Analyze the responses.
- 6. Report the outcomes.

Discover – Surveys Questionnaires

A good questionnaire will allow to:

- gather a lot of data/insights
- reduce chance of any bias creeping if you have a standard set of questions to be used for your target audience.
- quick and cost-effective
- responses can be compared with the historical data and understand the shift in respondents' choices and experiences
- Respondents can answer without revealing their identity

Characteristics of a good questionnaire :

- Uniformity: Every respondent sees the same questions. Helps in data collection and statistical analysis of the data.
- Exploratory: No restriction on questions that can be in your questionnaire. Open-ended questions give you more insight and allow the respondents to explain their practices.
- Question Sequence: The question should follow a sequence like warm-up questions, transition questions, skip questions, challenging questions, and classification questions.
- Balance: A balance between structured questions that collect quantitative data and unstructured that collects qualitative data.

Discover – Surveys Questionnaires

Structuring a good questionnaire following outcome-driven innovation

- Screening section ensure only qualified respondents take the survey and that specified quota groups are filled
- 2. Context Setting Section discover the circumstances surrounding the respondent. Used to profile the segments and reveal what is causing people to have different unmet needs
- 3. Outcome Rating Section collect the respondent importance and satisfaction ratings for each statement. Used to discover which outcomes are underserved and overserved

- 4. Related Job Rating Section collect the respondent importance and satisfaction ratings for each of the related statements. Used to discover the most attractive adjacent markets to consider for pursuit.
- 5. Emotional Job Rating Section Included to collect the respondent's importance and satisfaction ratings for each of the emotional statements. Used to inform marketing communications and value proposition development.
- 6. Participant Profiling Section Included to enrich the data analysis with traditional demographic, psychographic, and other types of profiling data.

JBTD - ODI

Previously elicitation techniques

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 - Can be supported by prototype testing
- Workshops
- Focus groups
- Observation
- User interface analysis

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- Feature data
 - How often specific features are used
- Etc.

User behavior describes all the actions a user performs on a website or mobile app.

It includes factors like time on page, number of pages visited, how people interact with different features, and also friction they encountered while using the product, etc.

User behavior analytics is a technique for recording user activity and then combining and analyzing that data to understand how and why users interact with a product or website.

User behavior metrics are analytics data that tell you how visitors engage with your website or app

Normally we can look at the following metrics:

- Conversion rate
- User activation
- User adoption
- Drop rates

Behavioral analytics can be obtained by multiple sources:

- Customer surveys
- Event tracking
- Paths and customer journey funnels
- Screen recording
- Heat maps
- Databases

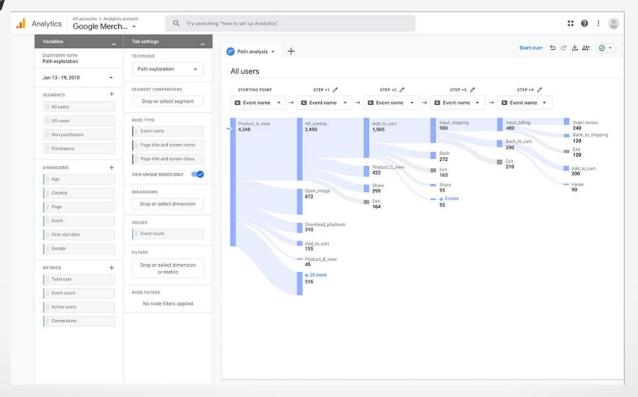


Image source: marketingplatform.google.com

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Behavioral analytics can be obtained by

multiple sources:

Customer surveys

Event tracking

Paths and customer journey funnels

Screen recording

Heat maps

Databases

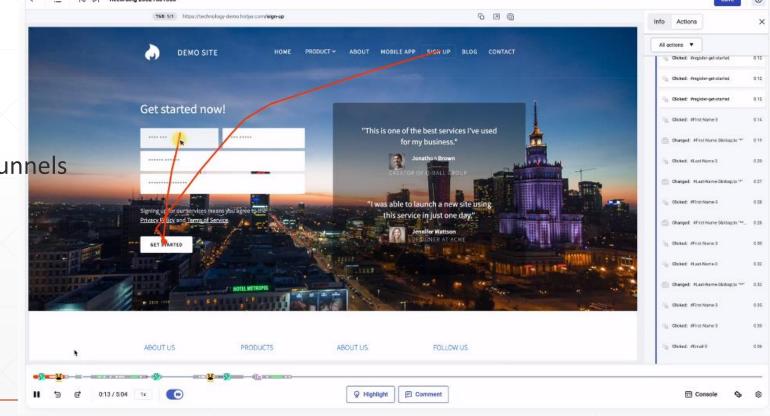


Image source: hotjar.com

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Behavioral analytics can be obtained by

multiple sources:

Customer surveys

Event tracking

Paths and customer journey funnels

Screen recording

Heat maps

Databases

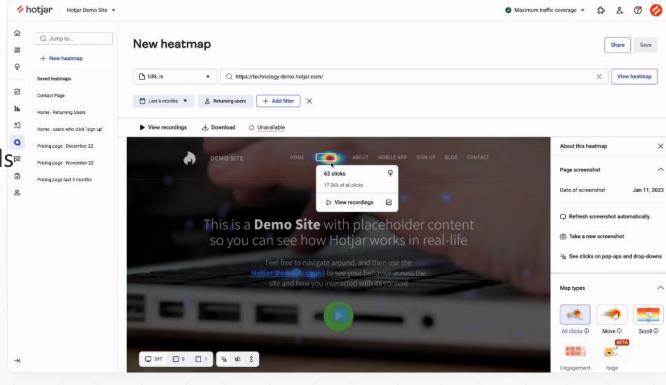


Image source: hotjar.com 43

Behavioral analytics can be obtained by multiple sources:

- Customer surveys
- Event tracking
- Paths and customer journey funnels
- Screen recording
- Heat maps
- Databases

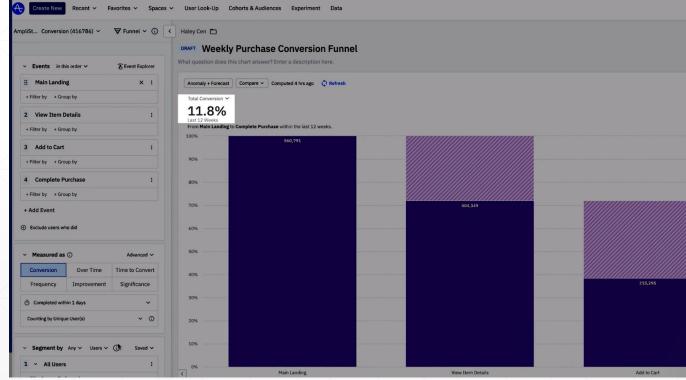


Image source: amplitude.com

Discover – User Research: workshops

Previously elicitation techniques

- Interviews
 - Can be supported by prototype testing
- Workshops
- Focus groups
- Observation
- User interface analysis

And more are introduced...

- Persona analysis
 - who is impacted by the problem? Who will be impacted by its resolution?
- Customer surveys
- Behavioral analytics
 - Event tracking, paths and customer journey funnels, screen recording, heat maps, etc.

Feature data

- How often specific features are used
- Etc.

Discover – User Research: workshops

Data is collect

And more are introduced...

- Persona analysis
 - who is impacted by the problem? Who will be impacted by its resolution?
- Customer surveys
- Behavioral analytics
 - Heat maps, google analytics, A/B testing, etc.
- Feature data
 - How often specific features are used
- Etc.

Prioritize

Priorization Frameworks

The mostly widely used tools for priorization are:

- Rice Score Framework
- Value vs Effort Framework
- Kano Model
- The MoSCoW Method
- Opportunity Scoring
- The Product Tree
- Cost of Delay
- Buy a Feature



RICE Framework

Source: intercom

Rice allows product teams to work on initiatives that are most likely to impact any given goal.

R - Reach

I – Impact

C – Confidence

E – Effort

- Reach How many people will this feature affect within a given time period?
- Impact How much will this impact individual users?
 - Score:
 - 3 = massive impact
 - 2 = high impact
 - 1 = medium impact
 - 0.5 = low impact
 - 0.25 = minimal impact

- Confidence How confidente are we about the impact and reach scores? How much data do we have to back up those estimates?
 - Use a % score:
 - 100% = high confidence
 - 80% = médium confidence
 - 50% = low confidence

- Effort How much of a time investment will this initiative require from product, design and development?
 - Measure as persons per month (how much one team member can do in a month)

Reach x Impact x Confidence = RICE Effort Score

Item Daniel Item		RICE EFFORT	Reach (0-100) 🕠	Impact (.25 - 3) ①	Confidence (0 - 1) ③
Schema markup	\oplus	40	100	0,5	0,8
Pagination	\oplus	40	100	0,5	0,8
Onpage Elements for Car Configurator	\oplus	40	100	0,5	0,8
Additional Content	\oplus	20	100	1	0,2
Facet Navigation	\oplus	10	100	0,5	0,2

*Tool used: Monday.com

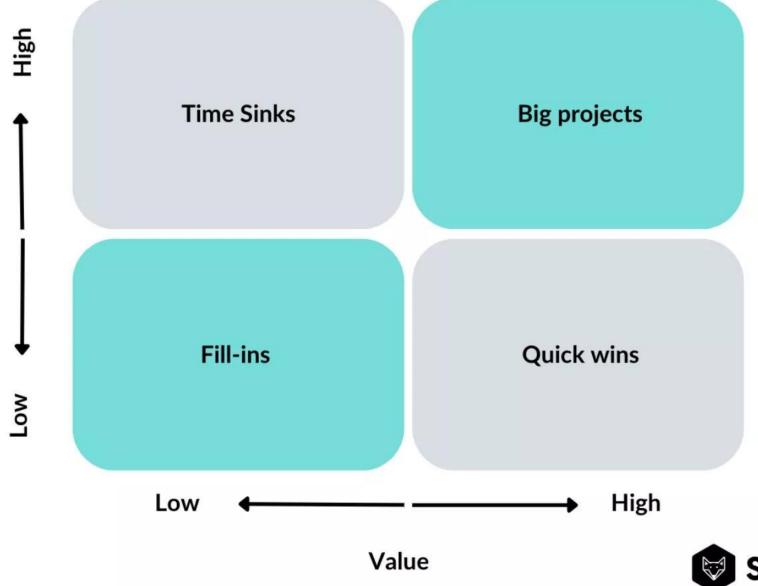
Pros

- Metrics must be SMART before beeing quantified
- It reduces biases and influence on the priorization
- Priorization moves from attempting to predict success to measuring the level of assertion each team member has for the features
 - Shifts the discussions from "Here's how much this feature is worth" to "Here is how we are quantifying our level of confidence for each of these qualitative, speculative scores

Cons

- Dependencies are not considered
- Needs to be managed as an exercise, and not as a confirmation of what is going to be build next
- Estimations are never 100% accurate

The Value vs. Effort Matrix



Value vs Effort Framework

This method makes room for healthy discussions among stakeholders ojn what they believe value and effort means.

It is a quickly and easy way to visualize a set of quantified priorities

Value – How Important is it?

- Value
 - Potential Revenue
- Benefit
 - To current customers
 - To potential customers
- Impact
 - On the business goals
 - On the strategic goals

Effort – How difficult it is to build?

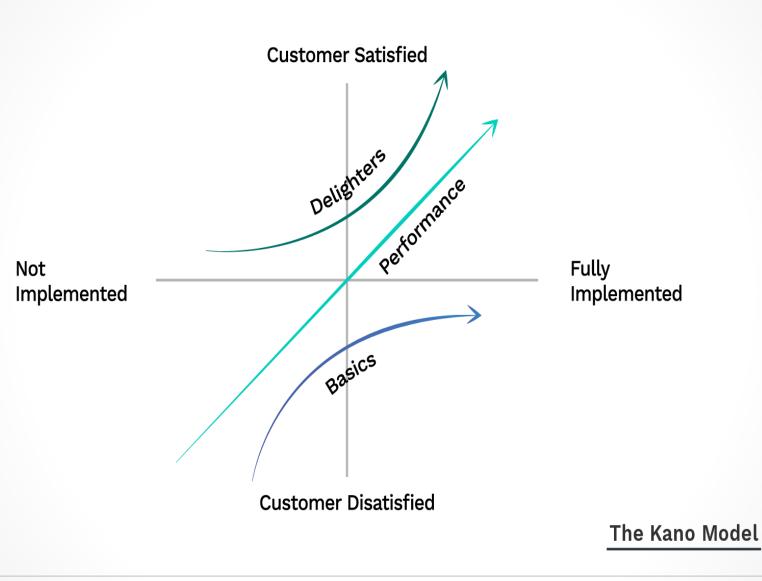
- Cost
- Effort
 - Development Effort
 - Operational Effort
 - Implementation Effort
- Risk
- Complexity

Pros

- Value and Effort are flexible metrics and can be settle by the company
- Good tool to generate alignment. Leaves guesswork and assumptions out of the priorization discussions
- Good for companies with resources limited, as it leverages to focus only on the things with highest impact on business and product goals
- Easy to use as there is no complex formulas or models.

Cons

- Leaves a lot of room for cognitive bias at habds of the people estimating. Final score might be to inflated or not accurate enough
- When it's time to vote on how high/low the value/effort scores should be, the disagreements can take a while to resolve
- Hard to use with large/multiple teams with multiple product lines or components



Noriaki Kano

On Kano Model the values can be set into 3 diferent buckets:

- Must-haves or basic features Your customers won't consider your product as a solution to their problem if you don't have them.
- Performance features Increase the level of customer satisfaction.
- Delighters or excitement features: Pleasant surprises not expect that creates a delighted response.

This buckets can be settled by questionnaire. We can expect differente must-haves depending on the stakeholder/customer.

Pros

- Helps teams to not overestimate excitement features and to stop underestimating must-haves
- Help make better product decisions and market predictions for feature success and manage expectations

Cons

- Can be time-consuming to get a fair representations of all the customers
- The customer might not understand the features that they are beeing surveyed about.

MoSCoW Method

This method allows to figure out what matters the most to stakeholders and customers by classifying features into priorities.

This model is dynamic and allows room to evolving priorities. A Won't have feature can one day become a must-have.

Must-have – Feature that has to be presente for the product to be functional. Non-negotiable and essential.

Should-have – Important to deliver but not time sensitive

Could-have – This is a feature that's not essential nor importante to deliver within the timeframe. They're bonuses that increase customer satisfaction.

Won't-have – Least critival features that will only be considered for future releases

Pros

- Good for envolving stakeholders without technical background
- Quick, easy and intuitive way of communicating priorities to the team and customers
- Allow to think on resource allocation when beeing classified

Cons

- It's tempting to overestimate the number of Must-Have features.
- It's an exercise in formulating release criteria more than a prioritization method.

Opportunity Scoring

Opportunity Scoring

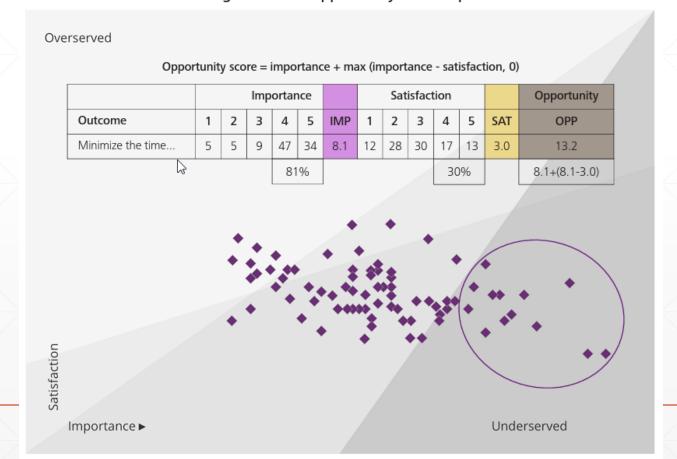
This method is based on ODI (Outcome-driven innovation) and uses Satisfaction and Importance to measure and rank opportunities.

Once a list of ideal outcomes is ready, the customers can be surveyed to collect feedback on 2 major questions:

- How important is this outcome or feature?
- How satisfied is the customer with the existing solutions?

Opportunity Scoring

Once you plot this answers on the chart you should be able to see the features that matters the most

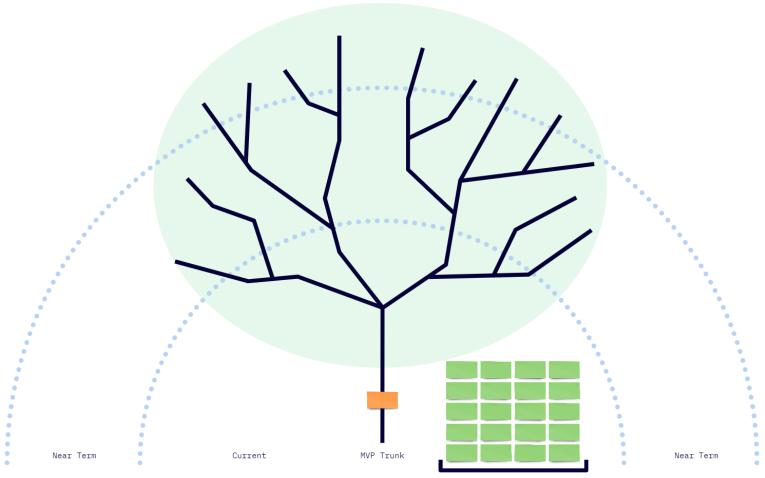


Opportunity Scoring

- Simple framework for quickly identifying the most innovative solutions to a common problem.
- Easy to visualize and categorize on a graph.

Opportunity Scoring

- In the survey or questionnaire, customers might overestimate or underestimate the importance of a feature
- An effective Survey must be taken build



Product Tree is an Innovation Game® created by Luke Hohmann.

The Product Tree

Bruce Hollman

The focus of this activity is to shape the product so it matches the customer outcomes that will bring the highest value to the company. The game aims to prune product backlog items to ensure that innovative ideas aren't being left behind

- 1. Create the tree with existing features
 - The trunk of your tree represents the features your product already has.
 - The outermost branches represent the features that will be available in the next release.
 - The other branches represent the features that aren't available yet.

- Ask stakeholders/customers to write some potential features
- 3. Ask your customers/stakeholders to place their feature leaves on a branch

This will enable to see the biggest clusters or branches understanding where it needs more work and what needs to be changed

- It gives you a visual sense of how well balanced your product's features are.
- It's highly collaborative, allowing you to tap directly into the insight of your customers without relying on a rigid survey

- This method doesn't give any quantitative values for how to rank each feature, only a general visual guide.
- Features aren't separated into any sort of grouping bucket, making the exercise time-consuming
- Limited to the existing audience

Joshua Arnold defined Cost of Delay as "a way to communicate the impact of time on the outcomes to achieve."

The main point is to attach monetary value to each feature by calculating how much time and effort will take to build, allowing to ask the following questions:

- What would this feature be worth if it existed right now?
- How much would it be worth it if this feature gets made earlier?
- How much would it cost if it was made later than planned?

Credits: Bruce Hollman

Idea	Cost of delay	Duration	Cost of delay/Duration
Idea 1	150k€/week	2 weeks	75k€/week
Idea 2	5k€/week	5 weeks	1k€/week
Idea 3	25€/week	5 weeks	5k€/week

- It allows to quantify product backlog in terms of money.
- It helps to make better decisions based on the value that matters the most to the company.
- It changes mindset around features from cost and efficiency metrics, to speed and value.

- The parameters for determining the monetary value of a feature are based on gut-feel and intuition.
- Can lead to internal disagreements regarding the arbitrary value of any given feature.

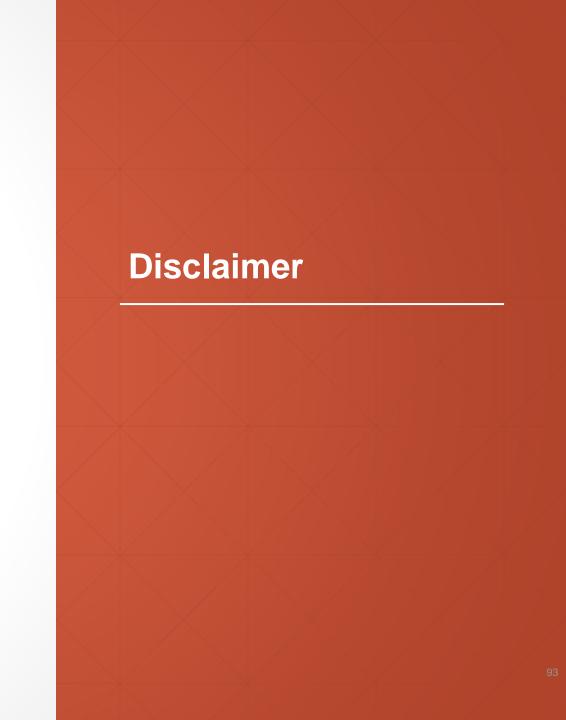
credits: Luke Hohmann

Buy a feature is an exercise with customers/stakeholders that allows to quantifiably tell how much a feature is worth to people

- 1. Choose a list of items and assign a monetary value to each one. This value should be based on how much time, money and effort will cost
- 2. Put a group of people and give them a set amount of money to "spend" on these features.
- 3. Ask your participants to buy the features they like. Ask the participants to explain why they spent money on the feature they picked.
- 4. Reorganize that list of features in order of how much money were they willing to spend on them.

- Good way to negotiate with stakeholders and have wisdom from the customers
- It replaces the customer questionnaire with a collaborative approach that forces customers to rationalize why they think they need a feature

- Can only include features that you've already decided to include in a product development roadmap – the results just tell you what features customers value the most.
- The activity requires you to get a group of customers in one place at the same time, which can be difficult to coordinate
- Does not take into account feature dependencies



Disclamer

- 1. Depending on the product maturity there are some techniques that makes more sense than others
- 2. Depending on the product/company this techniques can potentially need to suffer mutations. Examples:
 - Example, new product that is going to replace as previous one and there are existing customers on the previous one.