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UNIVERSITY OF JYVÄSKYLÄ

Commercialization of (Academic) Research Results

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AGENDA

1. Understanding business in Finland

2. Commercialization - Key steps from idea to business

3. Typical challenges (with case examples) and how to overcome them

Business in Finland

Under Russian rule and early industrialization
- Agrarian industry
- Forestry and sawmills

Independence and Economic Foundation
- Agriculture
- Export oriented forestry

War economy
- Metal industry

Reconstruction and Industrial growth
- From agriculture to industrial
- Export-led growth in forestry and metal industries

Cold war stability and welfare development
- Eastern trade
- Growth in electronics and technology sectors

Economic crisis
- Recession
- From industry to services and high-tech
- Nokia
- EU

Globalization and Nokia
- Aging population
- Weak productivity
- Services and knowledge sectors

Pandemic, war, green transition
- NATO 2023
- Energy and inflation
- Green transition
- Digital transformation
- National resilience

1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020

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Commercialization

1. Problem definition

2. How to do it?

Problem

Idea will improve the experience of	*What problem needs solving or improvements?*
for	*Who (person) benefits the most of this?*
The user currently struggles because	*What are the pain points?*
Solving this will be good for our business because	*What is motivating the company to solve the problem?*

Market need vs. Technology push

amazon

TikTok

Meta

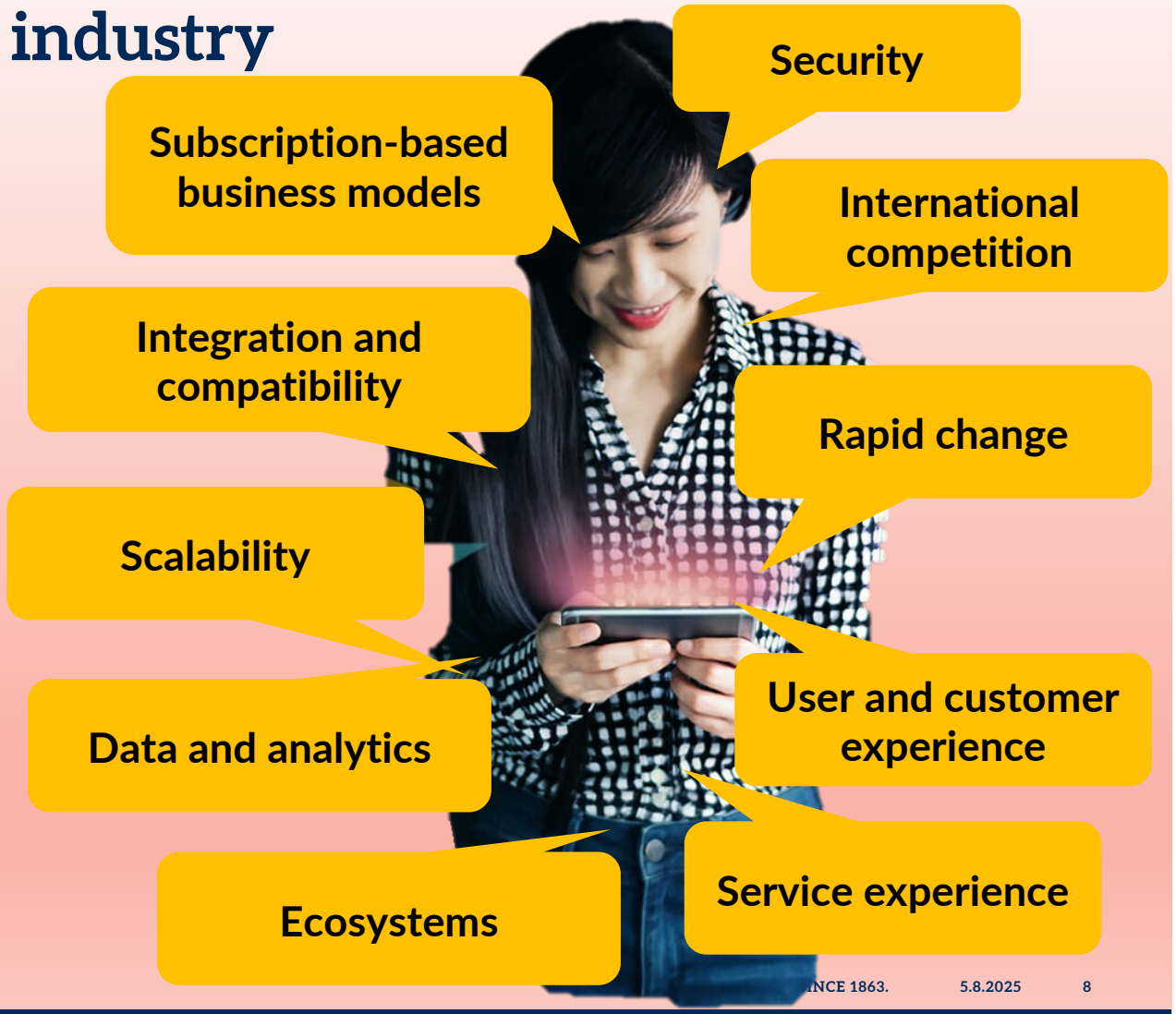
Understanding customers and their needs

From products to seeking experiences

Market specifics in IT industry

- Business-to-business customers
  - Start-up / micro firms
  - SMEs
  - Large firms
  - Non-profits / public sector
- Consumers
  - Work and fun/entertainment

➢ ***Customer satisfaction*** and ***ease of use***

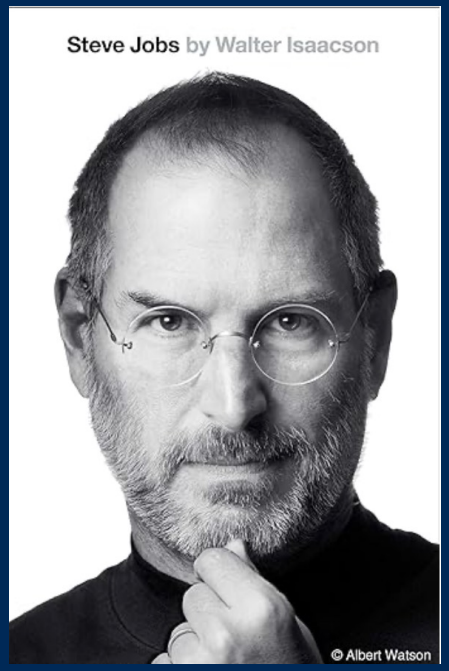


Apple

Ease of use

Products fill a REAL customer need

Product design



You must start with the customer experience and work back toward the technology, not the other way around

Understanding the whole buying path

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Commercialization

1. Problem definition

2. How to do it?

Solution development

5. Secure funding
- Seed grants (university specific)
- Business Finland
- Investors

4. Develop Commercialization strategy
- Licensing
- Start-ups
- Collaborations

6. Team building and network
- Multidisciplinary team
- Start-up ecosystem events

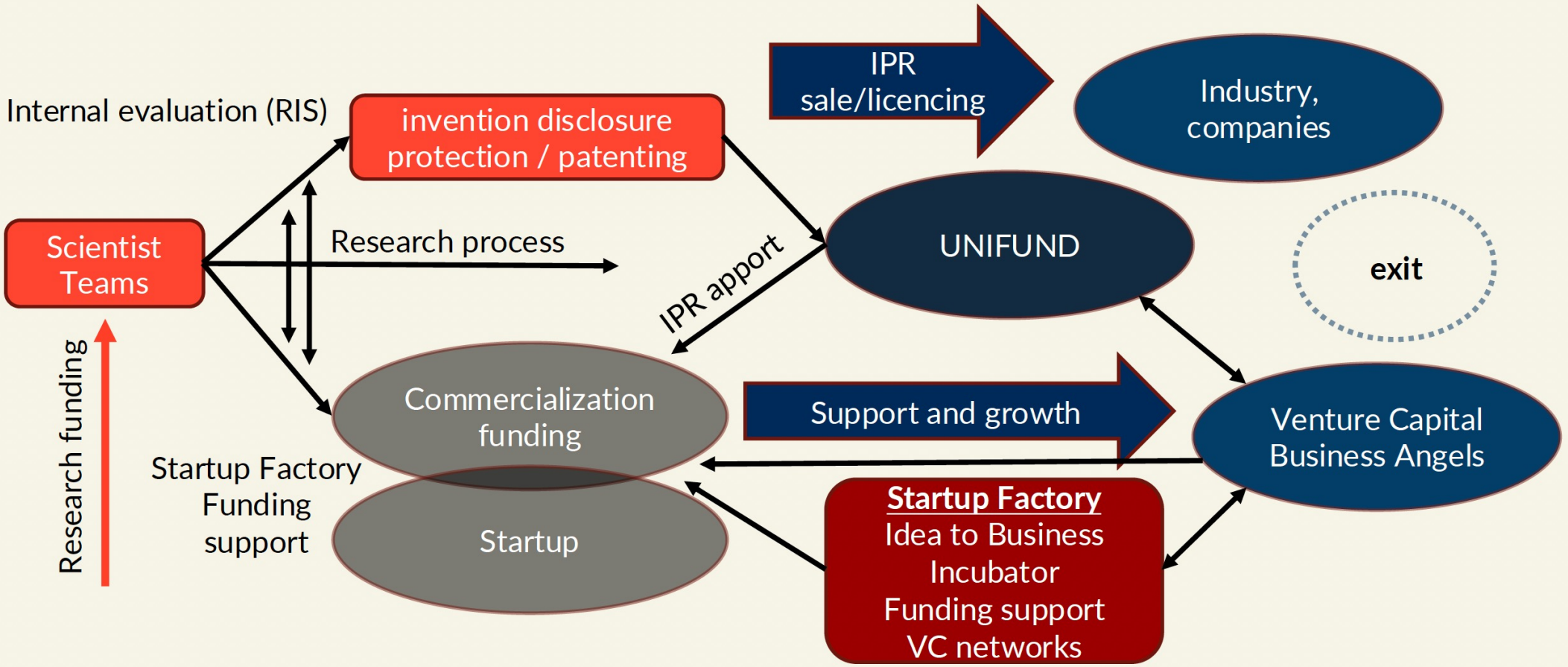
3. Find help to support commercialization efforts
- Leverage key programs (JYU, BF, City)
- Customer discovery & hypothesis testing
- Validate ideas and strengthen commercialization strategy
- Maximize the impact of the innovation

Turning research ideas into business

1. Evaluation of research results
- Understanding the value of your research
- Market need & potential
- Practical use
- Differentiation

2. IPR
- Patents
- Copyrights
- Trademarks
- Innovation disclosure

JYU innovation support model



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JYU specific

- JYU strategy strongly supports commercialization of research results
- IPR
  - either Open Research, Contract research, or Other
  - RIS and Unifund Oy play a key role (e.g., spin-out company is created)
- For more information, see slide 29 “Further materials concerning JYU (in Finnish)”

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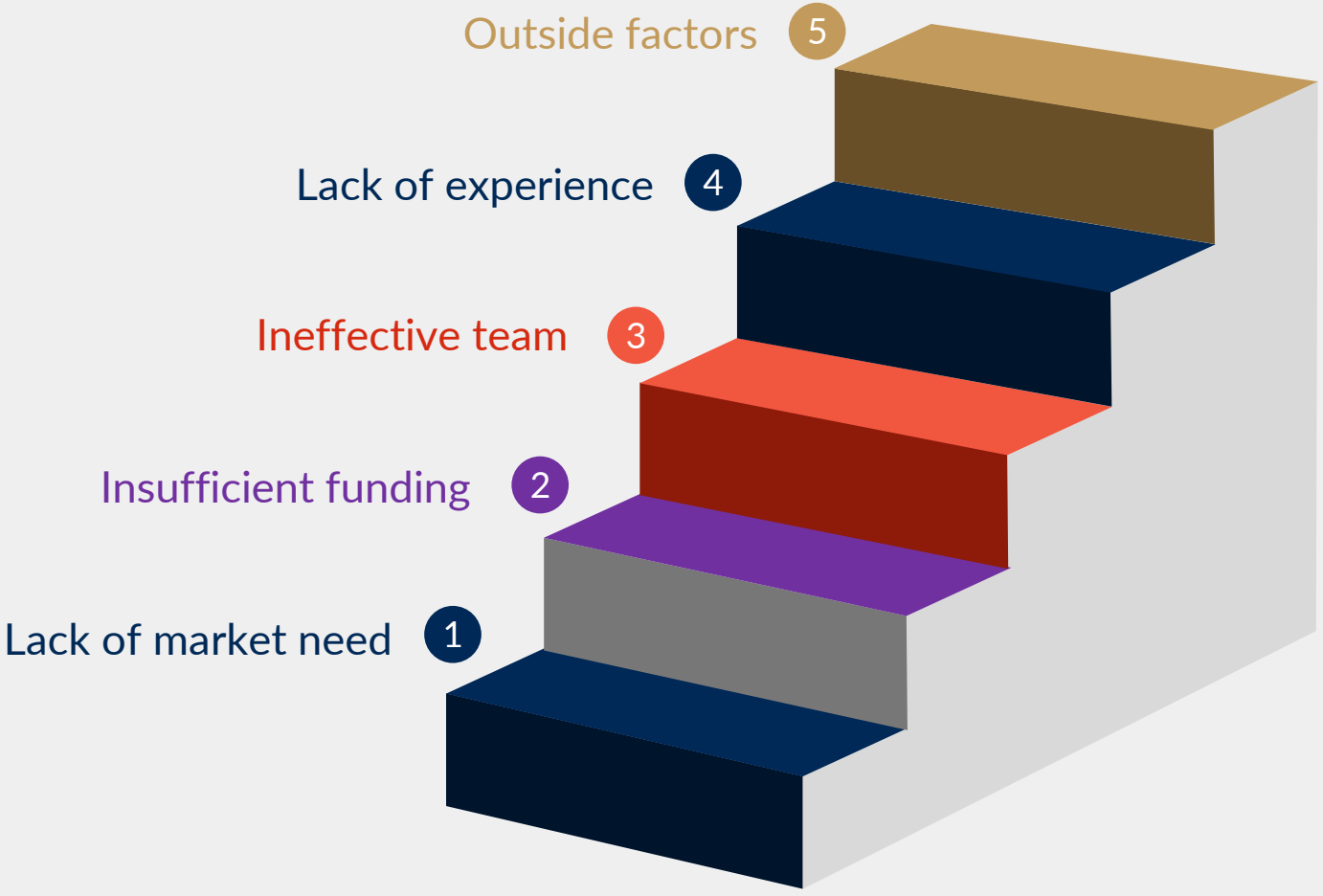
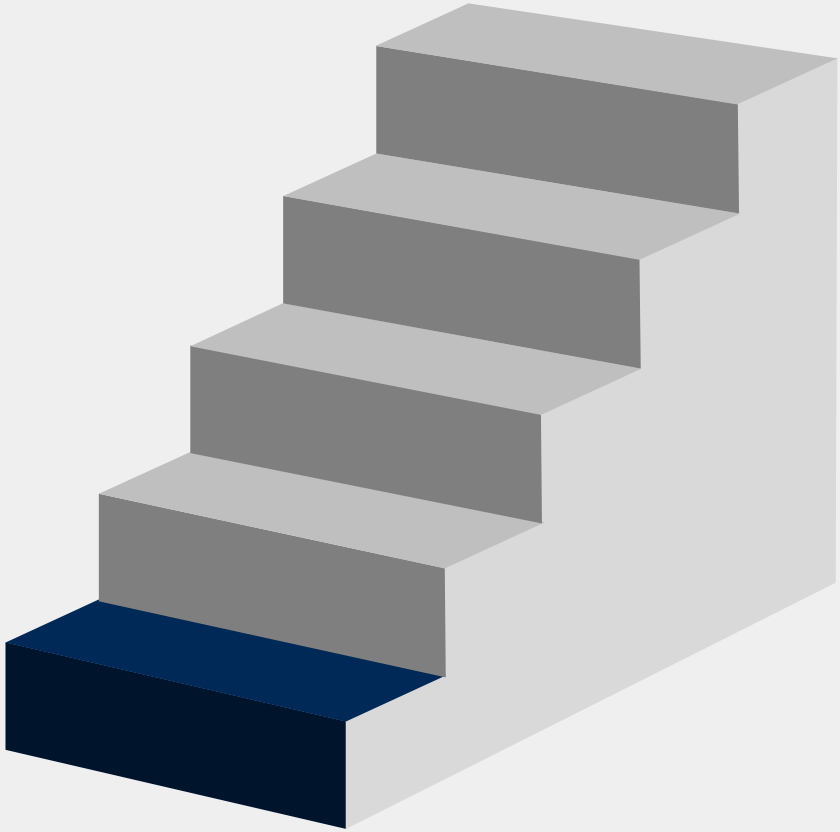
Commercial indicators (2024)

Indicator	Aalto	UH	UO	UTA	UT	LUT	UEF	JYU
Invention disclosure, n	148	126	69	47	33	31	12	**9**
Patent filings (first), n	57	15	15	7	7	3	8	**4**
Patents (first approval), n	22	5	4	2	9	3	0	**2**
Patent families (in force), n	>100	66	66	31	48	55		**8**
IPR sales and licensing, n	10	5	6	5	31	4	1	**0**
Tech transfer of CR, n	6		11	8		5	2	**1**
IPR sales & licensing, ke			424	25	1171	217	-	**6**
BF R2B applications, n	27	19	6	11	8	12	3	**3**
BF R2B projects, n	18	9	4	4	5	6	3	**1**
Spinoffs, n	8	6	1	3	4	1	1	**1**

Main challenges





01 Lack of market need

”Users do not want to use touch screens (in 2003)”

Piloting and testing with early adopters vs. how the mainstream market behaves

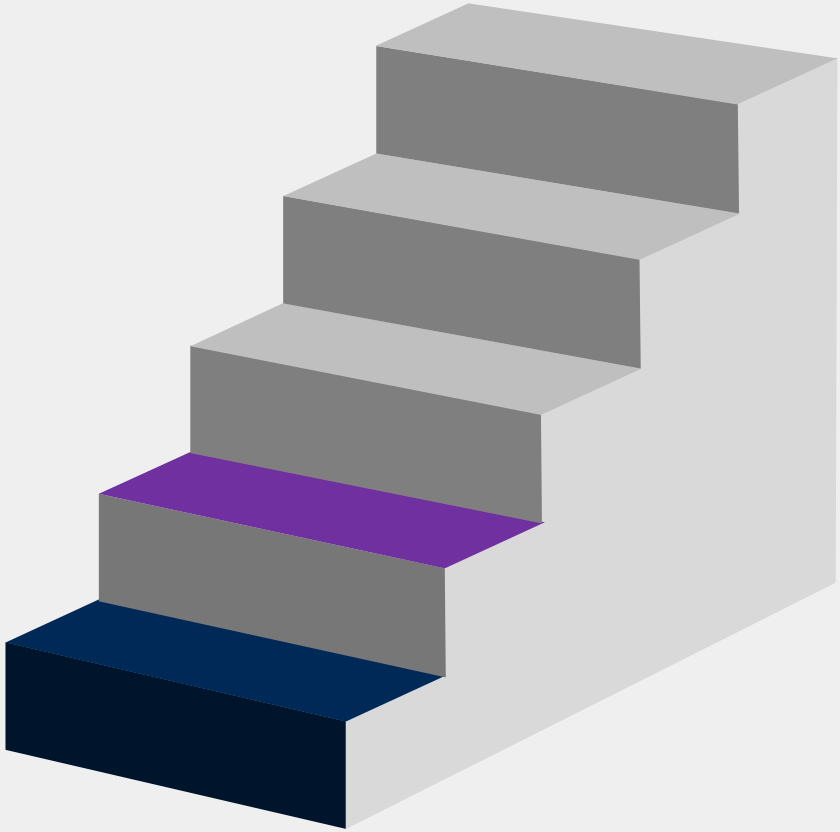
SOLUTION:

Define the problem right

-rigorous interviews with potential customers before engineering work
-focus on defining customer problems
-user testing with customers of existing solutions

Solution development

-prototype several concepts and get feedback through one-on-one sessions with potential customers



02 Insufficient funding

The path from idea to commercial success often takes 10-15 years

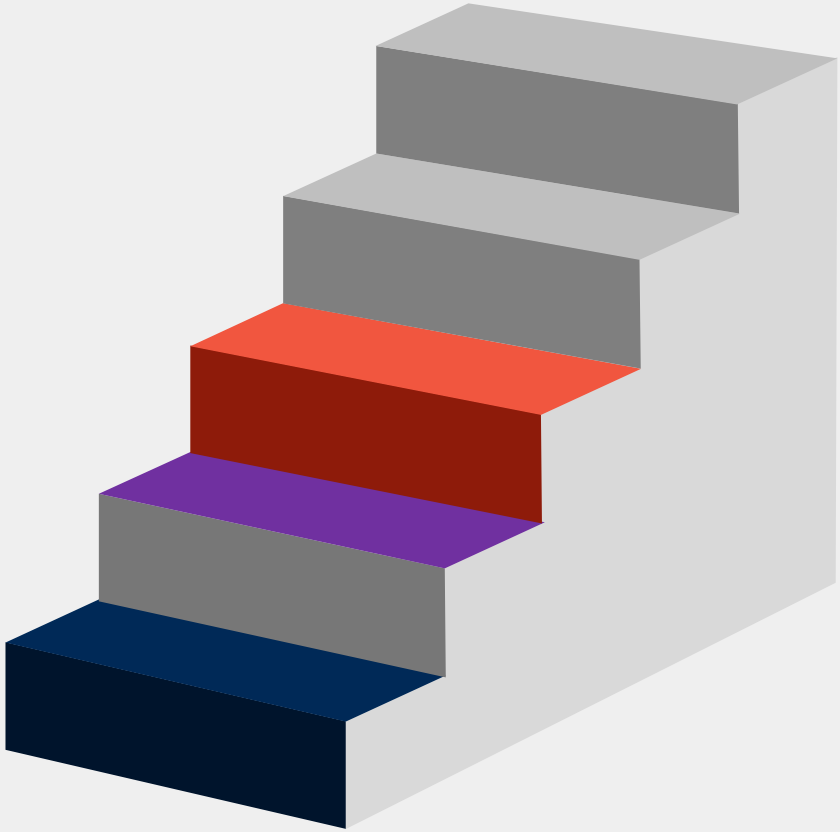
"If you're launching a business, the odds are against you: Two-thirds of start-ups never show a positive return." (Eisenman, Harvard Business Review, 2021)

SOLUTION:

-invest enough time and effort for securing funding

-Universities' funding models must be developed

-Challenge is also that the academy supports and values publishing activities much more than entrepreneurship



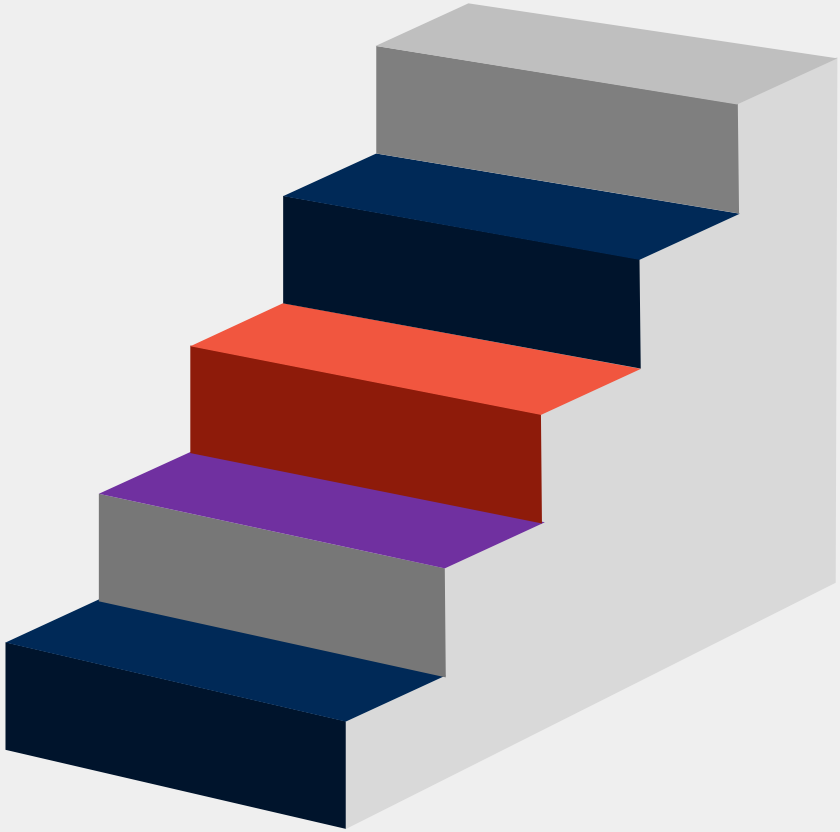
03 Ineffective team

Fundamental attribution error – observers (e.g. funders) emphasize the main actors' (e.g. entrepreneur) disposition, and the main actors cite the situational factors not under their control for failure (e.g. failed start-up) (HBR, 2021)

SOLUTION:

-Create a multidisciplinary team as early as possible

-the 'Founder' team must contain enough diverse expertise (e.g. Technical, Business and Growth Strategy, Sales and Marketing, Financial, and Industry & Domain)

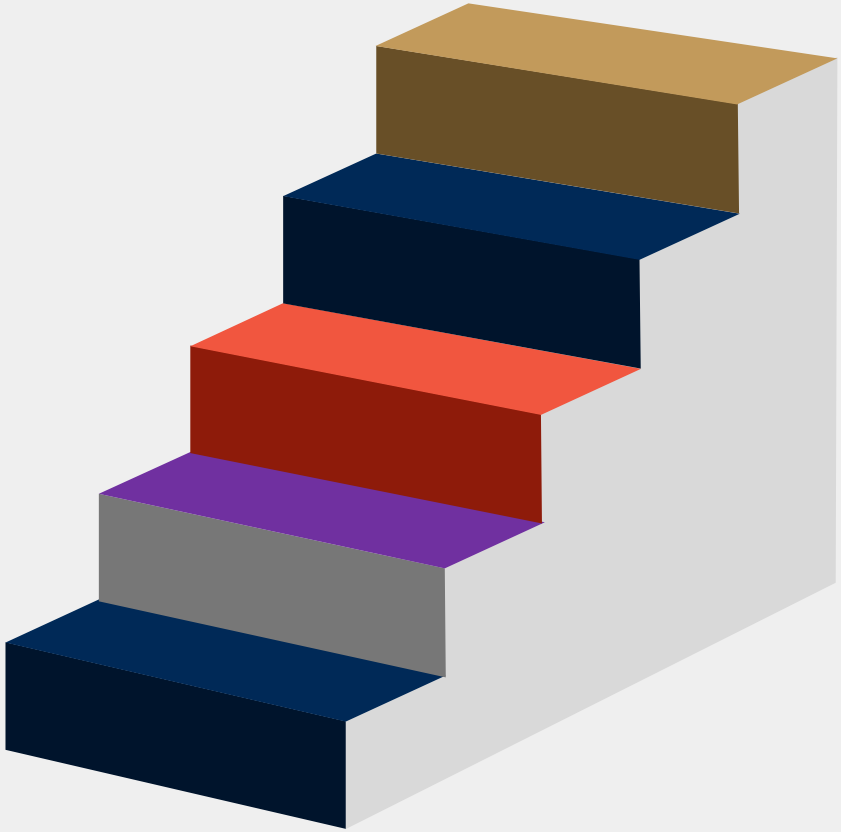


04 Lack of experience

One of the key reason why many ideas never succeed

This challenge links to all other challenges

SOLUTION:
-refer to step 3
-Industry/Domain expertise often is the key



05 Outside factors

Unpredictable, sudden, hard to control

Examples include;

-Changing market and customer needs (e.g. Prime)
-Economic downturns (e.g. Wapit, Microcell)
-Regulatory and legal changes (e.g. Napster)
-Geopolitics (e.g. FIN-RUS commerce)
-Health crises (e.g. pandemic) (e.g. Cirque du Soleil)
-Supply chain disruptions (e.g. Pandemic)
-Platform dependency (e.g. Fortnite and App Store)
-Competition (e.g. Nokia vs. Apple & Android)
-Public perception & Media backlash (e.g. Tesla)

SOLUTION:

-Continuously monitor the external environment
-Scenario planning
-Diversify dependence

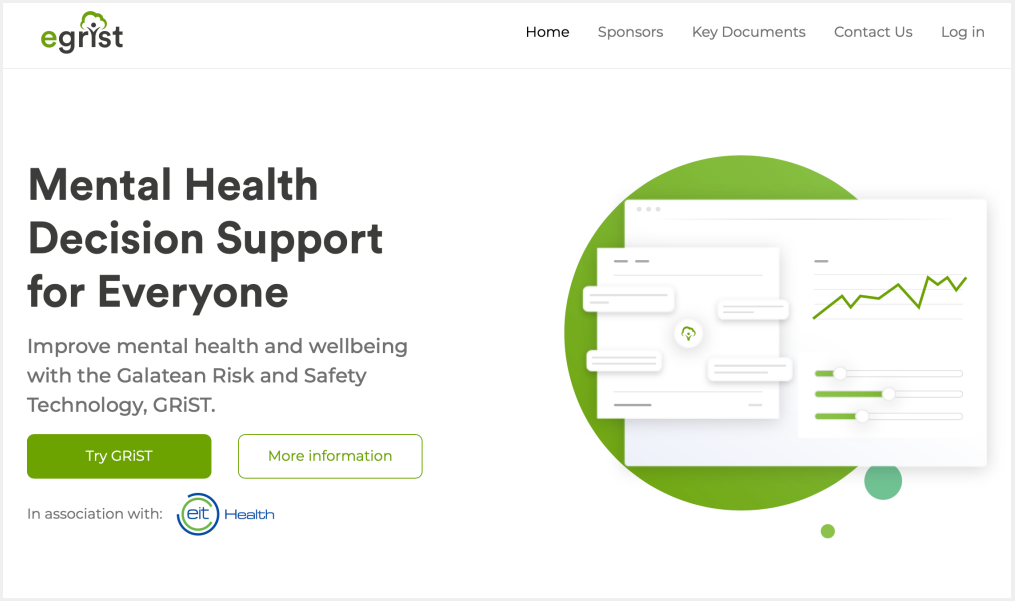
Top University start-ups (note: not research-based ideas)



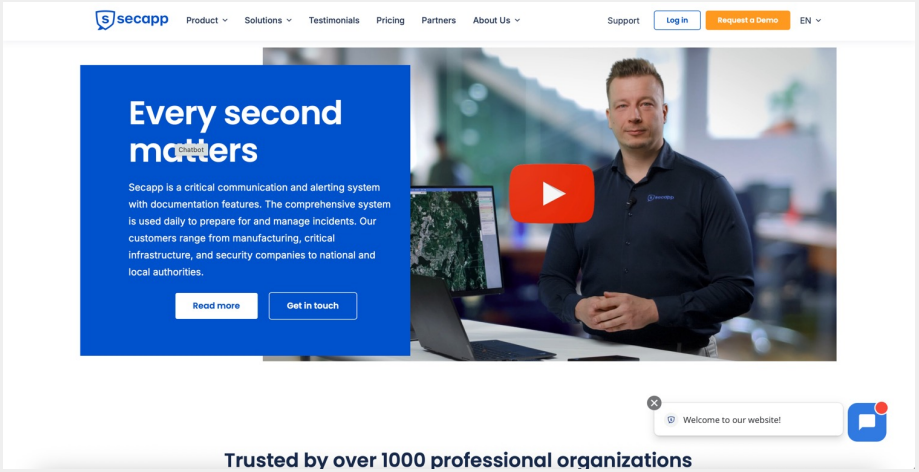




Examples of Academic Research based Start-ups (UK)



Examples of Finnish Research based ideas to business (JYU IT)



https://www.jyu.fi/fi/tarina/alumniesittelyssa-kari-aho

BiopSense

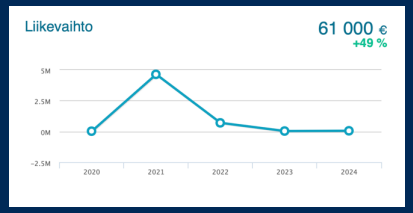
JYU based start-up company developing solutions for diagnosing cancer

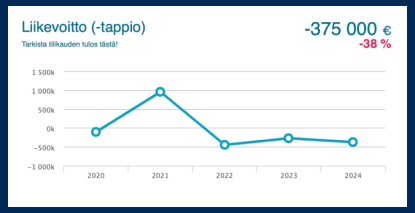
-Prof. Maria Tiirola group (Department of Biological and Environmental Science)

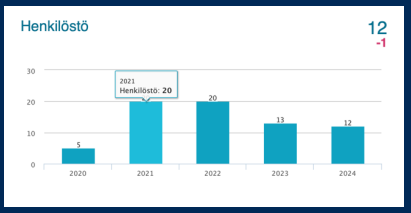
-developed in collaboration with Nova hospital

-participated in 2-year incubation program by Jyväskylä Start-up Factory (Yritystehdas)

-received funding from Unifund, ERC and Business Finland







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IDEA:

- Research group had done research on forest economics for decades and developed an algorithm that could be used to optimise forest management strategies. Linking these together research group realized that their results could have commercial value as a software product.

NEXT STEPS:

- Together with Aalto University Innovation services advice they applied funding from BF (R2B)
  - Patent application
  - Market research
  - Initial brand
  - Meeting potential customers and investors

Finally, the spin-off company DeepFRST was created.

https://www.aalto.fi/en/news/from-research-to-business-doctoral-student-philipp-back-and-team-initiate-forestry-startup-formation

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SUMMARY

1. Begin by understanding what value your research might bring
2. Protect your idea (IPR)
3. Develop and validate your solution in close co-operation with pilot customers (*remember, most businesses fail because they can only solve the problem(s) of test/pilot/early adopters*)
4. *Do not do it alone* – you need support from others to succeed

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Support and advice

RIS – Research and Innovation Services (JYU):

ris@jyu.fi

Specialists:

Tuula Palmén, Expert, Impact and Commercialization of Research

Jarno Mikkonen, Senior IPR Advisor

JYU Support for Entrepreneurship

-Career Services

-EduFutura collaboration

-Start-up Factory (Yritystehdas) (e.g., Idea to business coaching)

-KS Yritysidea

-Unifund and venture capital networks

-Business Jyväskylä and Kasvu Open services

JYU contact: Reija Häkkinen

Further readings

- Eisenmann, T. (2021), *Why Startups Fail: A New Roadmap for Entrepreneurial Success*, Currency, New York.
- Halligan, B., & Shah, D. (2014), *Inbound Marketing, Revised and Updated: Attract, Engage, and Delight Customers Online*, Wiley, New Jersey.
- Horowitz, B. (2014), *The Hard Thing About Hard Things: Building a Business When There Are No Easy Answers—Straight Talk on the Challenges of Entrepreneurship*, HarperCollins, New York.
- Kim, W.C. & Mauborgne, R. (2015), *Blue Ocean Strategy, Expanded Edition: How to Create Uncontested Market Space and Make the Competition Irrelevant*, Harvard Business Review Press, Boston.
- Knapp, J., Zeratsky, J., & Kowitz, B. (2016), *Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days*, Simon & Schuster, New York.
- Ries, E. (2011), *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, Currency, New York.
- Thiel, P. & Masters, B. (2014), *Zero to One: Notes on Startups, or How to Build the Future*, Crown Business, New York.
- Walling, R. (2023), *The SaaS Playbook: Build a Multimillion-Dollar Startup Without Venture Capital*, self-published.

Further materials concerning JYU (in Finnish)

- Innovaation hyödyntämisen pikaopas (JYU)
  - https://www.mit.jyu.fi/agora-center/innokeha/ccc/cc/Pikaopas_Innovaationhyodyntamiseen.pdf
- Tutkimustulosten omistaminen ja kaupallistamisen periaatteet (JYU)
  - https://www.jyu.fi/fi/file-download/download/public/4401


Thank You!
QUESTIONS?
Heikki Karjaluoto