

M3. Frugal Innovation

T3.1 Innovations & Design Thinking

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Outlines

Innovation & *Types* of
Innovations

Innovation *Process* & ***Life
cycle***

Innovative *Entrepreneurship*

Design Thinking Basics

Case ***Studies***



Innovation?

Creativity | Ideation | Invention | Commercialisation |
Entrepreneurship




Innovation is...

- **Change** (*static*: novelty)
- **Process** (*dynamic*: movement)
- Invention **AND** Commercialisation
- **Transformation** from idea to usefulness
- Use of new knowledge to offer **new** product/service that customers **want**
- New ideas adoption with **success**

Nature of Innovations



**Problem for
an individual**



**Opportunity
for another
individual**

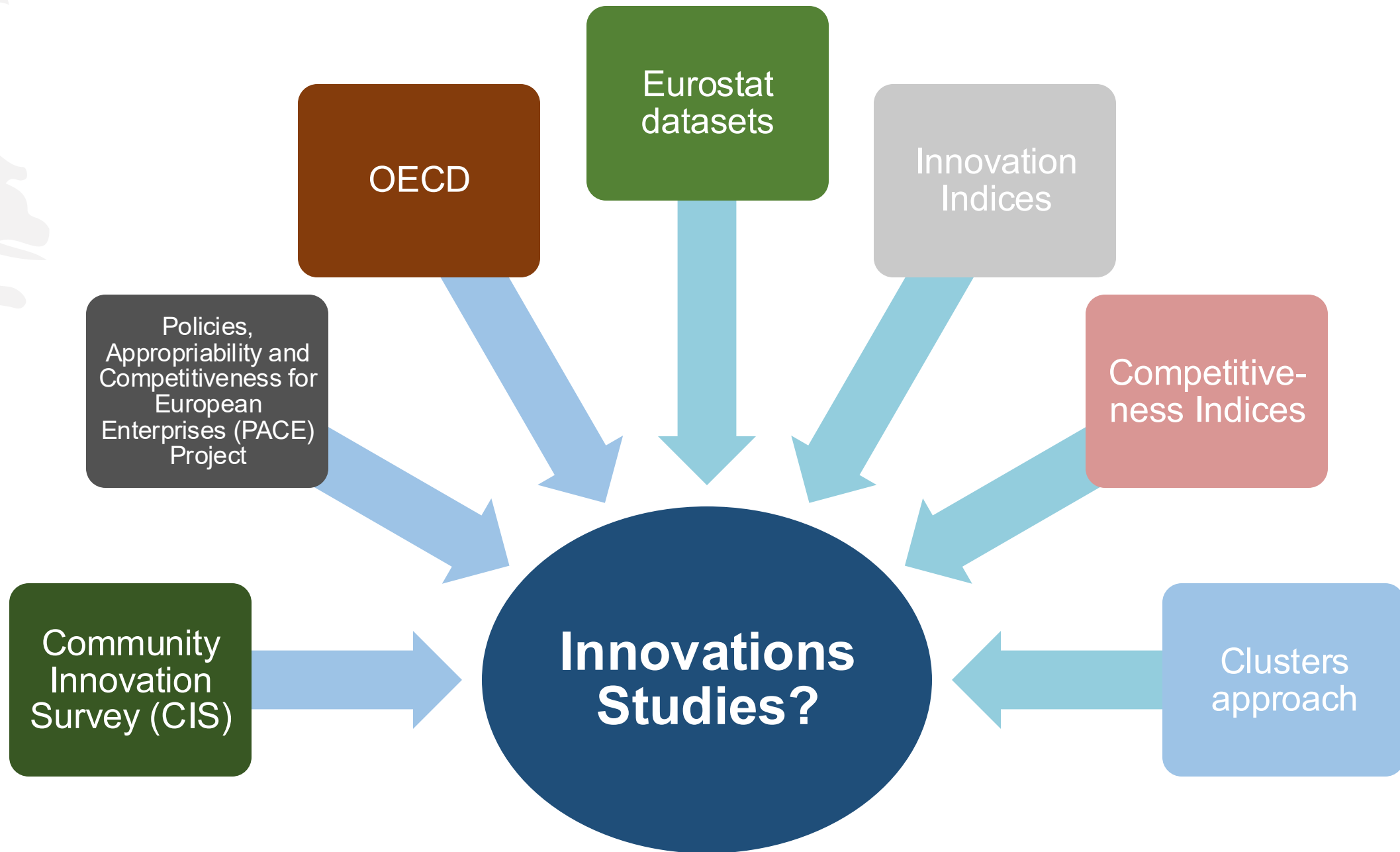


Innovation Dimensions 4 P's

- Changes in the **Products & services** the organisation offers
- Changes in the **way (Process)** they are created and delivered
- Changes in the underlying mental **models** that define what an organisation does (**Paradigm**)
- Changes in the **context** in which products or services are introduced (**Position**)

Result?

Entrepreneurship | Innovative Entrepreneurship



Top 10 most innovative economies



- 1 Switzerland
- 2 United States of America
- 3 Sweden
- 4 United Kingdom
- 5 Netherlands
- 6 Republic of Korea
- 7 Singapore
- 8 Germany
- 9 Finland
- 10 Denmark

The Most Innovative Companies in 2023

(BCG & VisualCapitalist, 2023)





Starting Point?

Creativity

Are You Creative?

Tips for enhancing individual creativity (Ask ChatGPT)

Tools to be Creative

Out of the **box**

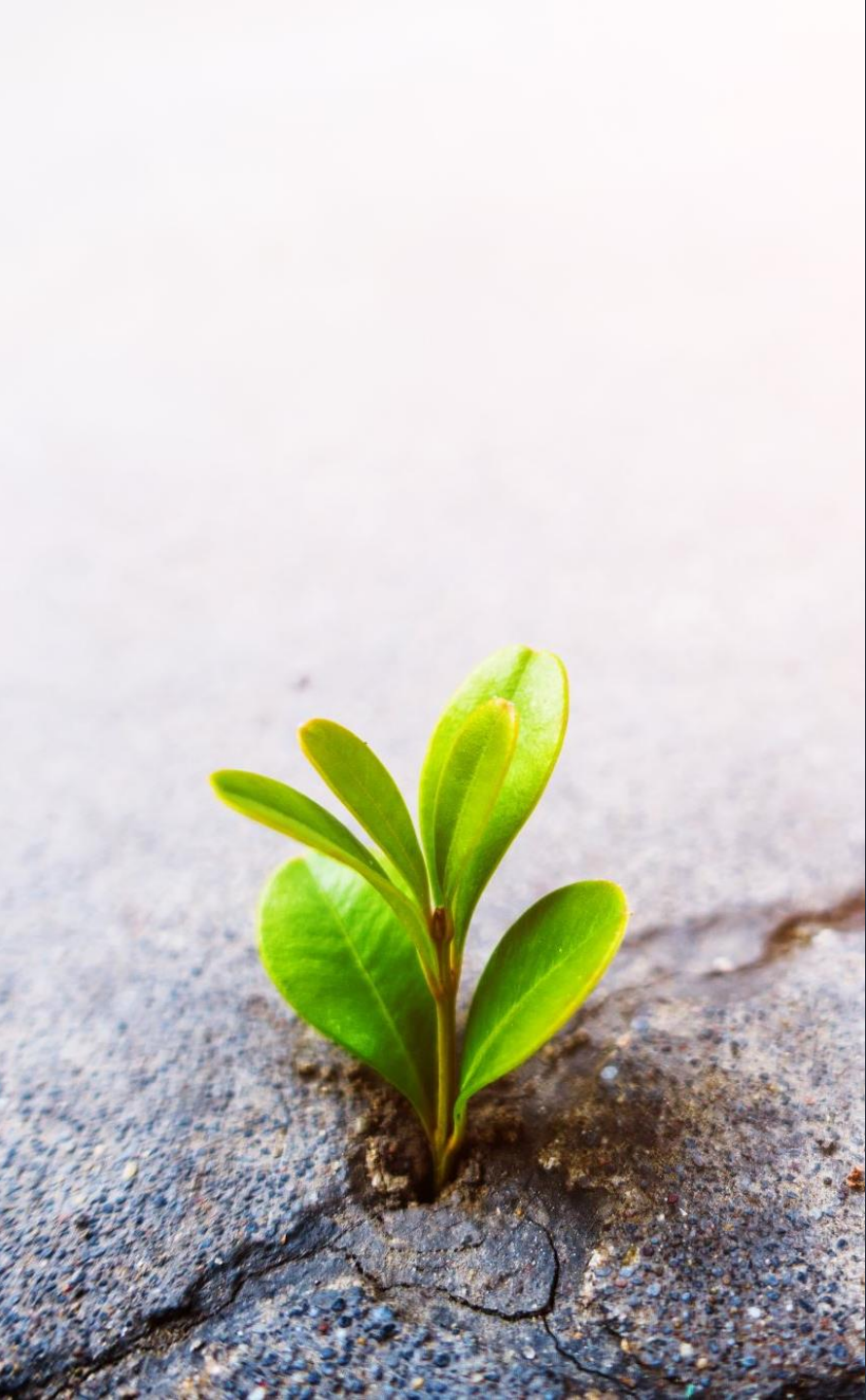
[Meet Rubik Cube](#)





Tips to Me [Continuous process, patience, naturally to develop over time]

- **Embrace Curiosity:** Cultivate a mindset of curiosity and a **desire to learn**. Be open to new ideas, perspectives, and experiences. Ask **questions**, explore **different topics**, and seek out diverse sources of inspiration.
- **Practice Mindfulness:** Engage in mindfulness techniques such as **meditation** or **deep breathing** exercises. These practices can help quiet the mind, reduce distractions, and increase **focus**, allowing creative thoughts and ideas to emerge.
- **Create a Stimulating Environment:** Surround yourself with a physical environment that inspires creativity. Arrange your workspace in a way that reflects your **personality** and **values**. Incorporate elements like **colors, artwork, plants, and natural lighting** to create a positive and inspiring atmosphere.
- **Seek Diverse Experiences:** Engage in activities **outside** of your **comfort** zone. Travel, explore different cultures, try new **hobbies**, or expose yourself to different art forms. These experiences can provide fresh perspectives and spark creative thinking.
- **Embrace Failure and Learn from It:** Don't be afraid to take **risks** and embrace failure as a learning opportunity. View setbacks as steppingstones to success and use them as **motivation** to find new and innovative solutions.



Tips to Me

[Continuous process, patience, naturally to develop over time]

- **Foster a Growth Mindset:** Develop a belief that creativity is not fixed, but rather something that can be nurtured and developed over time. Embrace **challenges**, persist in the face of **obstacles**, and **believe** in your ability to grow and improve creatively.
- **Practice Divergent Thinking:** Engage in exercises that promote divergent thinking, such as brainstorming, mind mapping, or free writing. These techniques can help generate a wide range of ideas and associations, leading to innovative solutions.
- **Collaborate and Seek Feedback:** Engage in discussions and collaborations with others to stimulate creative thinking. Share your ideas and seek feedback from trusted colleagues, mentors, or creative communities. Their perspectives can provide fresh insights and help refine your ideas.
- **Take Breaks and Rest:** Allow yourself time for relaxation and rest. Research has shown that periods of rest and incubation can enhance creativity. Give yourself space to disconnect and recharge, as it can lead to new insights and creative breakthroughs.
- **Practice Creative Exercises:** Engage in regular creative exercises, such as journaling, sketching, or engaging in a creative hobby. These activities can help stimulate your creative muscles and promote a regular flow of ideas.

Six Thinking Hats by Edward de Bono



Facts



Creativity



Benefits



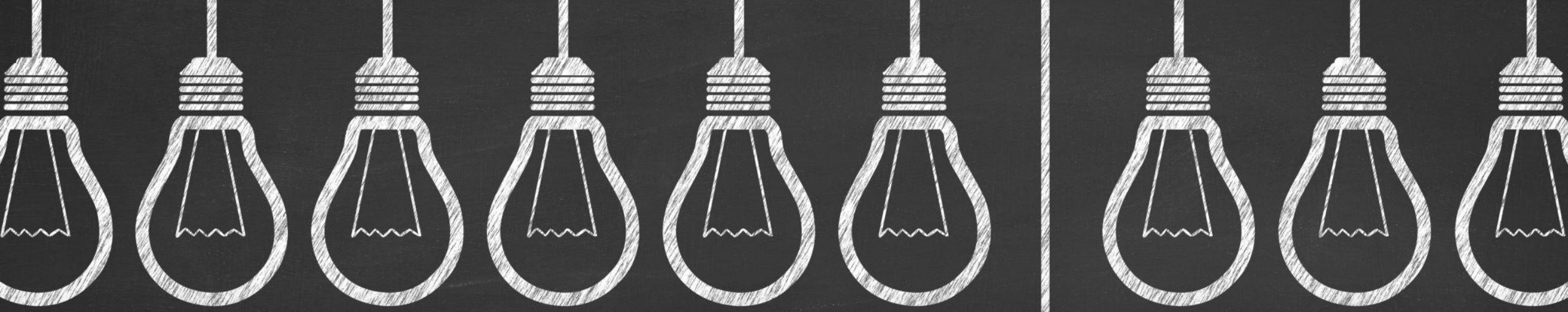
Cautions



Feelings

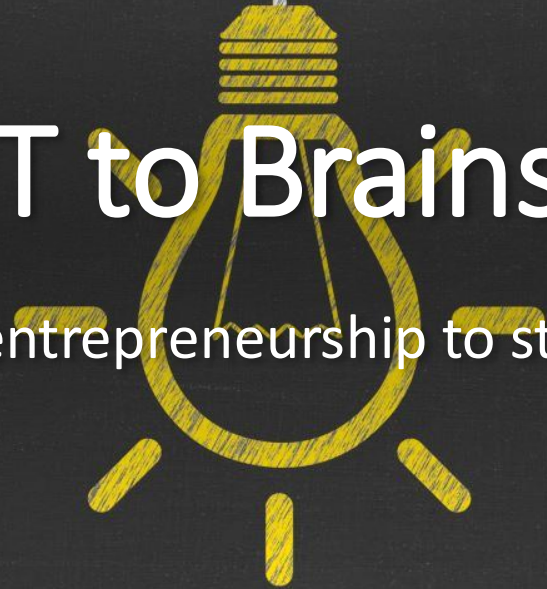


Process



Modernity | ChatGPT to Brainstorm

Provide a novel idea for innovative entrepreneurship to start?





Virtual Reality Fitness Studio (2024)

- **Description:** Start a virtual reality (VR) fitness studio that combines the immersive experience of virtual reality with physical exercise. The concept involves offering a range of fitness classes and workouts that utilize VR technology to create engaging and interactive fitness experiences.

How it Works:

1. **VR Fitness Classes:** Set up a dedicated studio space where participants can engage in virtual reality fitness classes. These classes can include various activities such as VR cycling, boxing, dancing, yoga, or even adventure-based workouts.
2. **VR Equipment:** Provide participants with VR headsets, motion sensors, and haptic feedback devices to enhance the immersive experience. The VR equipment will track movements, provide real-time feedback, and create a sense of presence in virtual environments.
3. **Personalized Workouts:** Develop a platform or software that offers personalized VR fitness programs tailored to individual goals and fitness levels. Users can track their progress, set targets, and receive customized workout recommendations based on their preferences and performance.



- Virtual Fitness Challenges and Competitions: Organize virtual fitness challenges and competitions where participants can compete against each other in virtual environments. This can create a sense of community, friendly competition, and motivation for users to achieve their fitness goals.
- Virtual Trainer and Coaching: Integrate virtual trainers or coaches within the VR experience. These virtual instructors can guide participants, provide real-time feedback on form and technique, and offer motivational cues to keep users engaged and focused during workouts.
- Partnership with Fitness Brands: Collaborate with fitness equipment manufacturers or fitness apparel brands to provide a seamless integration between the virtual and physical fitness experiences. For example, users can wear smart wearables that sync with the VR system, allowing them to track biometrics and receive data-driven insights.
- On-Demand VR Fitness: Offer on-demand VR fitness content that users can access from home through VR headsets. This allows individuals to experience virtual workouts anytime, anywhere, providing convenience and flexibility.



Benefits:

- Unique and engaging fitness experience that combines technology and physical activity.
- Appeals to tech-savvy individuals and those looking for novel fitness experiences.
- Personalized workouts and progress tracking for individualized fitness journeys.
- Social and competitive elements to enhance motivation and community engagement.
- Potential for partnerships and collaborations with fitness brands and equipment manufacturers.
- As with any innovative business idea, it's important to conduct thorough market research, validate the concept, and develop a solid business plan before starting the venture. Assess the demand for VR fitness experiences in your target market, identify potential competitors, and create a strategy for marketing, operations, and revenue generation.

ChatGPT vs Mistral vs DeepSeek

19/03/2025

How about creating a **“Circular Economy Marketplace”** that facilitates the exchange, reuse, and recycling of materials and products for businesses and individuals?

This platform could connect companies, local governments, and individuals who want to reduce waste, offering services like product repair, upcycling, and material repurposing. It could also help businesses track the lifecycle of their products, optimize resource usage, and reduce their carbon footprint.

Professional Organizing Services: With the rise of minimalism, there is a growing demand for professional organizers who help people declutter and manage their possessions more efficiently¹.

Food Truck Business: Starting a food truck can be a great way to enter the culinary industry with lower overhead costs compared to a traditional restaurant. The mobility of a food truck allows you to reach different markets and events¹.

Eco-Friendly Smart Packaging with Embedded Sensors

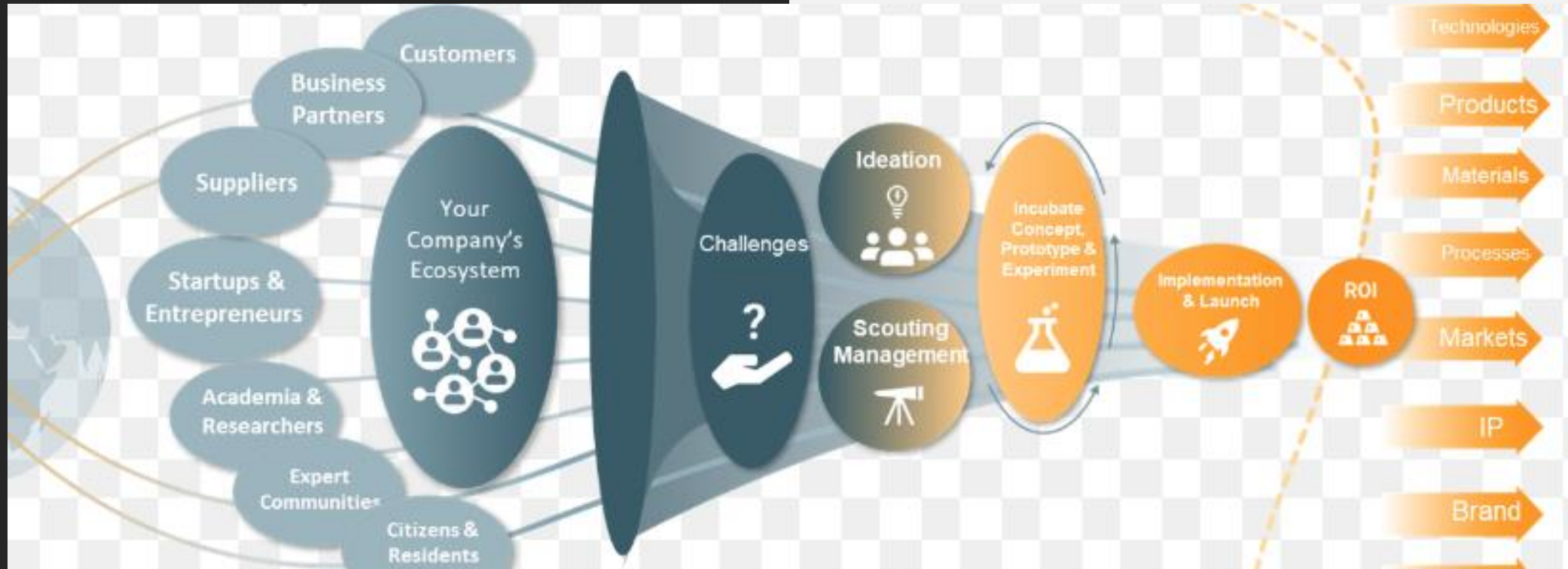
Concept: Develop a line of eco-friendly, biodegradable packaging materials embedded with IoT-enabled sensors that monitor the condition of the product inside (e.g., temperature, humidity, freshness, or tampering). This packaging would be ideal for industries like food delivery, pharmaceuticals, and luxury goods.

How It Works:

1. **Smart Sensors:** The packaging includes ultra-thin, biodegradable sensors that track environmental conditions and send real-time data to a mobile app or cloud platform.

Silly Idea?
Silly Invention?





Innovation Funnel

3 000 Raw Ideas > 300 Submitted Ideas > 125 Small Projects > 2 Launches > 1 Successful New Product



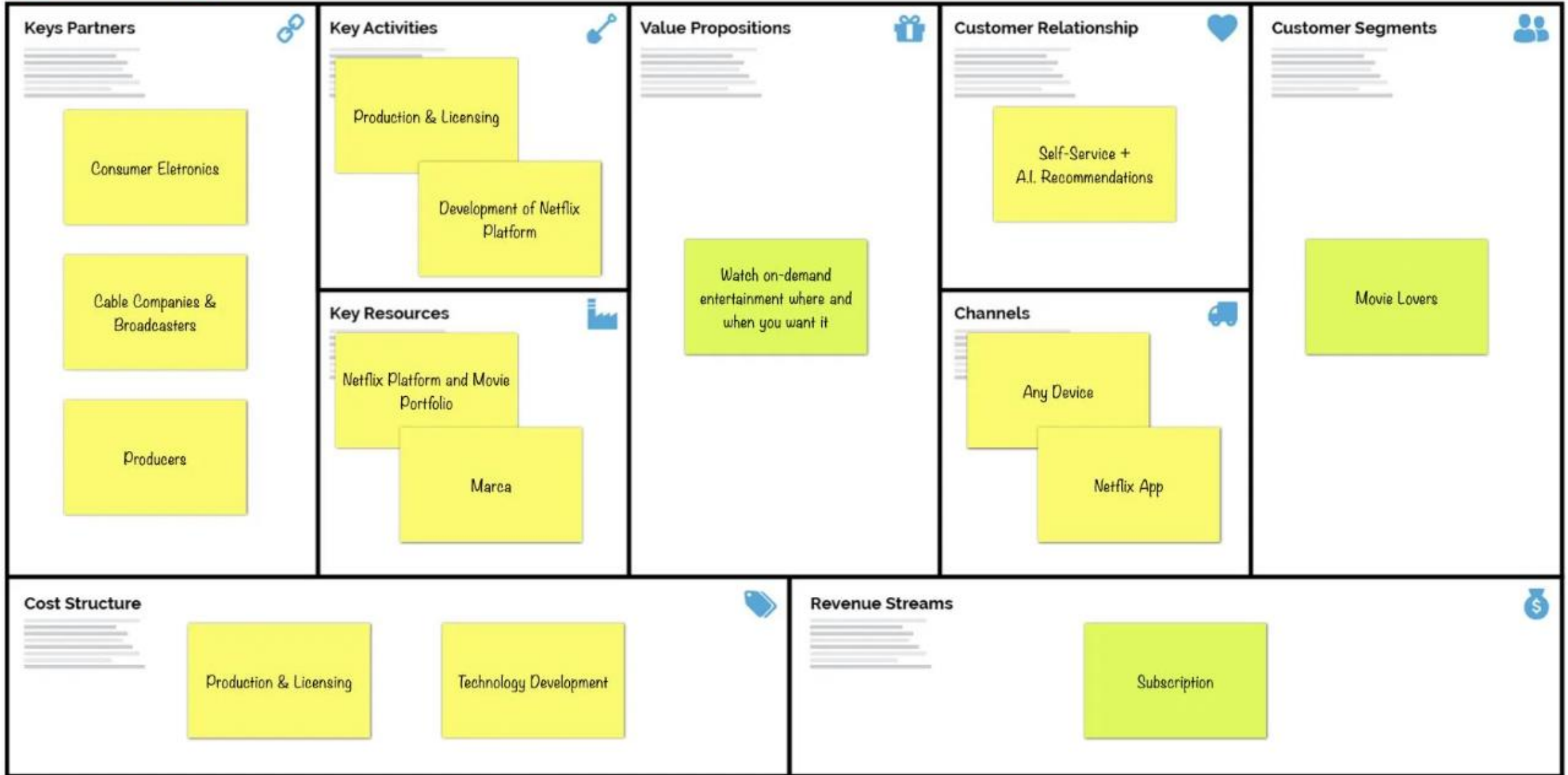
Humanity | Design Thinking

Empathize (*User, Persona, Needs*) |
Define (*Problem*) | **Ideate**
(*Brainstorming, Solution*) |
Prototype (*Types, Effective*) | **Test**
(*On User, Iterative Design*) |
Implement (*Scaling Innovation,*
Launching New Products/Services)

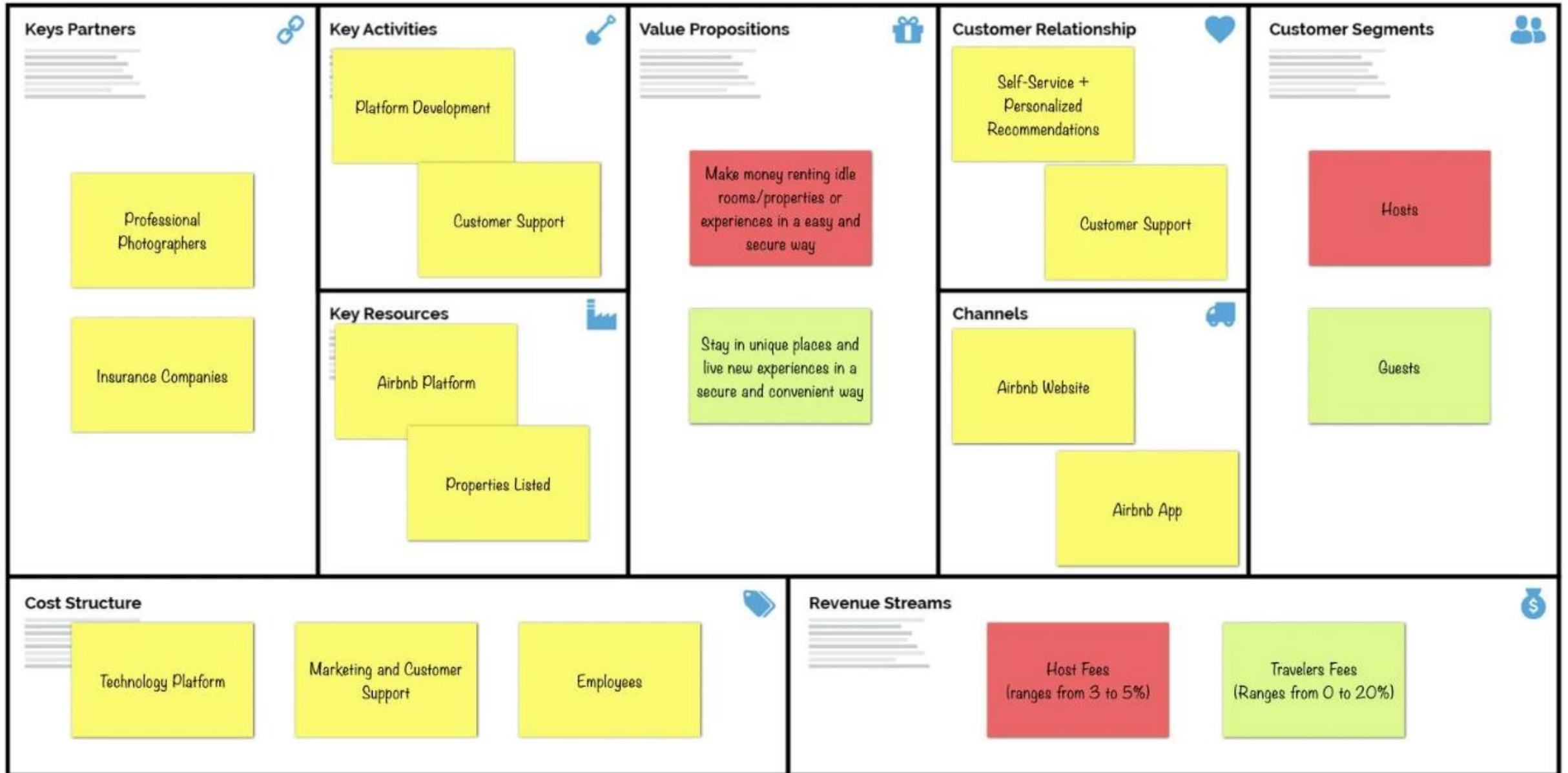


Design Thinking
Crush
Workshop

NETFLIX - Business Model Canvas



airbnb - Business Model Canvas

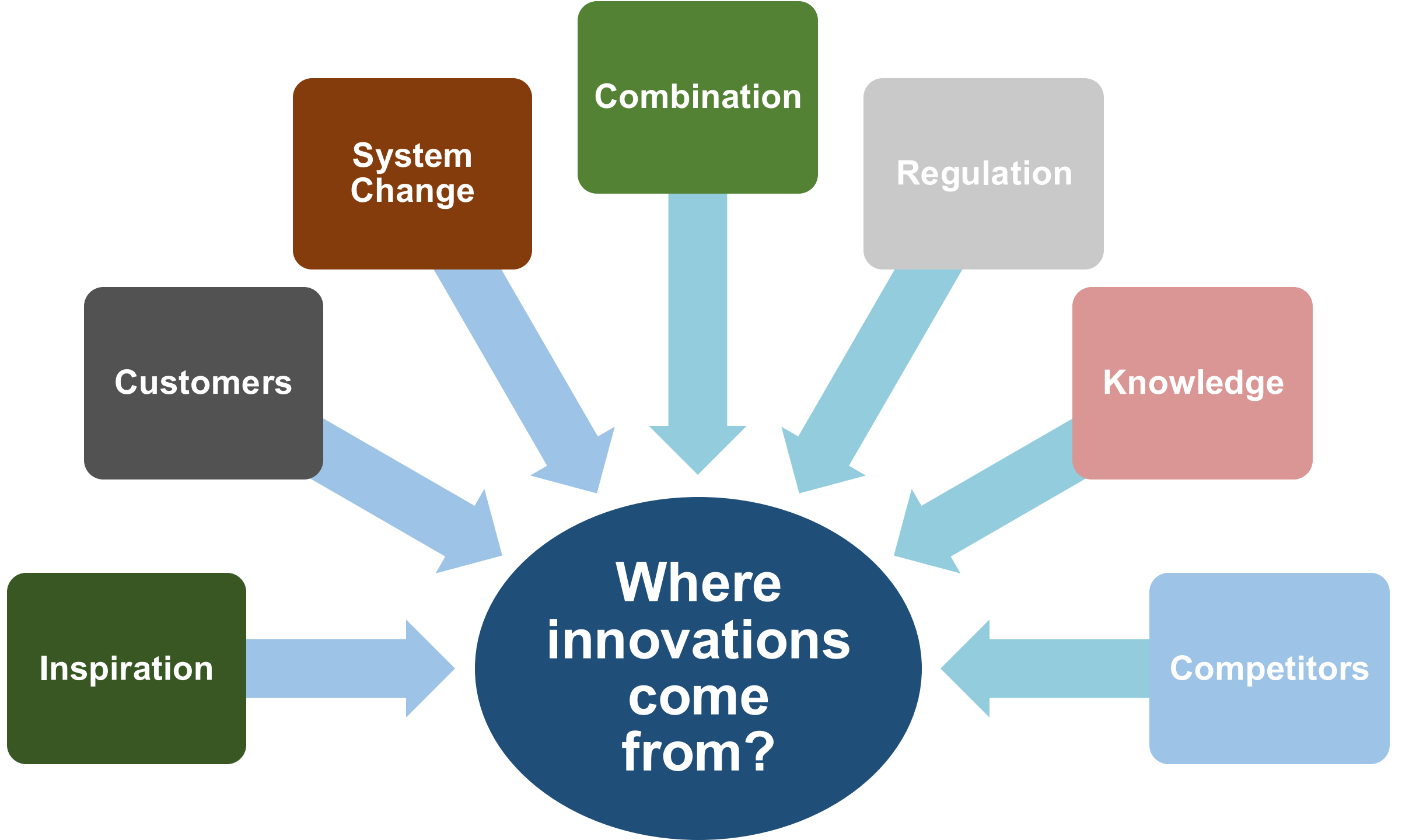




Case Studies

How **Netflix** Used Design Thinking to Reinvent Itself, Over and Over

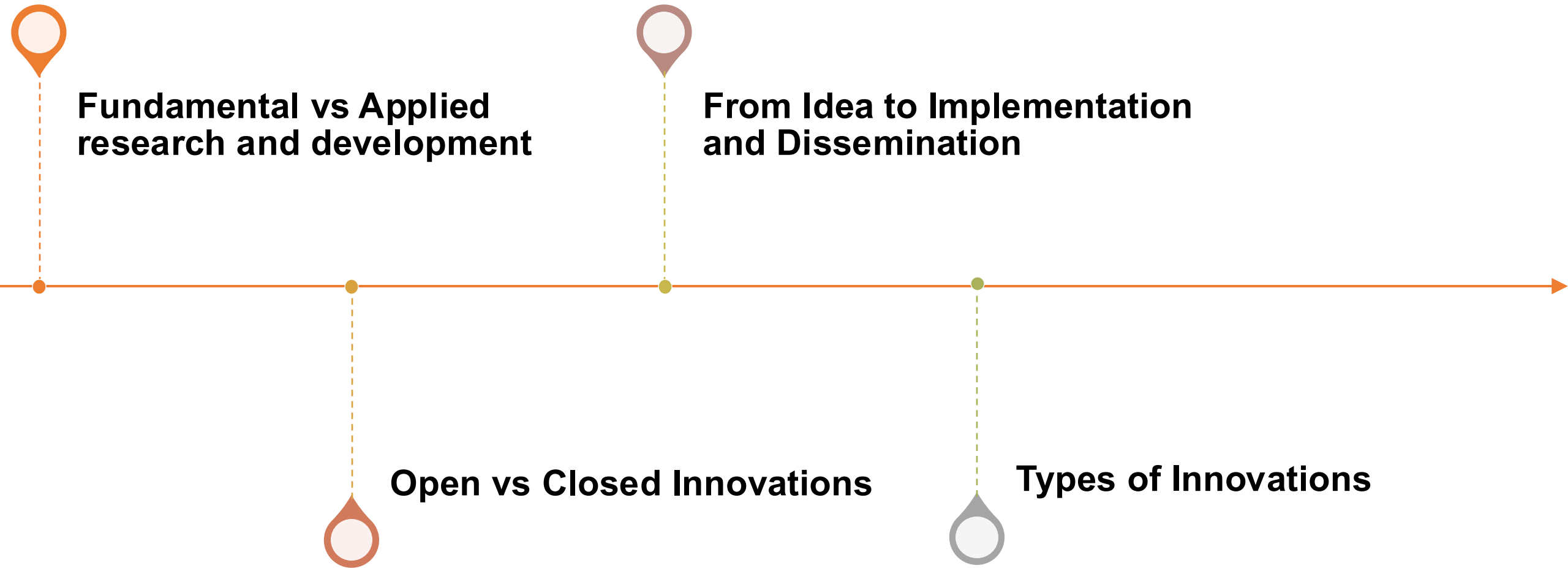
How design thinking transformed **Airbnb** from failing startup to billion-dollar business



Innovation Process

National/Business Level

Unique



Traditional approach to study technology performance

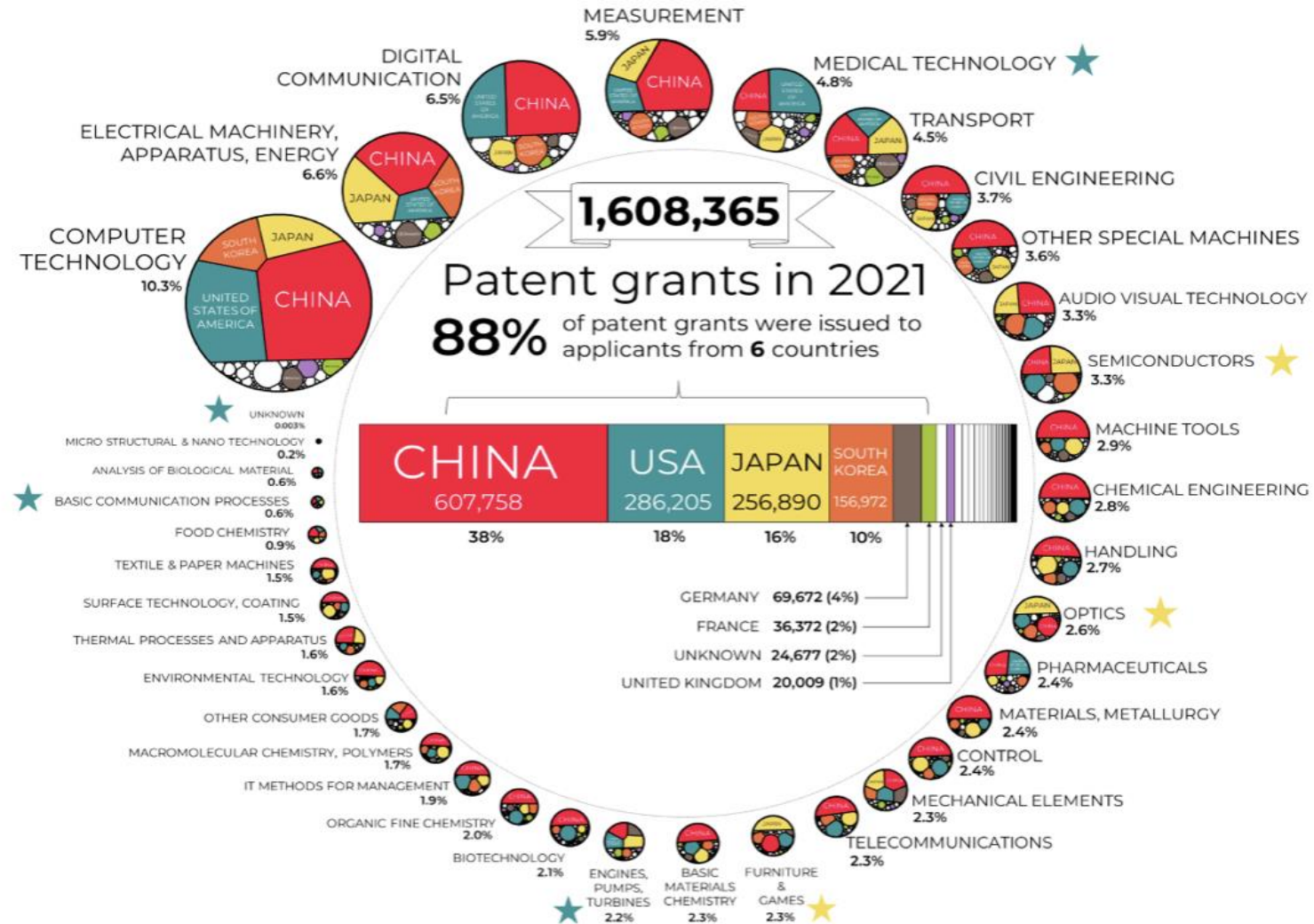


INPUT – RESOURCES (R&D)



OUTPUT? (PATENTS)

PATENT GRANTS BY ORIGIN COUNTRY & FIELD OF TECHNOLOGY



★ **Japan** tops 3 fields
Semiconductors, Optics, Furniture & Games

China
tops 29 fields

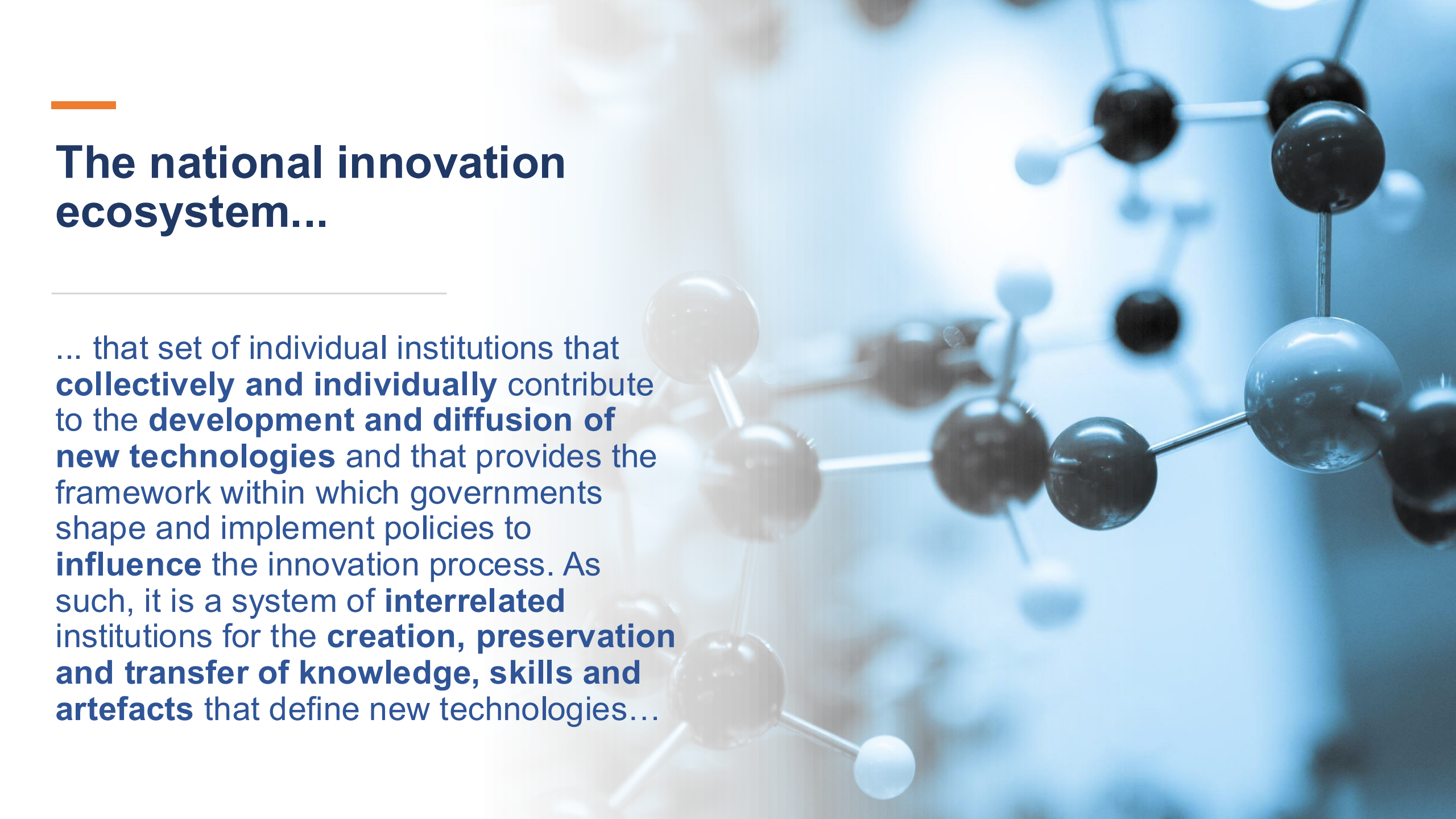
★ **USA** tops 4 fields
Medical technology; Engines, pumps, turbines;
Basic communication processes; Unknown

Google Earth

The Billion Dollar Code

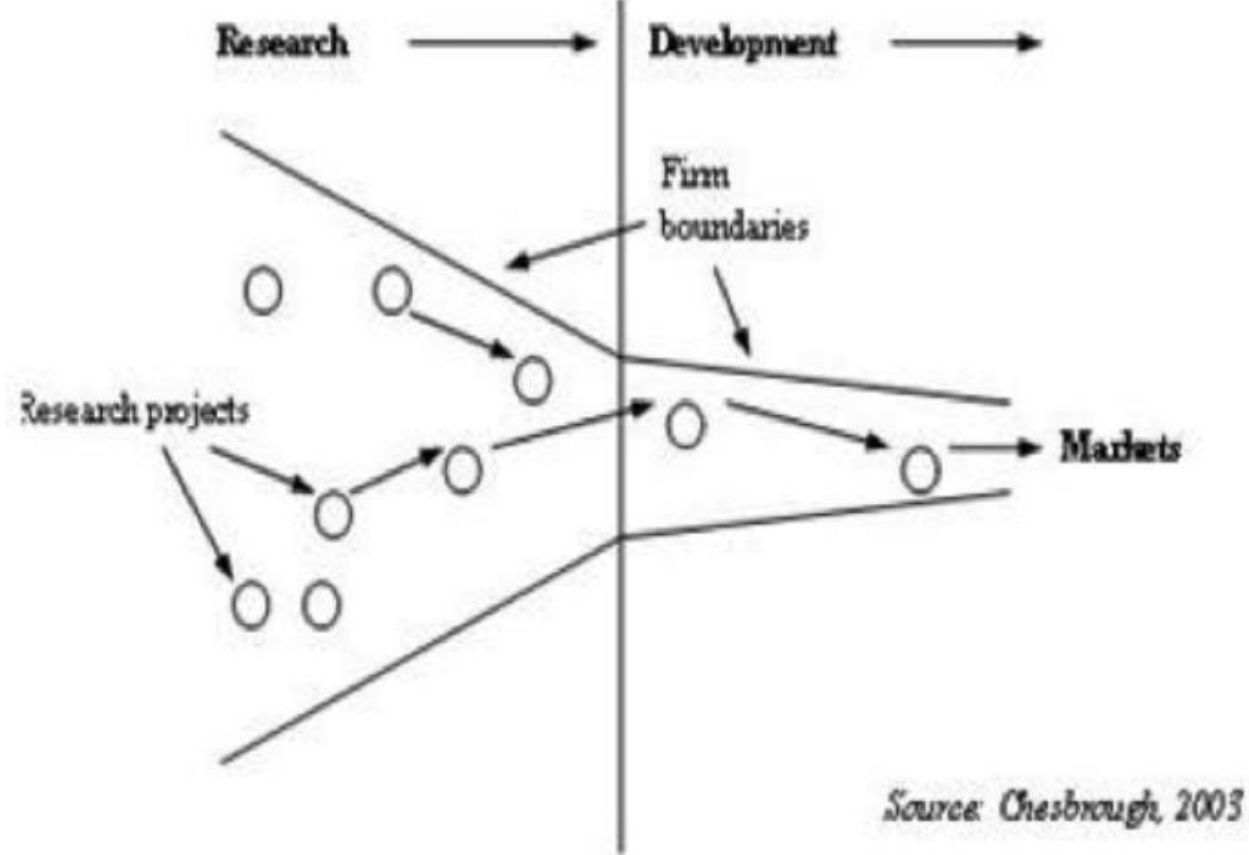
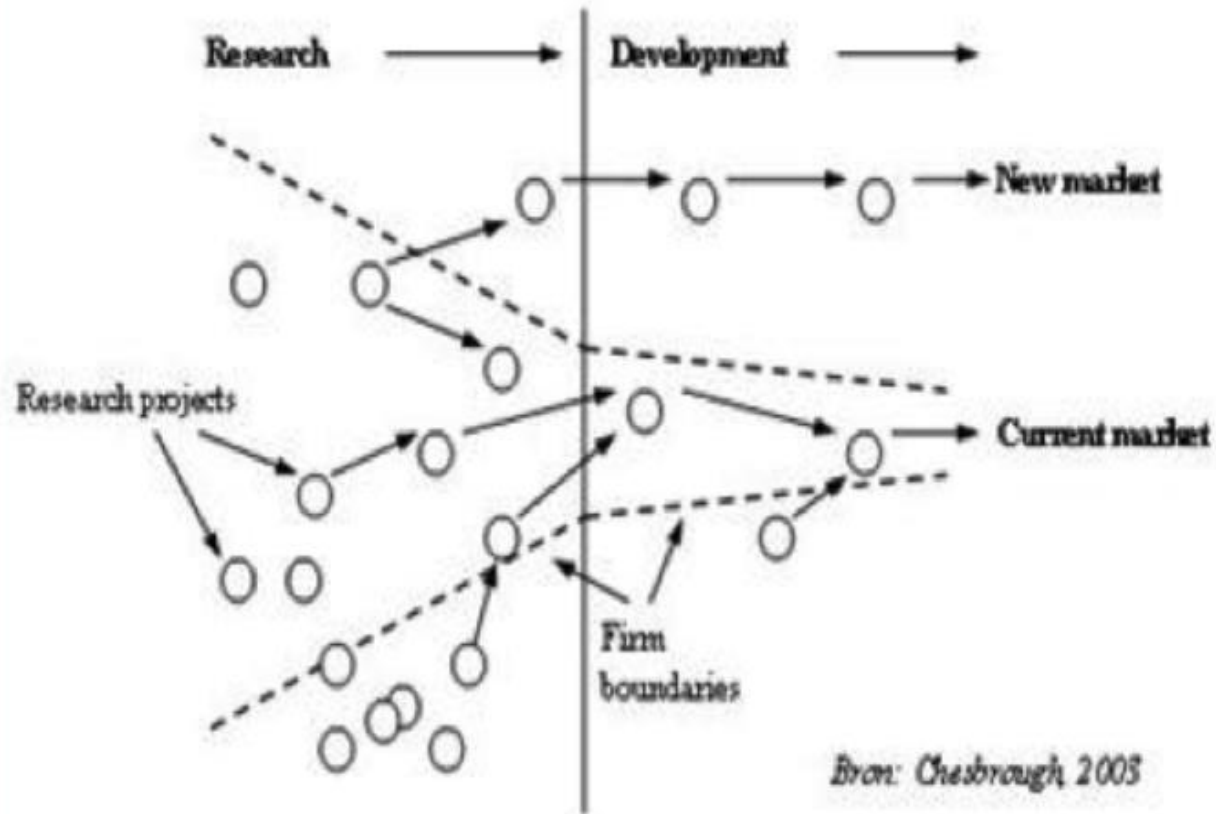
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[Trailer](#)





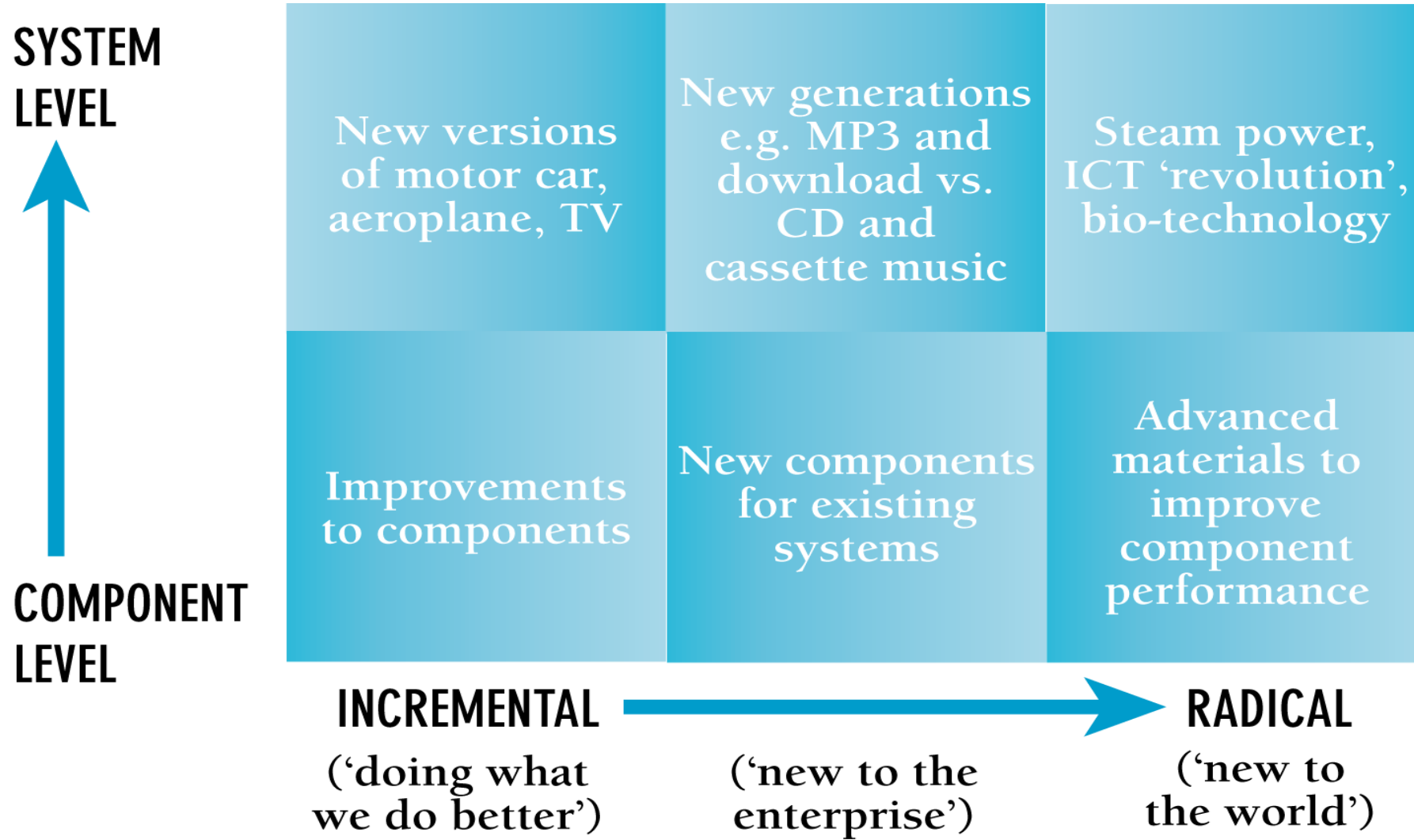
The national innovation ecosystem...

... that set of individual institutions that **collectively and individually** contribute to the **development and diffusion of new technologies** and that provides the framework within which governments shape and implement policies to **influence** the innovation process. As such, it is a system of **interrelated** institutions for the **creation, preservation and transfer of knowledge, skills and artefacts** that define new technologies...

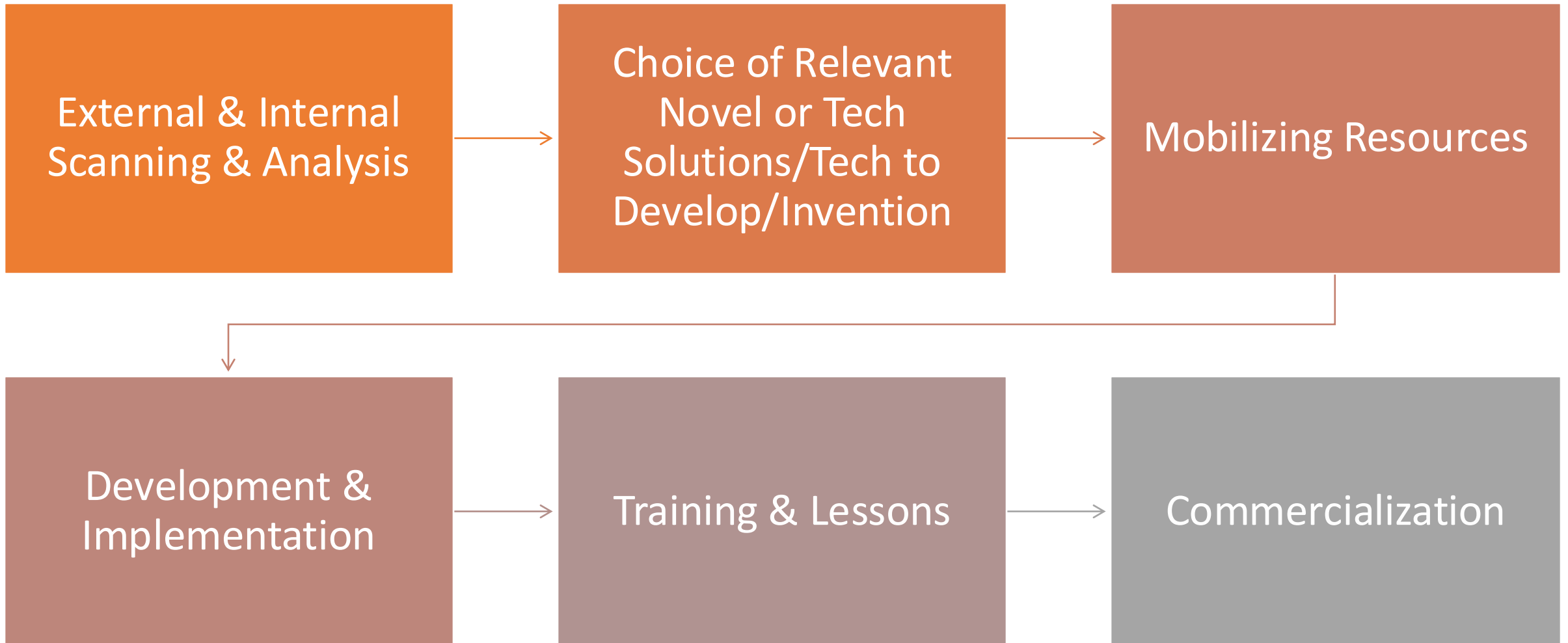


Open vs Closed

Types of Innovations (Tidd & Bessant, 2015)



Generic model of Innovation Process

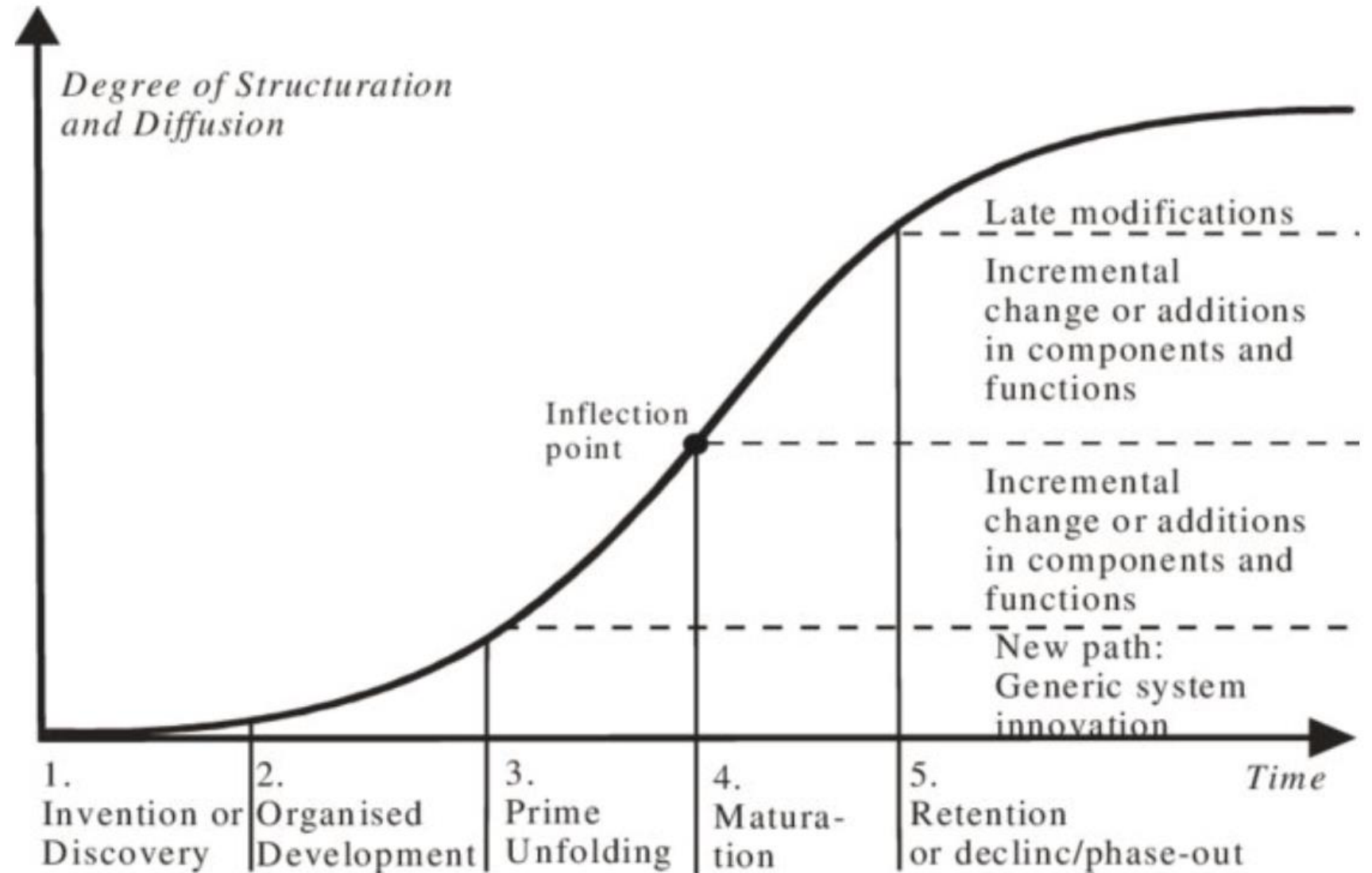


THEORY of Schumpeter

*...process of **creative destruction**, whereby old ways of doing things are destroyed and replaced with **new methods and innovations**, leading to economic growth and development*
(Schumpeter)



Innovation Life Cycle (Huber, 2003)





Frugal Innovation

- innovation commensurate with the needs to be met
 - Frugality – simplicity, austerity, lack of abundance, very limited use of resources compared to needs
-
- associated with ecological and social sustainability (minimal use of resources)
 - **Def** "reference to products and services that are developed under resource constraints", "customers are at the centre of the development of accessible, adaptable, affordable and appropriate products", a "product innovation where there is a shortage of wealthy customers", "innovative products and business models with low cost and high quality", a "new philosophy", a "resource-constrained solution designed and implemented within constraints"
 - EU policies around greener and more sustainable European future: 'zero ' philosophy, 'zero deforestation' products, greenhouse gas emissions and biodiversity loss to accompany entrepreneurship and innovations beyond the Green Pact for Europe



AI?

Projects | Process | Productivity | ROI | Impact

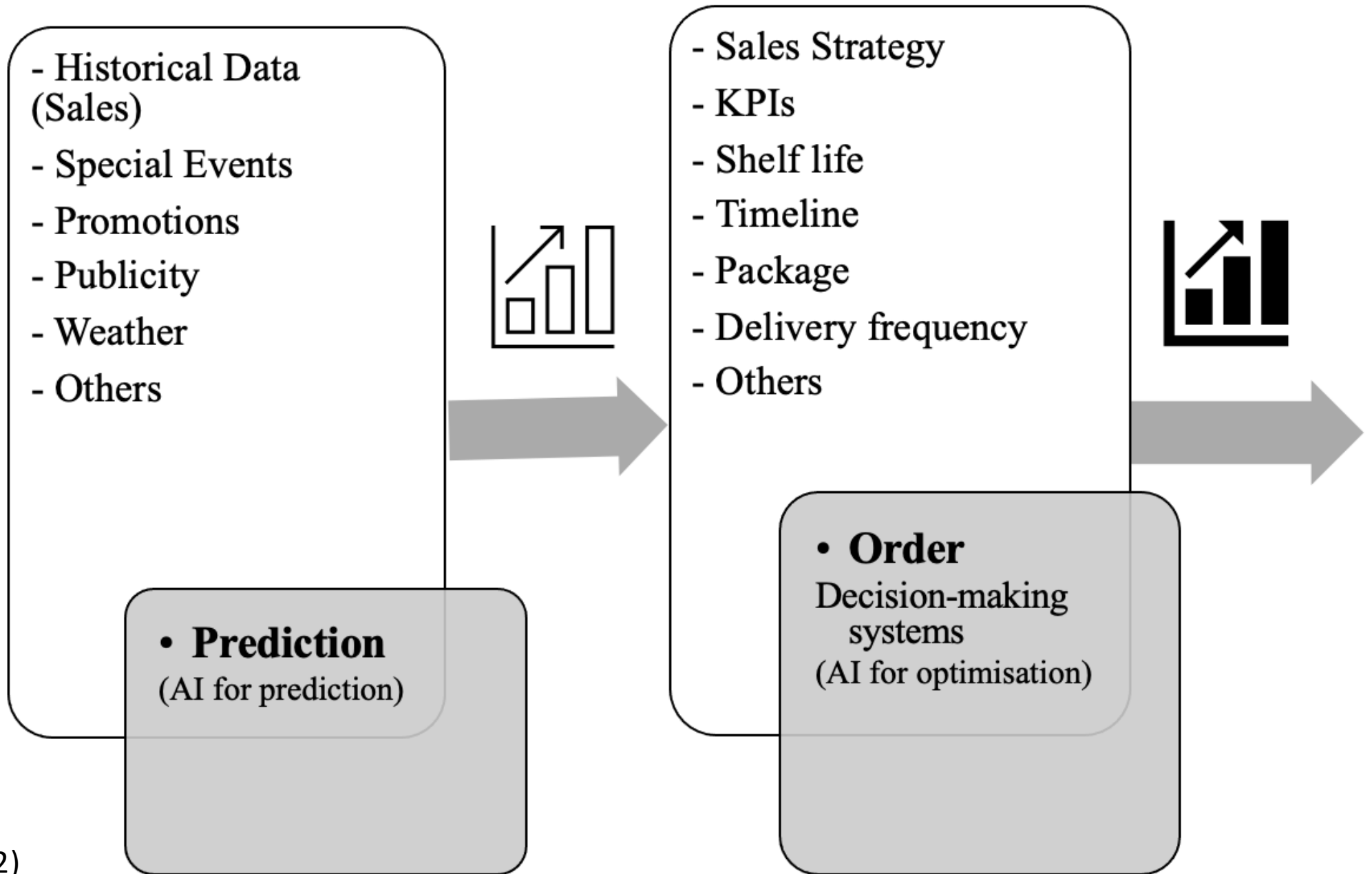


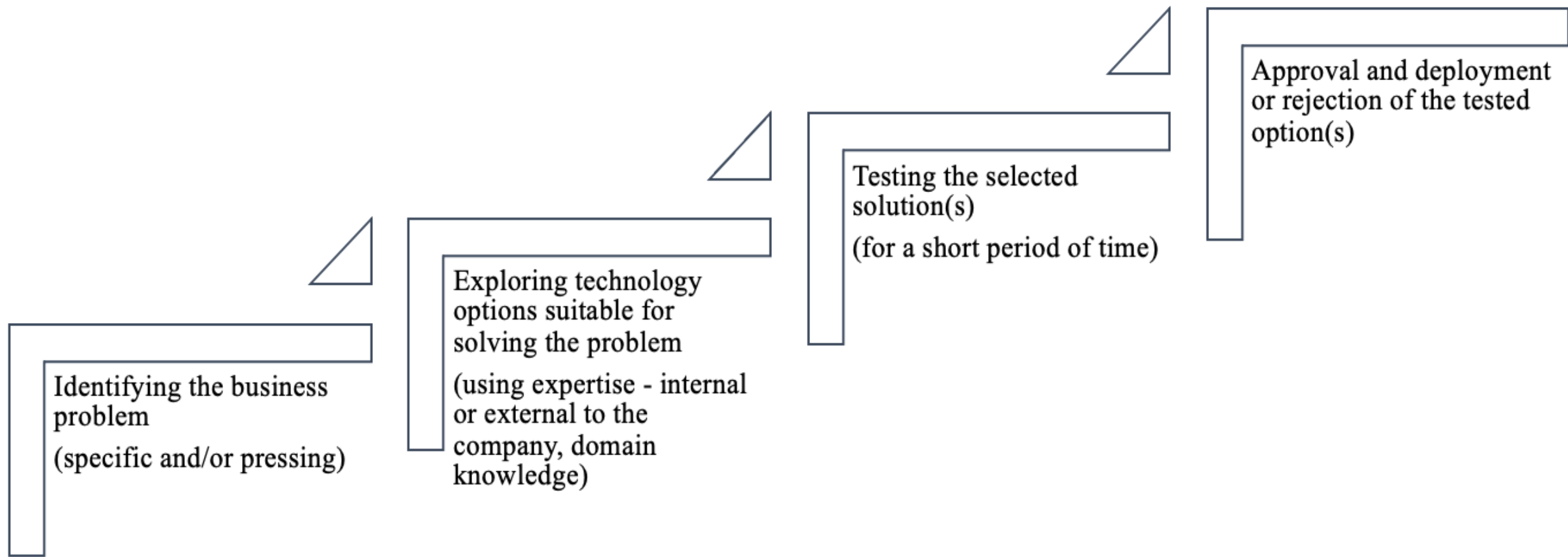
[retail]

- The **largest** pastry and cake chain in bakery and pastry industry (BG), offering high quality, **handmade** products without preservatives with a **shelf life** of 3 days
- 1993, well-known and successful brand on local market (48 pastry shops: BG and RO)
- Invested in AI (2015) to automate business processes, improve daily decision making by shop managers and make **forecasting** more accurate (AI as a service)



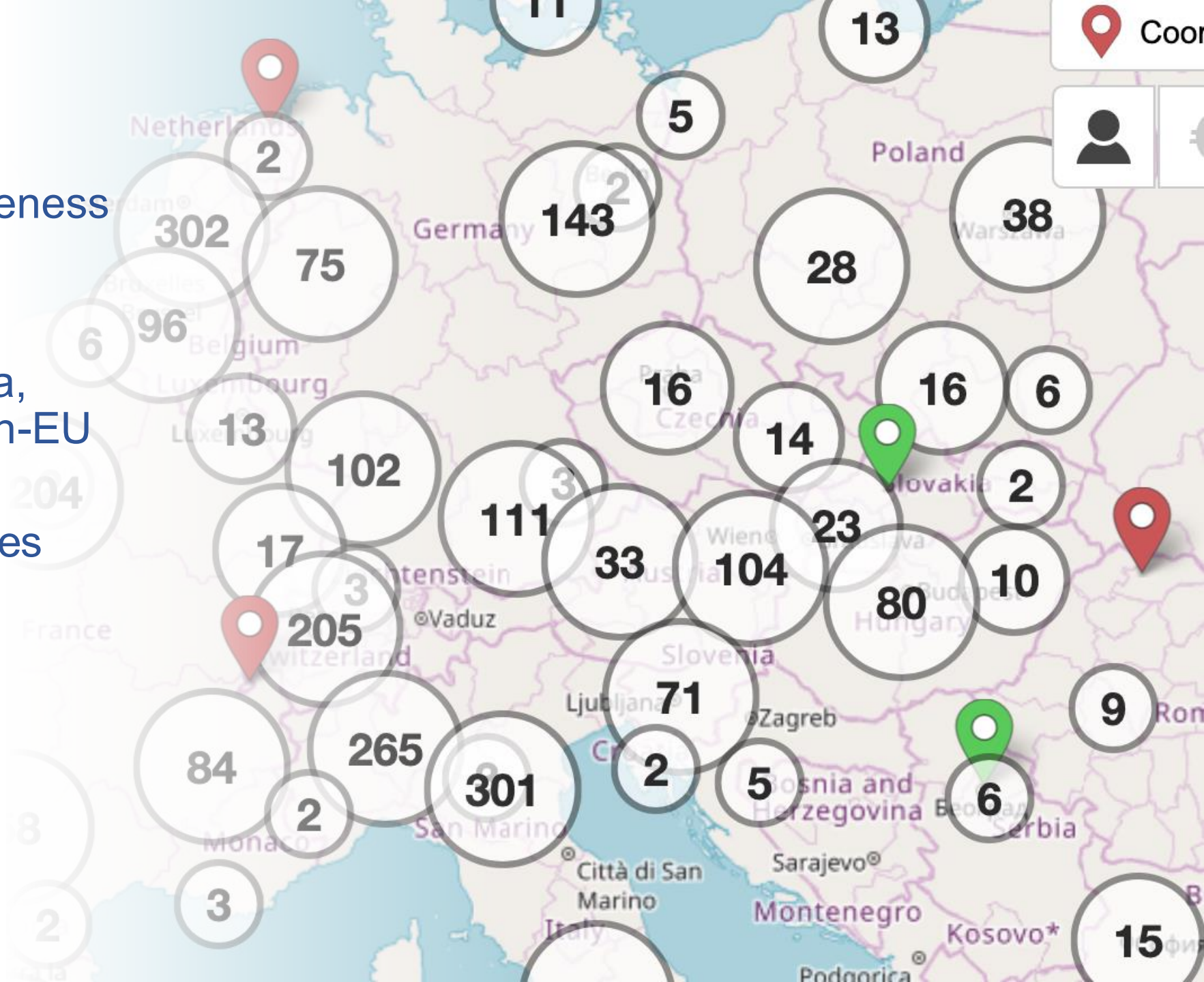
- without AI 50% more waste (2018)
- without AI 35% more no assortment
- no “*catastrophic events*” if AI
- Min -5000 working hours/year
- Profit 10+%, EBIT +2%, ROI 5-6 times
- 100% without human intervention (RO)
- **Waste reduced** from 7% to 1.5% (2022)





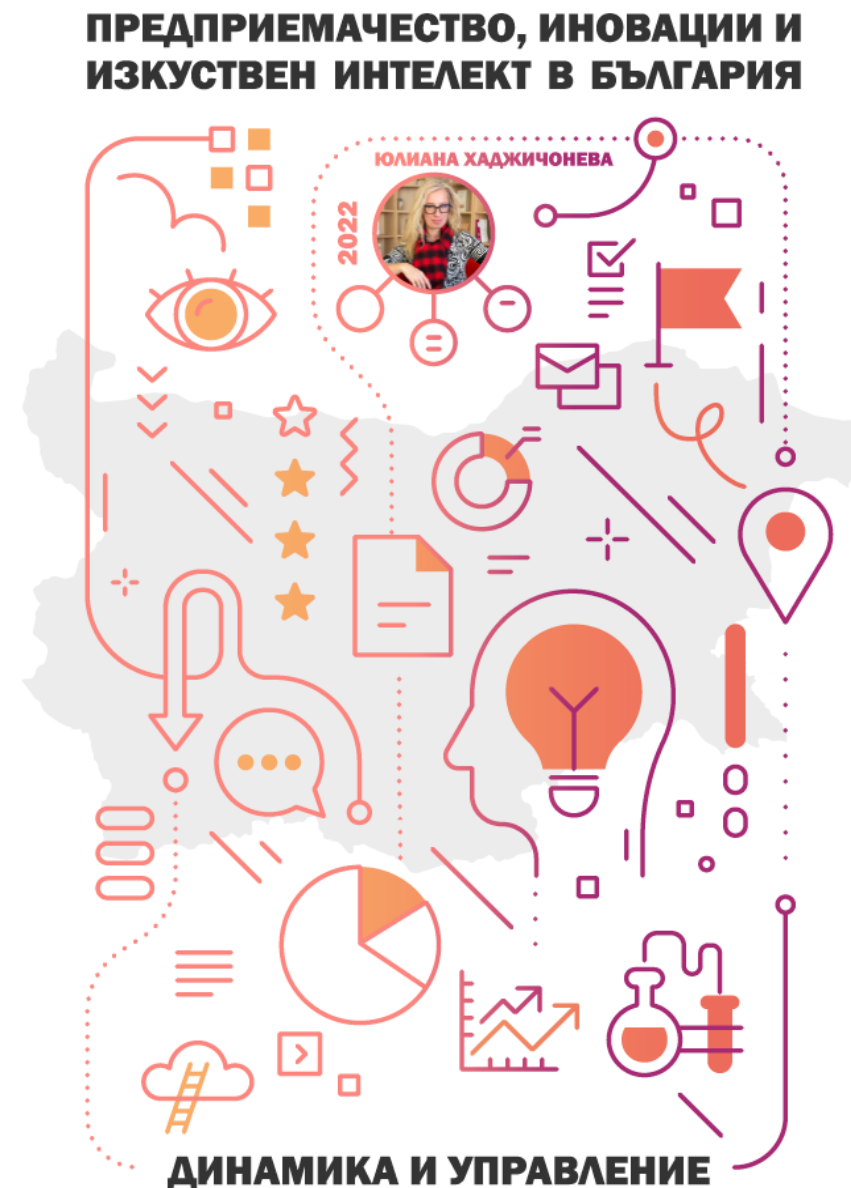
EU Context

- EU Policies Competitiveness and Innovation
- EU R&D
- EU Talents, Startup visa, Blue Card Scheme (non-EU talents)
- EU Funding Programmes and Financial Support
- EU Tools (HEinnovate)
- [EU Innovation Radar Platform](#)



References

- Hadjitchoneva, J. (2022). *Entrepreneurship, Innovation and Artificial Intelligence in Bulgaria - Dynamics and Management*. Sofia: UNWE.
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Questions





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