

Creating and capturing value from innovative tech

Ph.D. Class ENG-642

Dr. Sharon Tal
sharon@wheretoplay.co

Session 1
Fall Term 2025

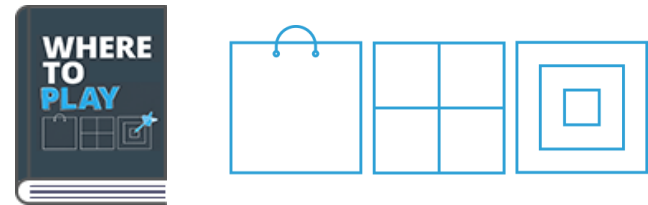
Hi, I am Sharon



Trainer, educator and facilitator



Author of Where to Play:
www.wheretoplay.co



Co-founder and former executive
director of the Technion
Entrepreneurship Center



Commercializing our own academic know-how



FT PUBLISHING
FINANCIAL TIMES

WHERE TO PLAY

3 STEPS FOR DISCOVERING
YOUR MOST VALUABLE
MARKET OPPORTUNITIES



Marc Gruber and Sharon Tal

'Enjoy discovering highly practical worksheets, maps and dartboards of tremendous interest to better identify, evaluate and strategise market opportunities.'
Alex Osterwalder and Yves Pigneur, authors of the bestseller *Business Model Generation*

1

2

1

POTENTIAL	Super		
	High		
	Mid		
	Low		
	Low	Mid	

OPPORTUNITY SET

Worksheet 1 to identify potential market opportunities, and place them in the set

ATTRACTIVENESS MAP

2 Use Worksheet 2 to evaluate market opportunity, and plot

Opportunity = any combination of applications to represent each



The commercial possibilities of your tech expertise

Realizing the commercial possibilities of your unique technology/know-how allows you to:

- Engage in more meaningful research projects
- Consider entrepreneurship as an alternative career path

Do you consider entrepreneurship as a career path?

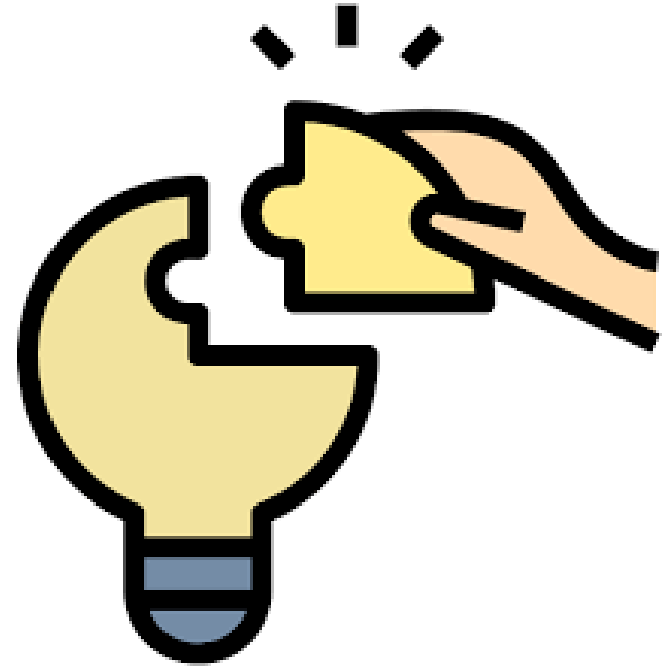
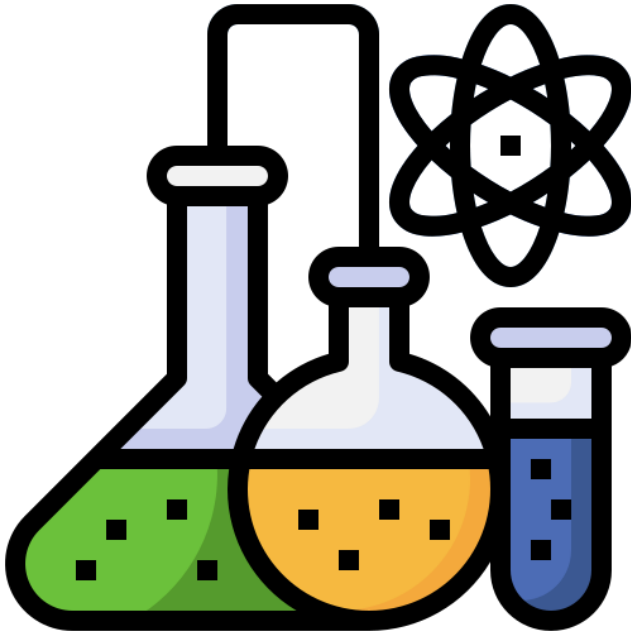


Goal: From an academic mindset to an entrepreneurial outlook

From tech and science



customers and solutions



There are many commonalities



Personality traits:

- Resilience
- Curiosity
- Creativity
- Critical thinking etc



Working context:

- Coping with uncertainty
- Starting with hypothesis

But one MAJOR difference



So how can we realize the value of an innovative tech

- ✓ Discover different applications stemming from your know-how and the customers who may need it
- ✓ Evaluate different commercial opportunities to compare and prioritize
- ✓ Develop a strategy to realize the full potential of your core abilities



Sounds complicated?

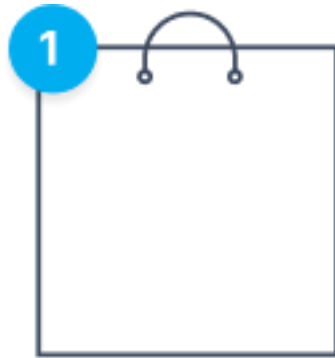


The good news: there is a toolset!



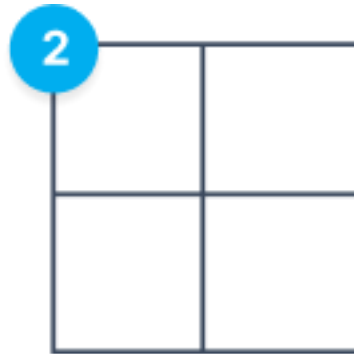
The Market Opportunity Navigator

Understand your opportunity space and find the best market for your innovation



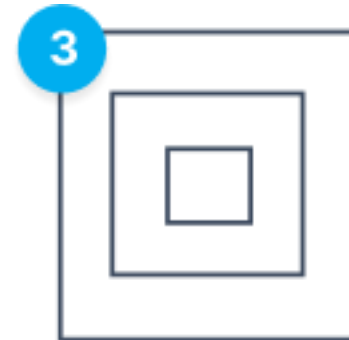
IDENTIFY

Market opportunities
for your business



EVALUATE

and compare options
systematically



PRIORITIZE

opportunities for a
clear strategic focus

About this course



Course objectives

The goal of this course is threefold:

- 1) to understand the process of opportunity identification and evaluation in the context of new technologies;
- 2) to acquire **practical business tools and key transversal skills** for the adoption of an entrepreneurial mindset and the consideration of entrepreneurship as an alternative career path
- 3) to apply this know-how on a real invention, and gain hands-on experience in this all-important process

Practical business tools and key transversal skills

Business tools

By the end of the course, you will be able to:

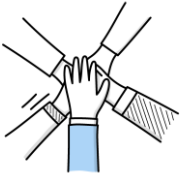
1. Identify different applications and customers for innovative technologies
2. Evaluate the value creation potential of a market opportunity
3. Evaluate the challenges in capturing value for each opportunity
4. Set a business strategy to capture both financial and social gains

Practical business tools and key transversal skills

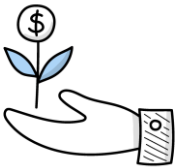
Transversal skills



Communication and presentation



Team work and interdisciplinary collaboration





Impact-driven leadership

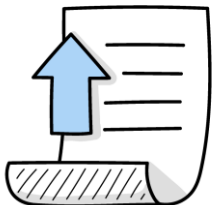


Learning from others

Course Program- Session 1

Monday, Nov 17






- Introduction & Overview
- Markets for technologies
- Innovation presentation & team formation 
- Identifying market opportunities for an innovation (Worksheet 1 of the Market Opportunity Navigator)
- Team work on Worksheet 1 

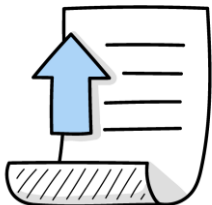


Deliverables: The filled Worksheet 1

Course Program- Session 2

Tuesday, Nov 18

- Share & learn: 1-2 presentations of Worksheet 1, Q&A  
- The Value Proposition: assumptions and phrasing
- Team work: what is your value proposition 
- Validating value propositions through customer interviews
- Team work on interview preparation  

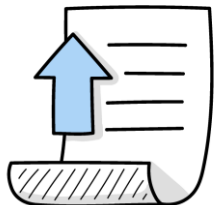
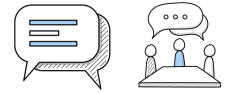


Deliverables: Interview with one external person (per market)

Course Program- Session 3

Wednesday, Nov 19



- Share & learn: 1-2 presentations of interview takeaways, Q&A
- Evaluating the attractiveness of your opportunity: Potential and Challenge (Worksheet 2 of the Market Opportunity Navigator)
- Assessing the social/ environmental impact of your opportunity
- Team work on Worksheet 2

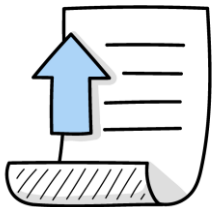


Deliverables: The filled Worksheet 2 for 2-4 options

Course Program- Session 4

Thursday, Nov 20

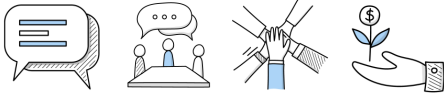
- Share & learn: 1-2 presentations of Worksheet 2, Q&A 
- How to focus smartly (Worksheet 3 of the Market Opportunity Navigator)
- Mrs. Isabel Casado Harrington - head of Unit, Startup Launchpad: how EPFL supports budding entrepreneurs
- Group work on Worksheet 3 and business presentations 



Deliverables: The filled Worksheet 3, the business presentation

Course Program- Session 5

Friday, Nov 21

- Learning from the successes and mistakes of a budding entrepreneur:
Nicolas Durand- Founder and former CEO, Abionic
- Business presentations by teams 
- Overview on the Lean Startup toolset and how it complements the Market Opportunity Navigator
- Main takeaways and course wrap-up

Assignments

This is a 2 ECTS course:

Assignment	Due date
Preface report (individual assignment)	Nov 12
Business presentation (team assignment)	Nov 21
Reflection report (individual assignment)	Dec 1

Please note:

- ✓ Class attendance and active participation are crucial to obtain the value this class is offering
- ✓ Group work outside the class is an essential element of this course

Transversal skills: day-by-day follow up

Transversal skills: day-by-day follow up

As we wrap-up each day, please share with us (anonymously) if you feel you worked on any of the transversal skills today.

Thanks,
Sharon

Date

Month, day, year



Please select those skills that you feel you worked on today (you can select more than one option)

- Communication and presentation
- Team work and interdisciplinary collaboration
- Impact-driven leadership
- Learning from others

Link to Google form: <https://forms.gle/mWgPKdQAEFaakA9q9>

Supporting materials

The recommended reading for each session is available on the course syllabus. Please come to class prepared.

Other supporting materials:



The book: 'Where to Play'
(Also available in French / German)

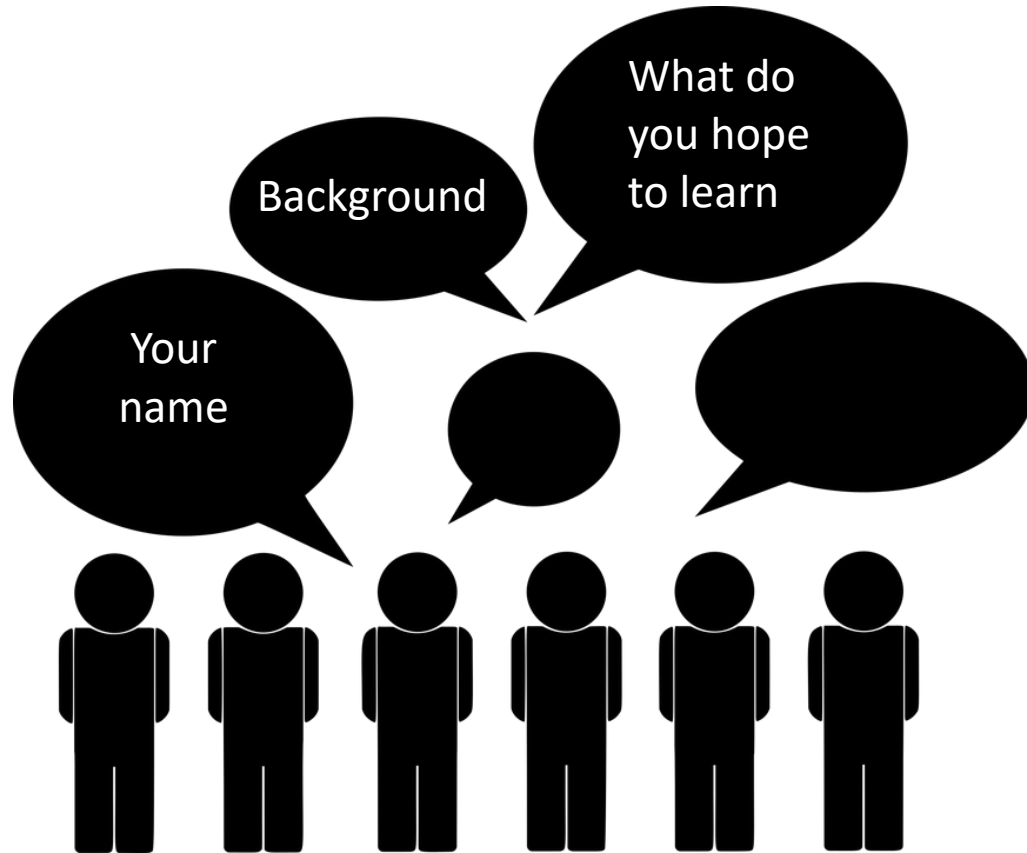


The on-line course on edX:
Find the right market for your innovation

What about AI?



One sentence:
“One thing I hope to get out of this course is...”



Markets for Technologies



Innovations can address different needs & serve different types of customers



Heating, ventilation and air conditioning systems



Manufacturing machines in factories



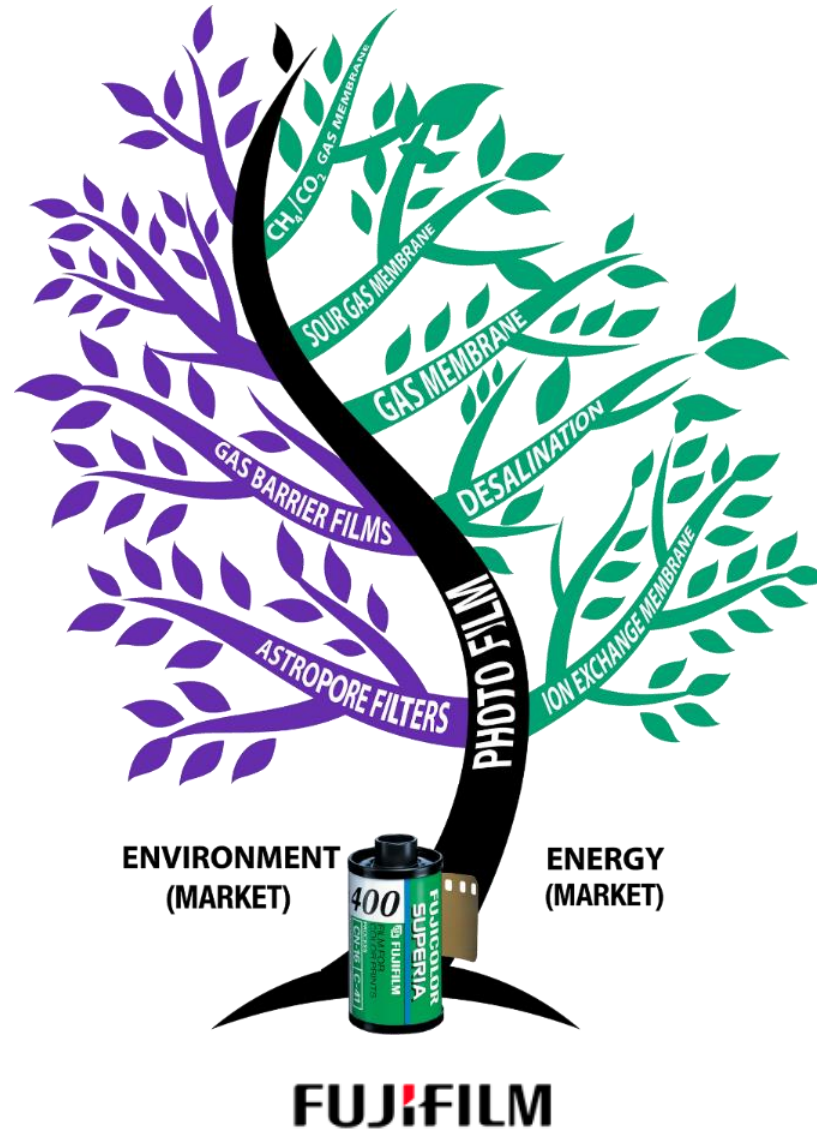
'Augury inside' for car manufacturers

...Or form the baseline for different types of products



CONSISMEDICAL From tunnel scanner to medical colonoscopy

True for startups and large corporations

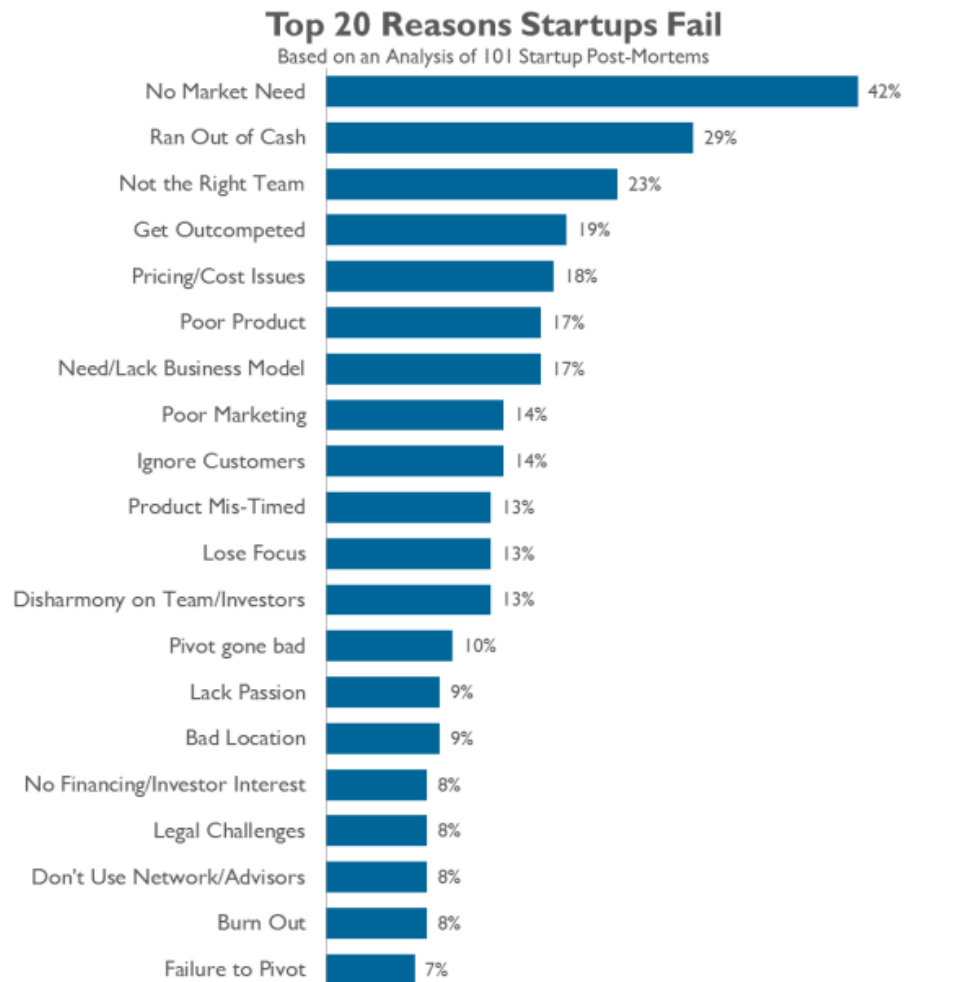


Market choice- a profound decision



- 1) Shapes the chances of success
- 2) Shapes the DNA of the venture

'No market need': The #1 reason for startup failure



We studied hundreds of startups that faced these questions



Finding the best market for your innovation



TOP 5 TIPS

1) 'Focus from day 1' is a myth



Setting your strategic focus takes time

2) Look before you leap

Adopt a wide-lens perspective before zooming-in



3) Make it systematic



4) Acknowledge uncertainty

As managers - we need data...but its not always available



5) Don't get trapped

Focus on one target market but
maintain your agility



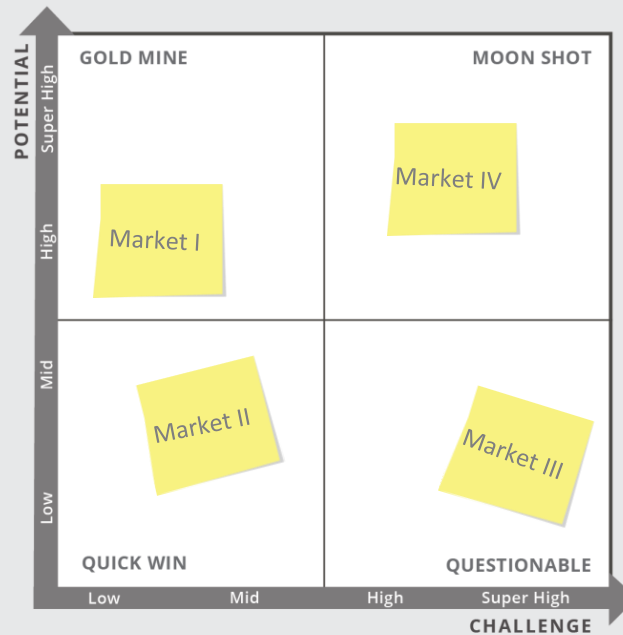
THE MARKET OPPORTUNITY NAVIGATOR

NAME DATE



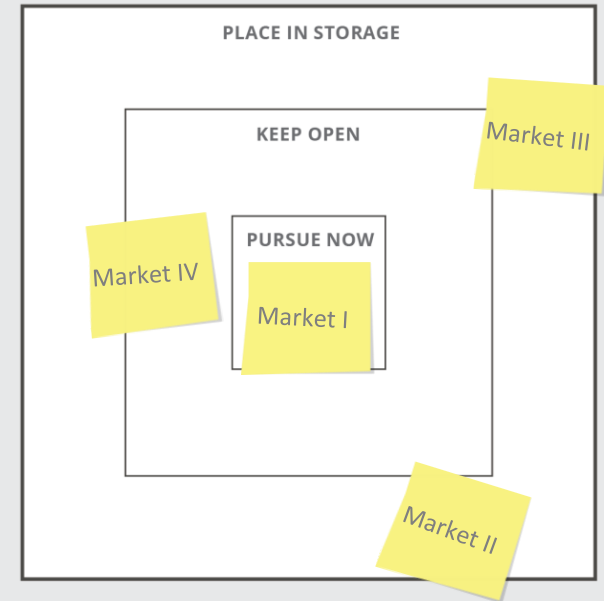
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- 2 Use Worksheet 2 to evaluate the attractiveness of each market opportunity, and place each one on the map



AGILE FOCUS DARTBOARD

- 3 Use Worksheet 3 to design your Agile Focus strategy, and mark it on the dartboard



market opportunity = any combination of application + customer
Use sticky-notes™ to represent each market opportunity

Develop a strategy to realize the full potential of your innovation

Found a startup?

- ✓ Focus on a promising opportunity
- ✓ Develop the foundations for a flexible company

Continue with research?

- ✓ Focus on meaningful projects
- ✓ Choose what and when to publish

Example: A Technion Spin-off



Enabling objects to feel touch

FeelIT presents flexible sensing patch solutions with tactile capabilities that match, and even exceed, human fingertip touch sensation

[READ MORE](#)



The co-founders



Dr. Gady Konvalina
CEO and Co-founder



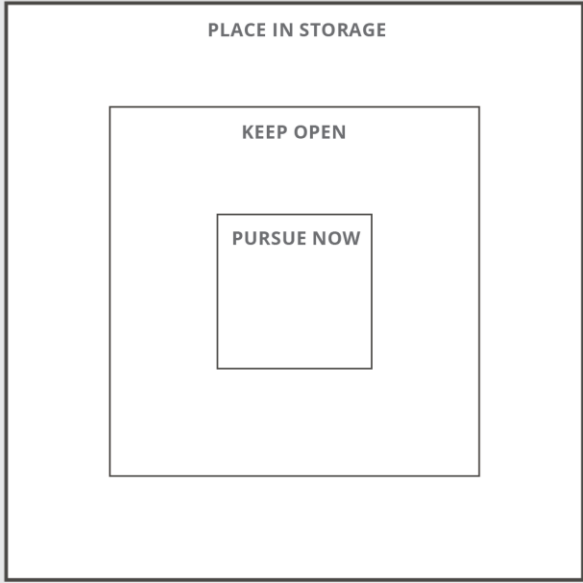
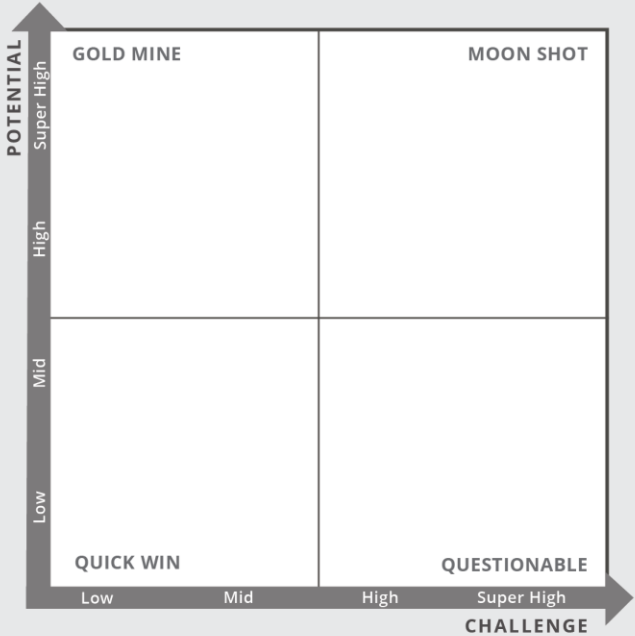
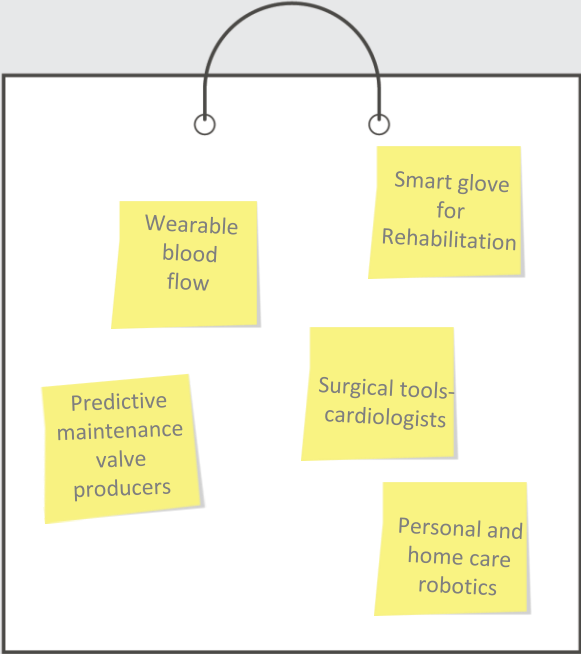
Dr. Meital Segev-Bar
CTO and Co-founder

THE MARKET OPPORTUNITY NAVIGATOR

NAME

DATE

FeelIT



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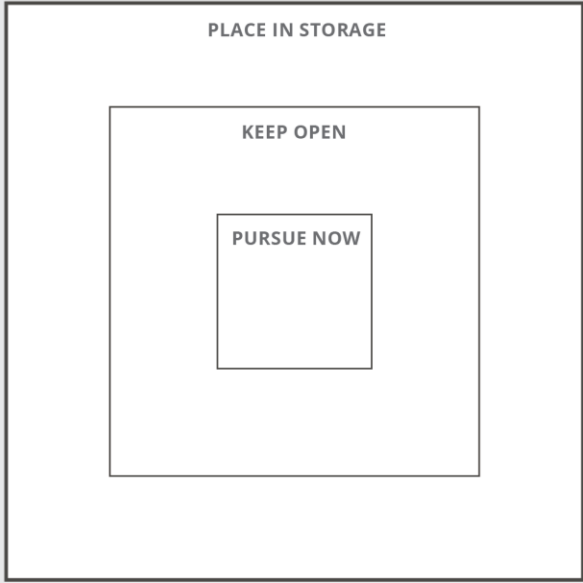
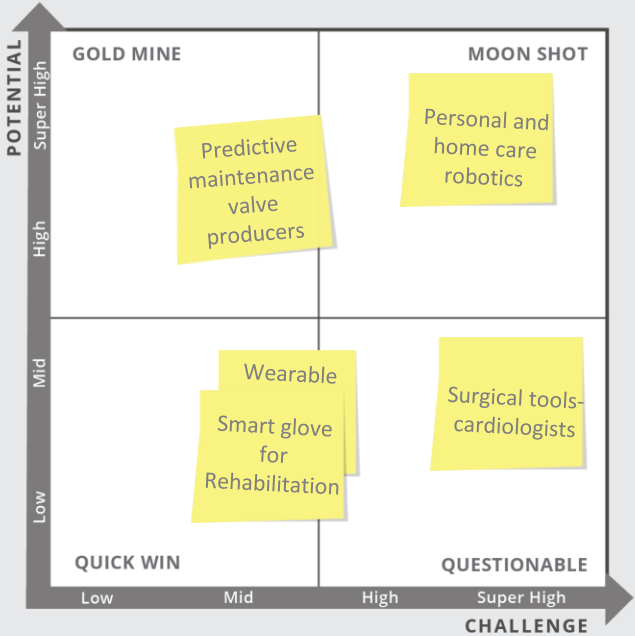
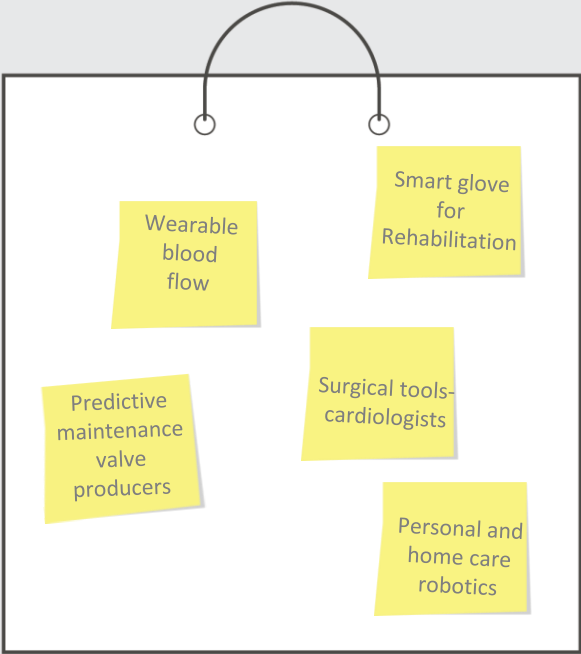
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THE MARKET OPPORTUNITY NAVIGATOR

NAME DATE



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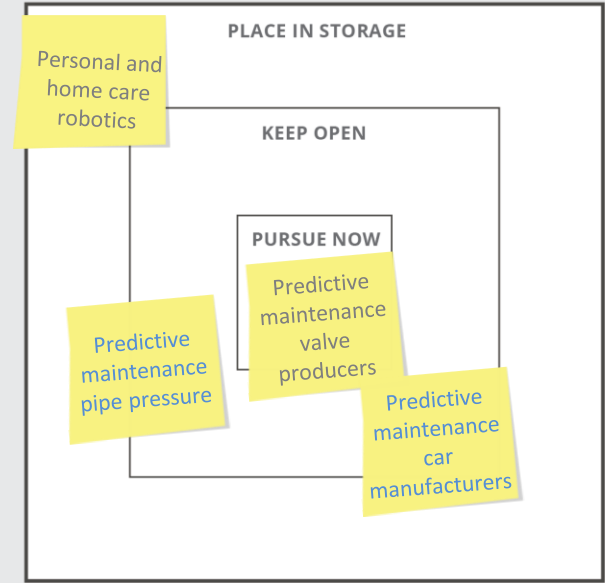
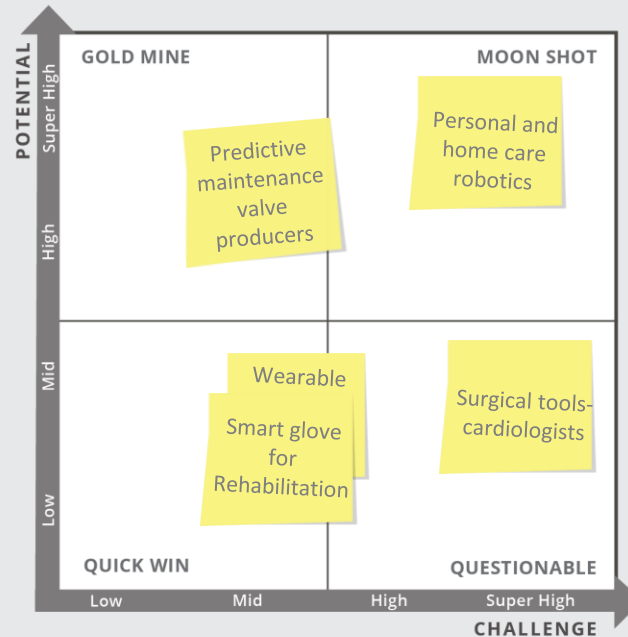
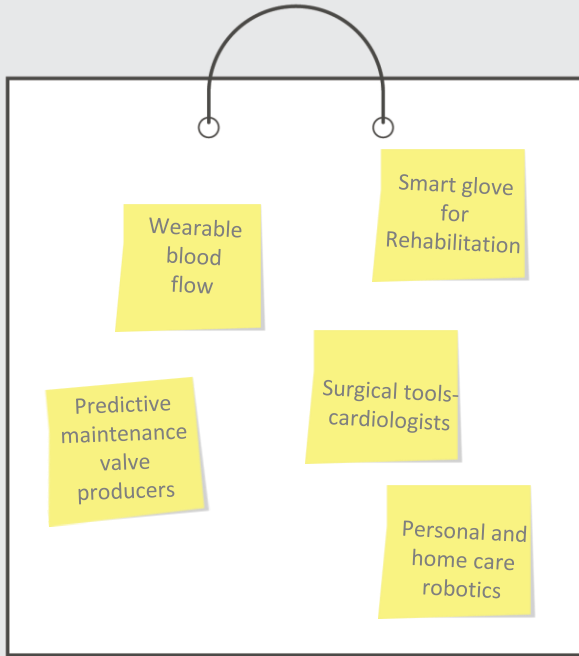
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Where are they today?

Finalized an investment round of \$1.5M

Won the first place at Calcalist's Industry 4.0 Startup Competition



Where are they today?

Feedit



The power of structured processes

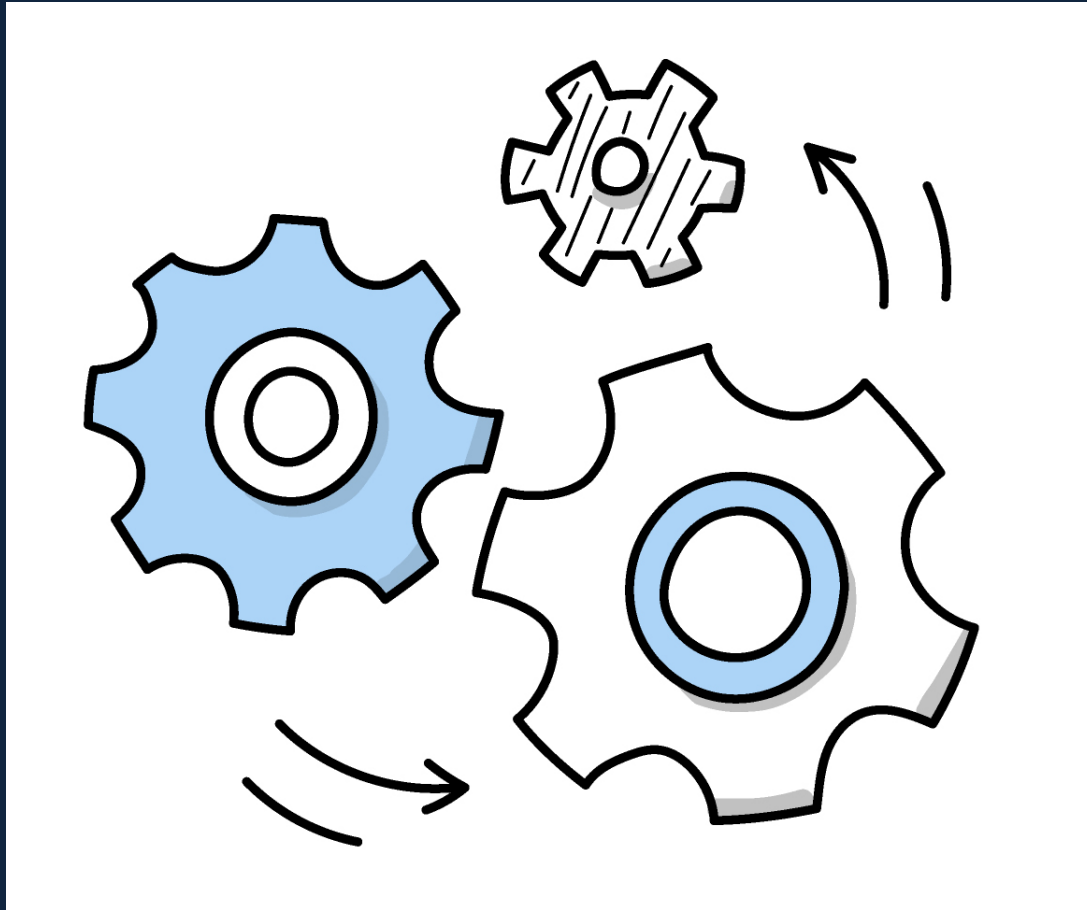


**SUPPORTS YOUR
DECISION-MAKING**

**PROVIDES A
SHARED LANGUAGE**

**OFFERS GUIDANCE
OVER TIME**

Innovation presentation and team formation



Tell us about your research project

Content

1. What is it and what can it do? What is unique about it? What are its main functions/properties?
2. What is the specific application for this technology? Was it studied before?
3. What other applications can this technology be used for? Can it address the needs of different customer segments?

Guidelines

1. Try to avoid technical terms
2. No slides required
3. 5 mins !

Team formation

1) Which statement suits you best:

- I would like to work on my own technology/ invention / unique know-how during the course, and analyse its applications with a team of students
- I would like to work on someone else's technology/ invention / unique know-how during the course

2) If you wish to work on someone else's technology, please write here 2 options that spark your interest:

- Option 1:
- Option 2:

Link to Google form: <https://forms.gle/5YWGWYzQhxpfSFjN9>

Step 1:

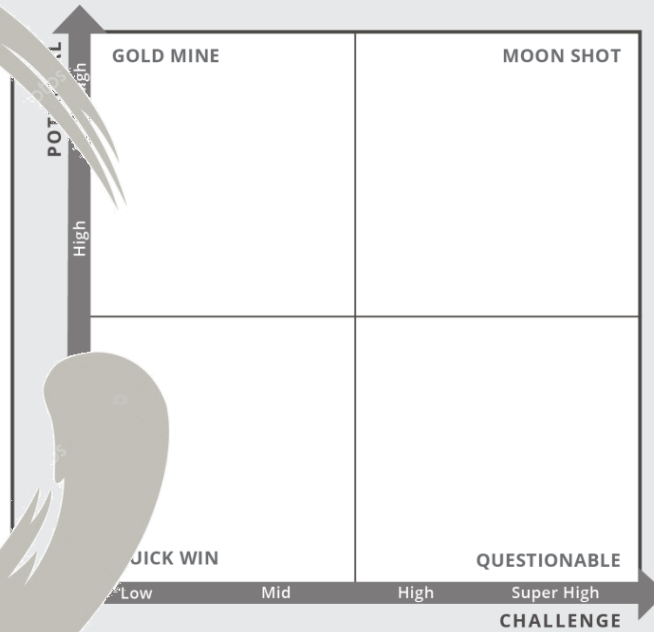
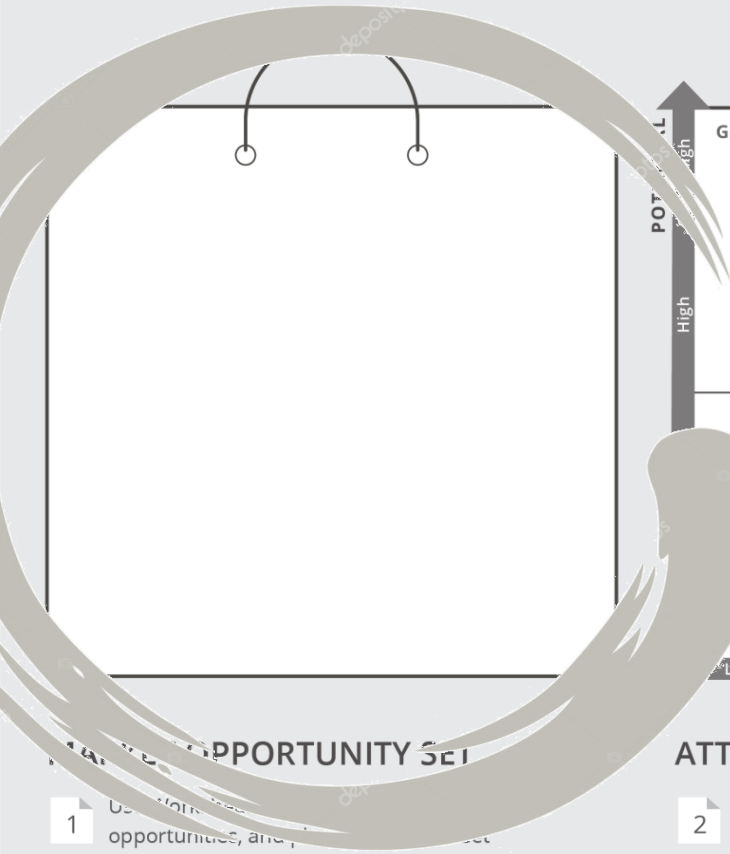
Identifying market opportunities for your business



THE MARKET OPPORTUNITY NAVIGATOR

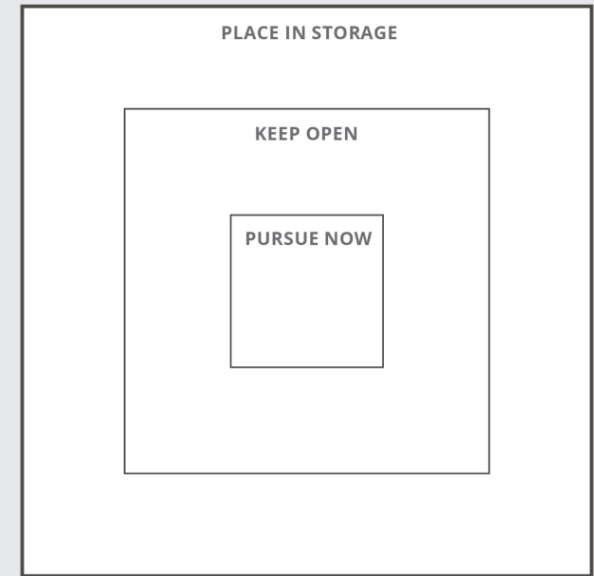
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What are we looking for?



application



customer



market opportunity

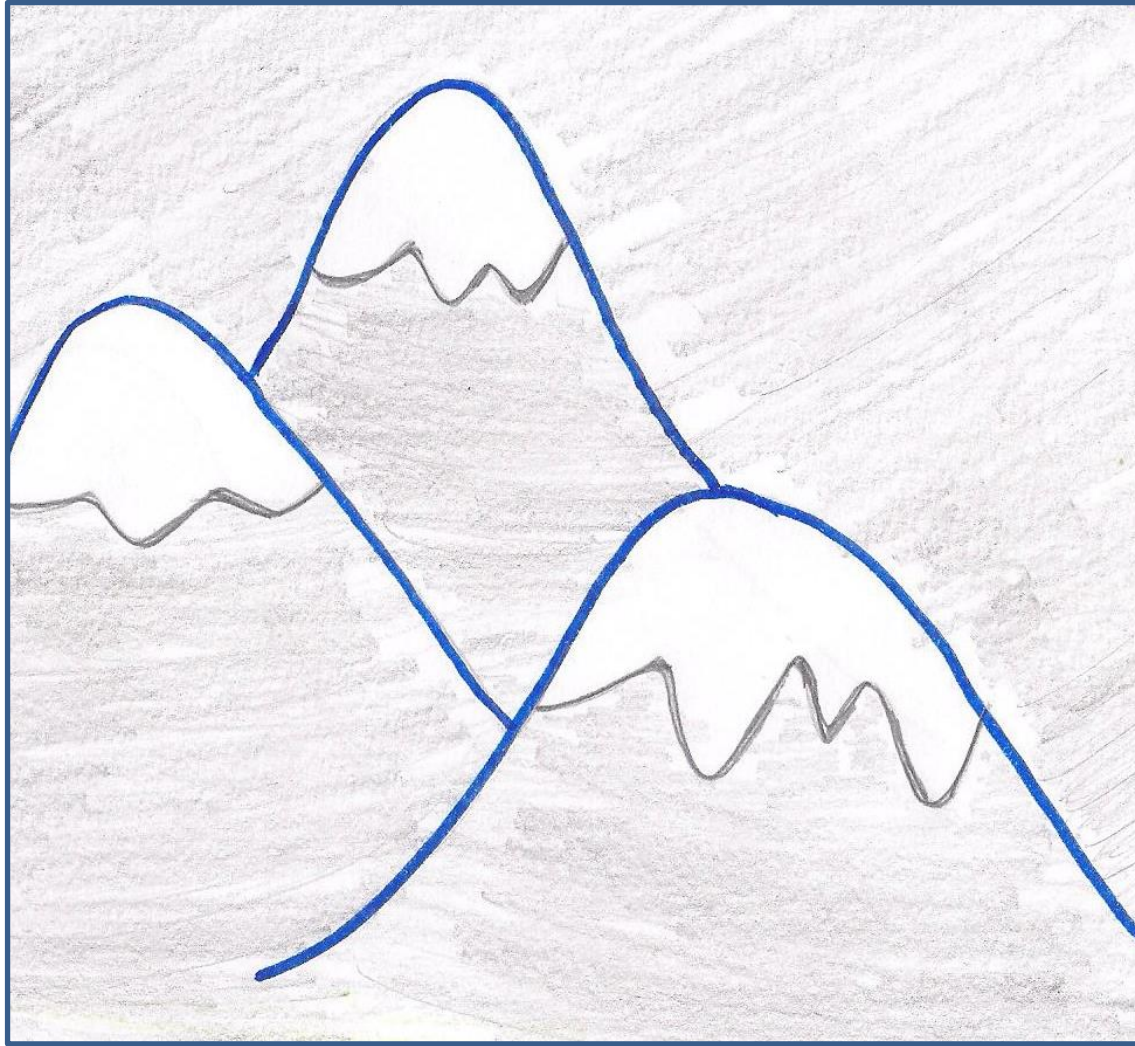


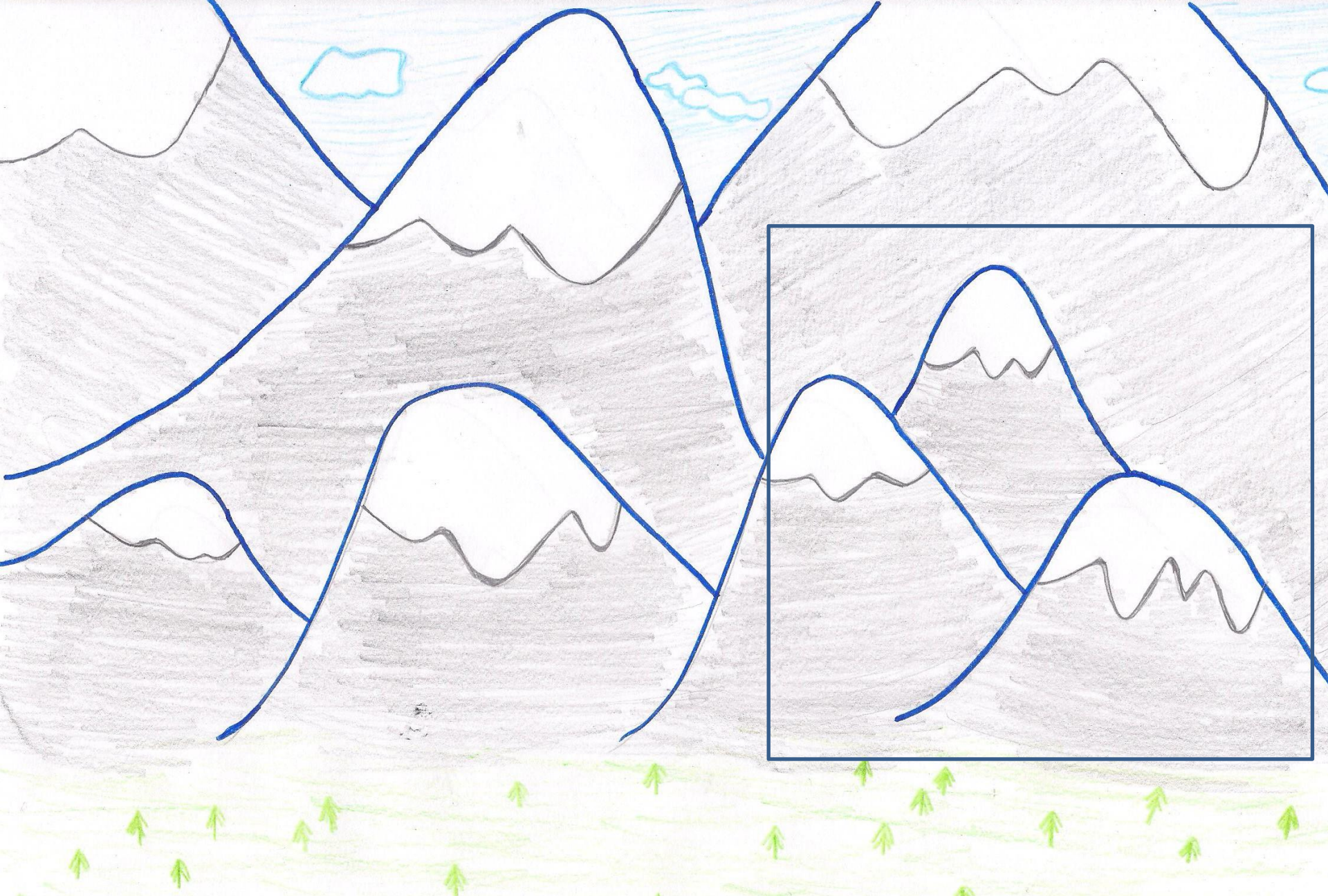
A set of opportunities: Why should we bother?

Options are a real asset!



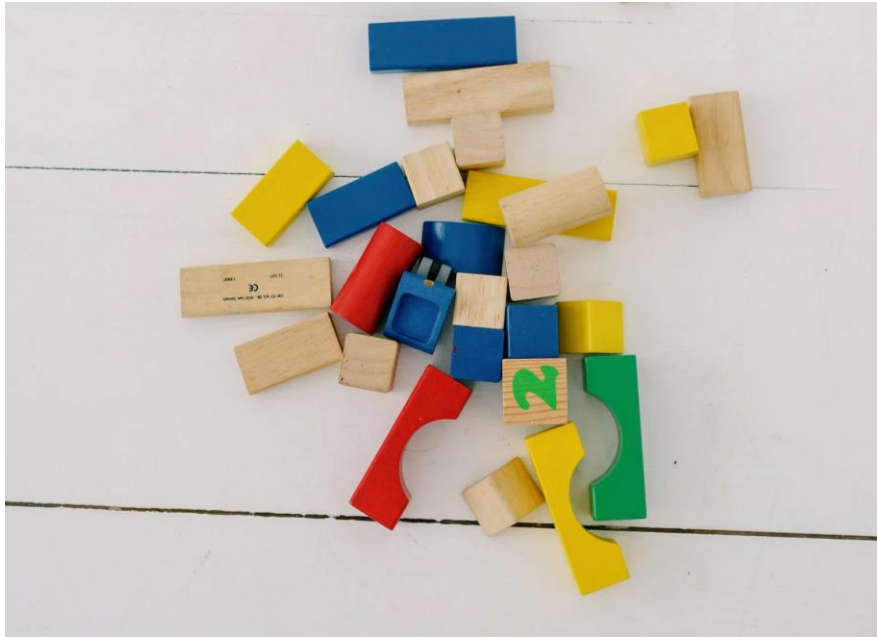
If market opportunities were mountains...





The benefit of seeing the BIG PICTURE

Required: cognitive flexibility



GENERATE YOUR MARKET OPPORTUNITY SET





NAME

DATE

List the venture's core abilities or technological elements

Characterize them based on their functions and properties. Describe them in a general manner, independent from your (envisioned) product.

ABILITIES







De-linking






Identify your market opportunities


Which applications can you offer with your core abilities? Which customers may need them? Zoom in to further segment each customer group.

APPLICATIONS

CUSTOMERS

 application +  customer =  market opportunity

 Place the market opportunities that you would like to evaluate in the Market Opportunity Set.

GENERATE YOUR MARKET OPPORTUNITY SET

NAME

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APPLICATIONS

CUSTOMERS

		
		
	<i>Re-linking</i>	



application



customer



market opportunity



Place the market opportunities that you would like to evaluate in the Market Opportunity Set.



De-linking: Characterizing your unique abilities

What are your main building blocks:

- Core technological elements
- Important know-how about a specific process
- A rare resource that you own etc

These can be based on what you already possess, or on what you are planning to develop.

Describe their main properties or the functions they can perform

This exercise is also important for developing your
cognitive flexibility



Example: Where to start building our business?




List the venture's core abilities or technological elements

Characterize them based on their functions and properties. Describe them in a general manner, independent from your (envisioned) product.


ABILITIES

 **Unique Accessibility**

Collision tolerance (humans/ walls)
Decoupled & light protection cage
Rolls on any surface
Operates in a range of
temperatures & pressures

 **Aviation Abilities**

On-site video piloting
Dark/ smoked/ dusty environments
Limited flight duration

 **Imagery System**

HD recording
Thermal recording
Real time video streaming
Remotely adjustable
Post mission analysis



Identify your market opportunities

Which applications can you offer with your core abilities? Which customers may need them? Zoom in to further segment each customer group.

APPLICATIONS



CUSTOMERS



application



customer



market opportunity



Place the market opportunities that you would like to evaluate in the Market Opportunity Set.

Example: De-linking tech capabilities



Enabling objects to feel touch

FeelIT presents flexible sensing patch solutions with tactile capabilities that match, and even exceed, human fingertip touch sensation

[READ MORE](#)





GENERATE YOUR MARKET OPPORTUNITY SET

NAME

DATE

FeelIT

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Characterize them based on their functions and properties. Describe them in a general manner, independent from your (envisioned) product.

ABILITIES



Sensors

- Sense touch and pressure
- Small and thin
- High resolution



Patches

- Flexible & Adherable
- Wearable
- Fully printed
- Small or large areas
- Low cost



Readouts

- Small data volume
- Long time measurement
- Low power consumption
- Extremely accurate & fast
- Adjustable sensing range
- Wireless solution



Identify your market opportunities

Which applications can you offer with your core abilities? Which customers may need them? Zoom in to further segment each customer group.

APPLICATIONS

CUSTOMERS



application



customer

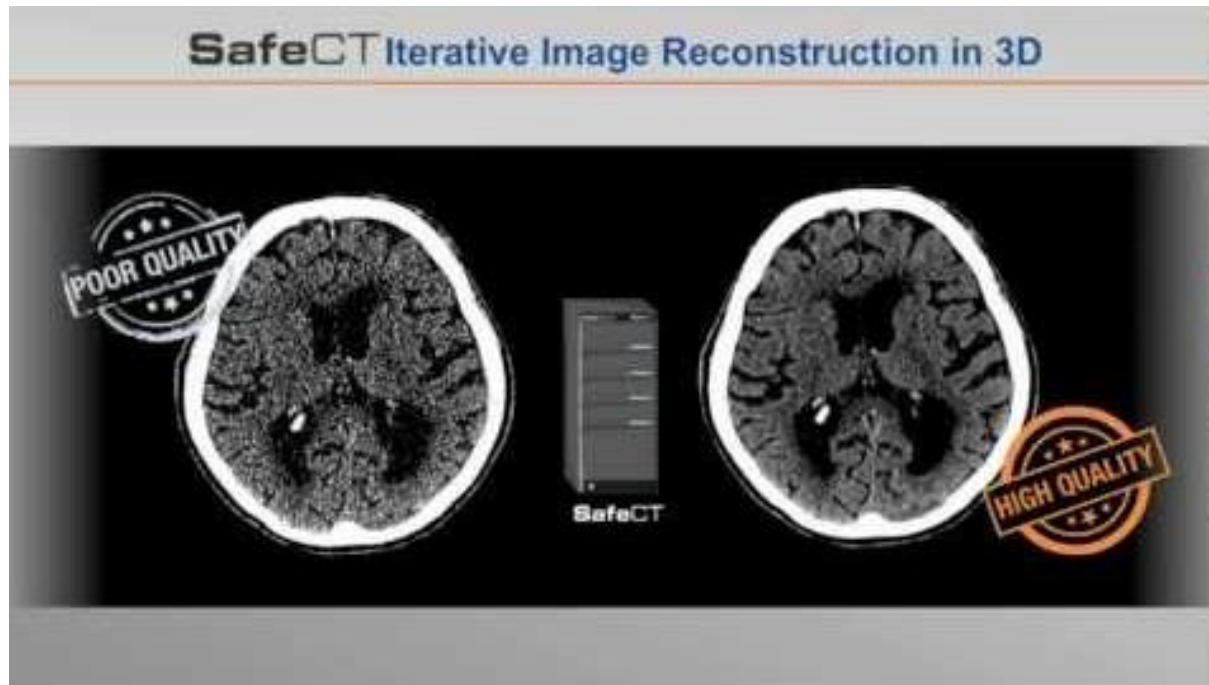


market opportunity



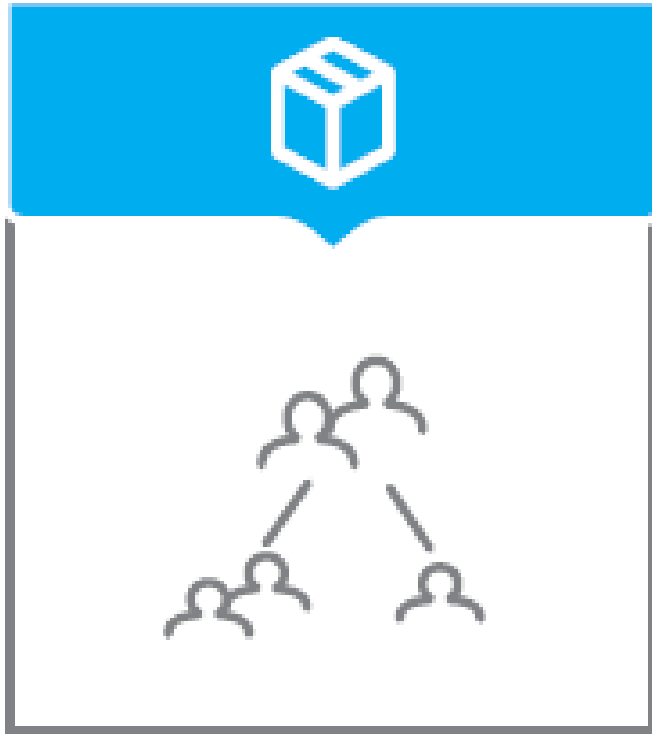
Place the market opportunities that you would like to evaluate in the Market Opportunity Set.

Sometimes one feature can be valuable in itself



MEDICvision
IMAGING SOLUTIONS

Re-linking: Applications and customers



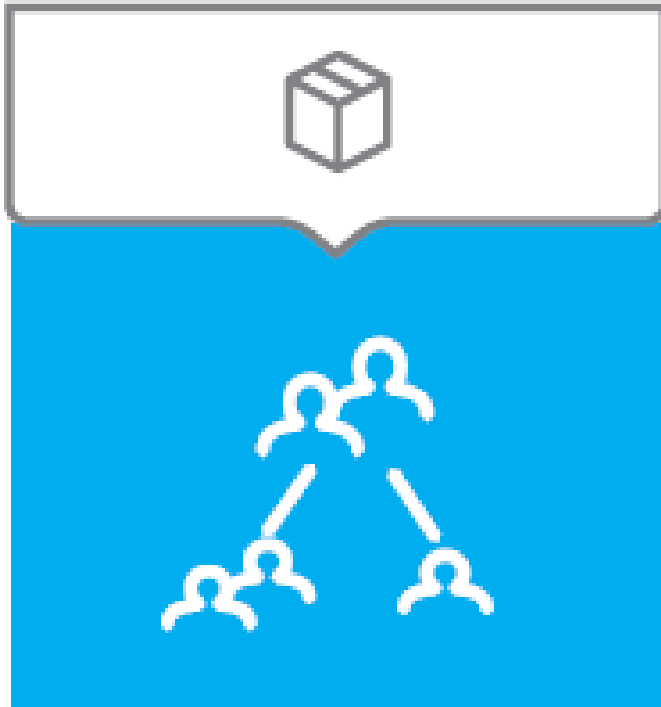
An application means a specific usage or function, which you can create with your core technologies and abilities.

It can be based on some or on all of the key elements you noted in the upper part of Worksheet 1.

You can also combine your abilities with other complementary technologies...



Re-linking: Applications and customers



As you uncover potential applications, you should also consider who may have the need for them. These will create your possible segments.

A **market segment** is a group of potential customers who share a common need and are expected to respond in a similar manner to your offering

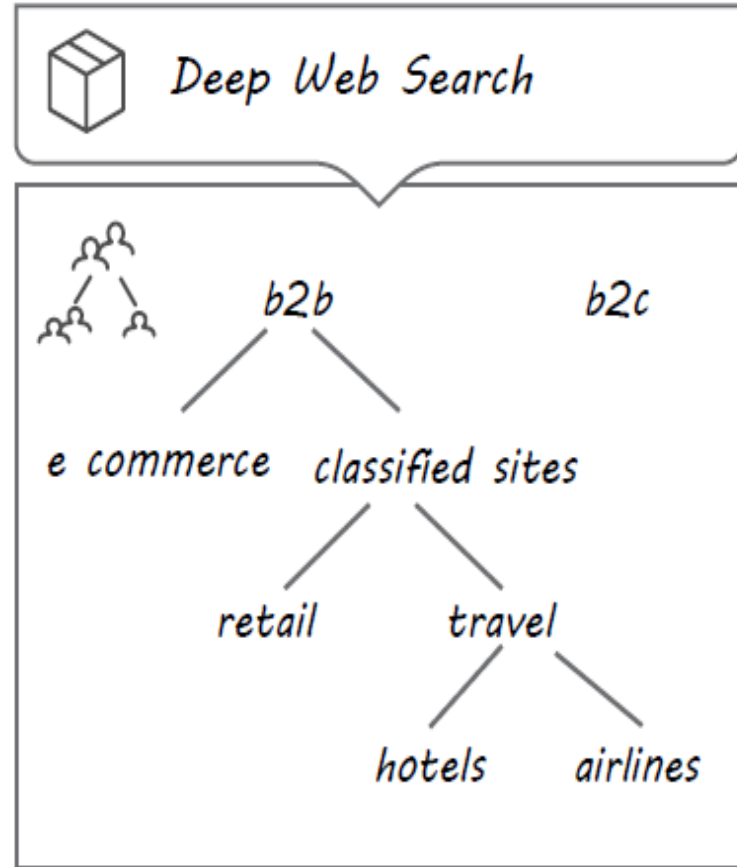


Zoom in and out on possible customers

Zoom-in on potential customer segments to identify sub-segments

Zoom-out to identify a broader set of users that may open your mind to other segments

Define your market opportunities so they are not too narrow and not too broad



List the venture's core abilities or technological elements

Characterize them based on their functions and properties. Describe them in a general manner, independent from your (envisioned) product.

ABILITIES

Unique Accessibility

Collision tolerance (humans/ walls)
Decoupled & light protection cage
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Post mission analysis



Identify your market opportunities

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APPLICATIONS



Industrial Inspection



Infrastructure Inspection



Security / Search and Rescue

CUSTOMERS



Oil & Gas

Power plants



Open air facilities



Intelligence surveillance

Pressure vessels
Storage tanks

Thermal boilers
Nuclear rooms
Wind

Bridges
Dams

Police
Military

Maritime

Indoors facilities

Rescue forces

Vessels
Fuel tanks

Sewers
Mines

Fire fighters



application



customer



market opportunity



Place the market opportunities that you would like to evaluate in the Market Opportunity Set.

Initial screening of your market opportunities



Key questions you can ask for an initial screening:

Does the customer need exist?

Can we really satisfy the customer's need, using our unique abilities, and better than existing solutions?

Are there severe restrictions that would hinder us from executing on this market opportunity?





Will this opportunity be in conflict with any of our core values?



List the venture's core abilities or technological elements

Characterize them based on their functions and properties. Describe them in a general manner, independent from your (envisioned) product.

ABILITIES




 Unique Accessibility	 Aviation Abilities	 Imagery System	
Collision tolerance (humans/ walls)	On-site video piloting	HD recording	
Decoupled & light protection cage	Dark/ smoked/ dusty environments	Thermal recording	
Roles on any surface	Limited fly duration	Real time video streaming	
Operates in a range of		Remotely adjustable	
temperatures & pressures		Post mission analysis	



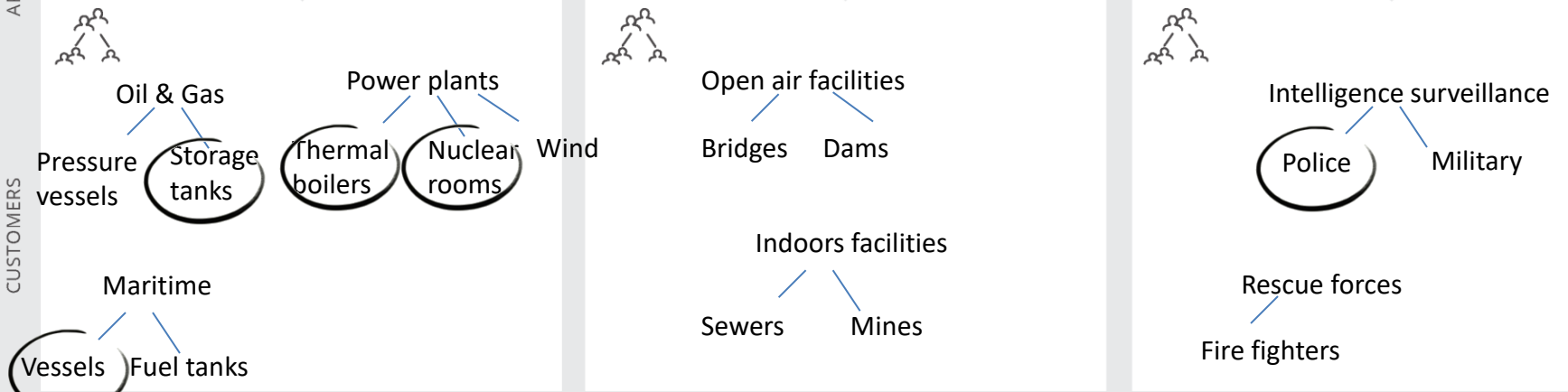
Identify your market opportunities

Which applications can you offer with your core abilities? Which customers may need them? Zoom in to further segment each customer group.


APPLICATIONS

 Industrial Inspection	 Infrastructure Inspection	 Security / Search and Rescue
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CUSTOMERS



 application +  customer =  market opportunity

 Place the market opportunities that you would like to evaluate in the Market Opportunity Set.

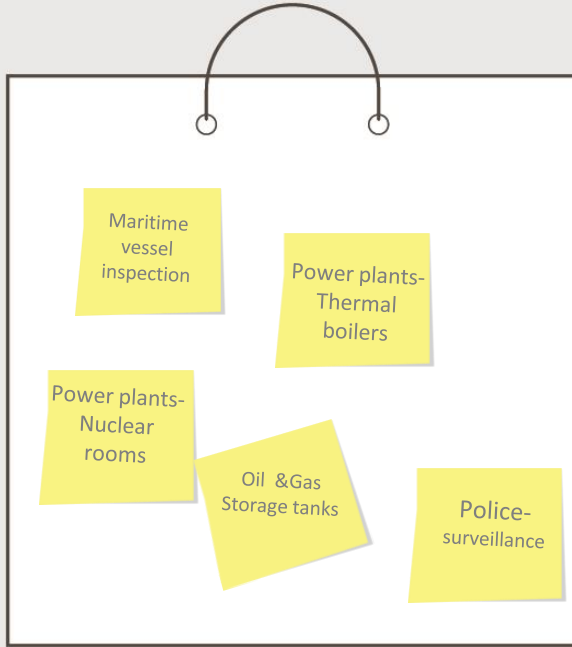
THE MARKET OPPORTUNITY NAVIGATOR

NAME

DATE

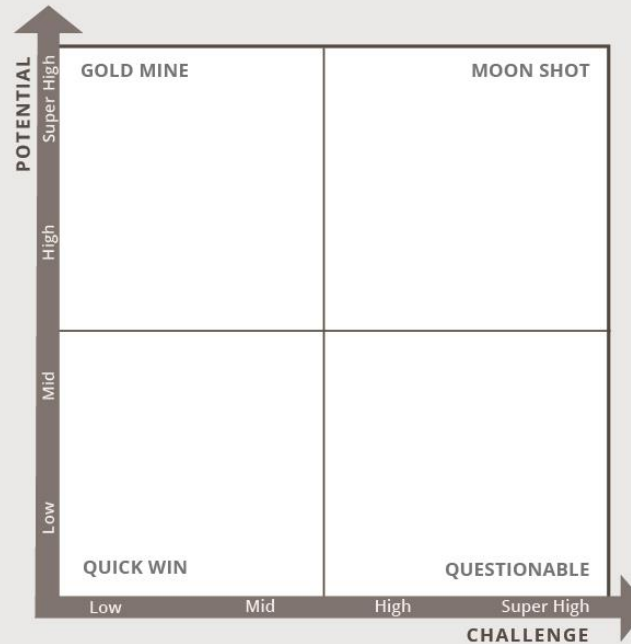
FlyAbility

2015



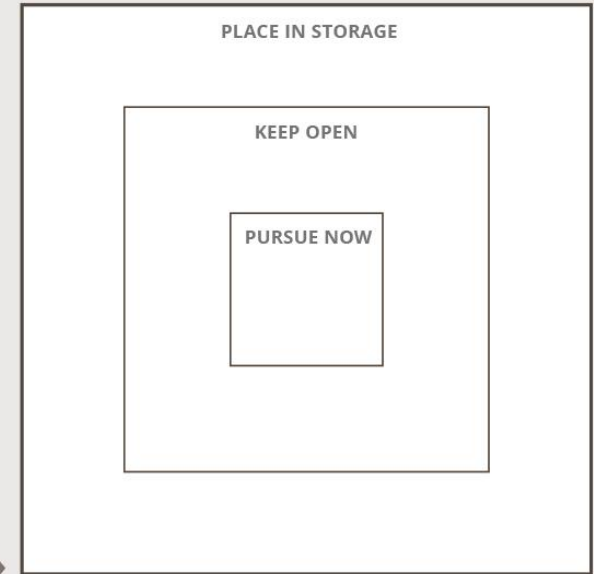
MARKET OPPORTUNITY SET

- 1 Use Worksheet 1 to identify potential market opportunities, and place them in the set



ATTRACTIVENESS MAP

- 2 Use Worksheet 2 to evaluate the attractiveness of each market opportunity, and place each one on the map



AGILE FOCUS DARTBOARD

- 3 Use Worksheet 3 to design your Agile Focus strategy, and mark it on the dartboard



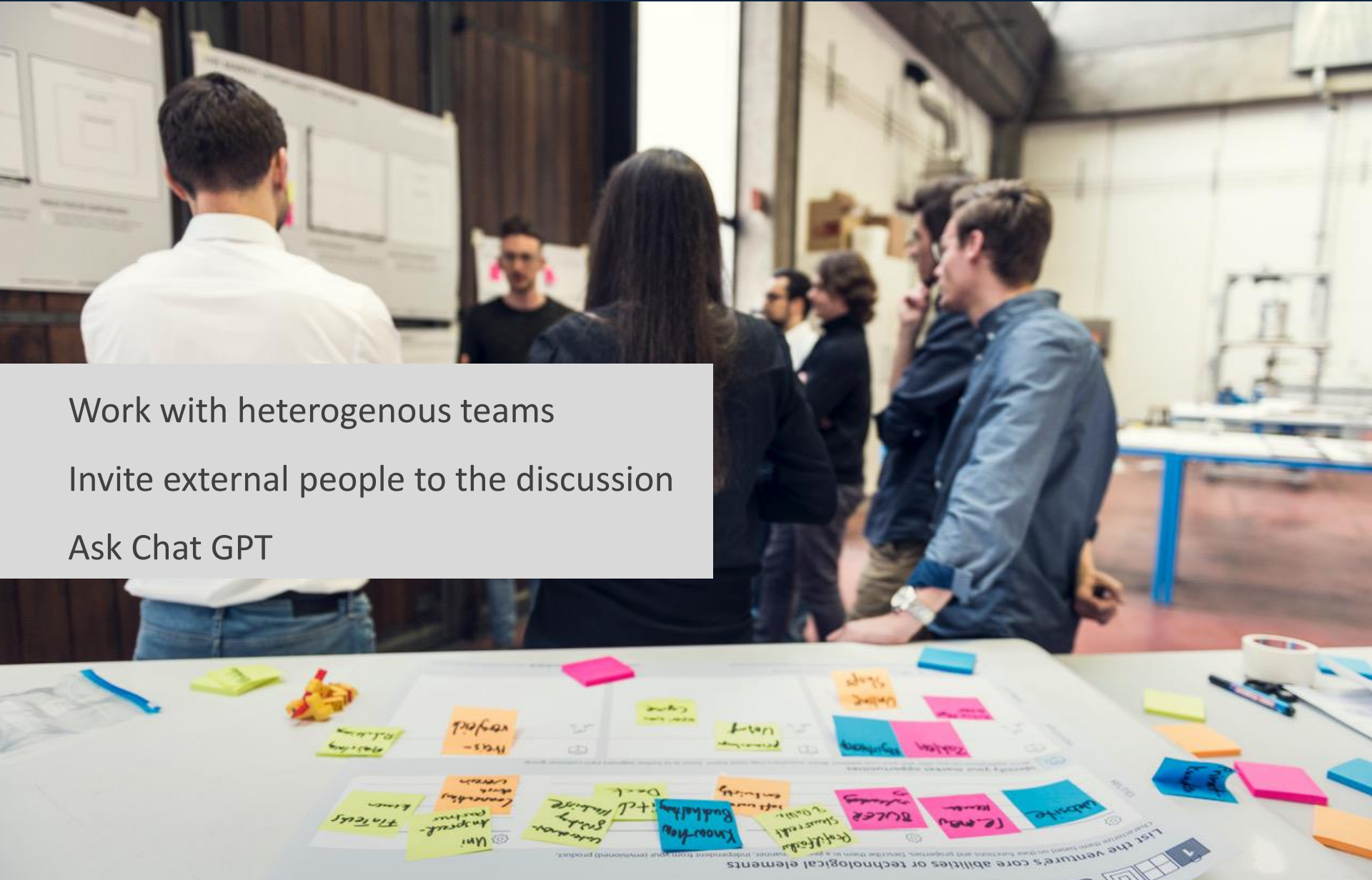
market opportunity = any combination of application + customer
Use sticky-notes™ to represent each market opportunity

Tips to improve opportunity discovery


Work with heterogenous teams



Invite external people to the discussion

Ask Chat GPT





Try the Opportunity Discovery Assistant on the web-app

1   WORKSHEET 1
GENERATE YOUR MARKET OPPORTUNITY SET

 Opportunity Discovery Assistant 

Hi! I can help you identify new market opportunities for your innovation based on the core abilities that you described. To help me understand the context, please summarize your innovation in one sentence.

Not only tech...consider competences more widely!



Low tech



Services



People

Questions?



Now its your turn

Apply Worksheet 1:

- ✓ List and characterize your core technological elements/ unique know-how
- ✓ Brainstorm on different applications stemming from these abilities, and different customer segments who may need it



Deliverables:

- ✓ Upload the filled Worksheet 1 on Moodle (under Session 1)
- ✓ Be ready to present it in tomorrow's Share & Learn session



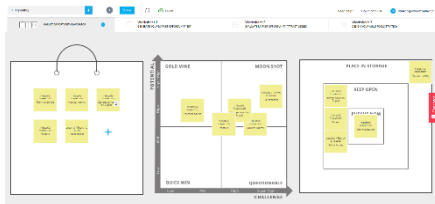
Work in any format you prefer



Download the worksheets
(available on Moodle)



Use the PPT template
(available on Moodle)



Sign up to the free web-app
<https://app.wheretoplay.co>

Transversal skills: day-by-day follow up

Transversal skills: day-by-day follow up

As we wrap-up each day, please share with us (anonymously) if you feel you worked on any of the transversal skills today.

Thanks,
Sharon

Date

Month, day, year



Please select those skills that you feel you worked on today (you can select more than one option)

- Communication and presentation
- Team work and interdisciplinary collaboration
- Impact-driven leadership
- Learning from others

Link to Google form: <https://forms.gle/mWgPKdQAEFaakA9q9>