Master Thesis

# Smart Innovation

## Exploring an AI-Based Approach to Assessing and Improving Organisational Innovation Capabilities

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## Abstract

In today's growing industry, innovation is the key factor that every organisation tries to achieve, and it is also the factor that sets it apart from its competitors. Companies are facing challenges to stay competitive in the industry. Simultaneously, there is also an increase in the adoption of AI for different business functions. Larger organisations and SMEs have a different scale of AI adoption due to varying resources, infrastructure, and risk tolerance. Larger organisations usually have the financial resources and technical expertise to invest in advanced AI technologies that help them automate multiple functions like customer service. On the other hand, SMEs face challenges like limited budgets and limited technical skills, which is why they have a more careful approach towards AI adoption.

Multiple studies have been done on what is the best way to stay innovative in these ever-changing markets, and numerous frameworks have been developed by several researchers that guide organisations towards innovation. However, these concepts are still very novel for a lot of small and medium-sized organisations, which leads to them thinking they are unimportant and unhelpful as they can't place themselves in the framework context. Existing frameworks also focus on assessing and improving specific aspects, which do not represent the holistic understanding of innovation capabilities and what affects them.

This research document aims to understand what organisational innovation capabilities are and what affects them, the role of change management in the process of improving these abilities to innovate, and to explore if AI can be an enabler or a catalyst for this process.

The approach used for this thesis is consulting the field of innovation capabilities and artificial intelligence and integrating concepts from both fields to develop a holistic framework for SMEs.

Existing frameworks are investigated through a literature review, and the key aspects are identified before framework development.

The proposed Orange Slice AIC Framework consists of three components:
1. Factors that influence innovation capability 2. Technology Integration; and 3. Artificial Intelligence Layer.
The Orange Slice AIC framework is developed by applying the double-diamond approach to the context of organisational innovation capabilities. It includes a comprehensive framework that will help in assessing innovation capabilities and an integration and implementation strategy that will guide the organisation towards improvement.

Four expert interviews are conducted as empirical research in order to gather feedback. Two interviews with innovation consultants on the existing frameworks and to understand the most important organisational aspects that affect innovation in the context of SMEs. The other two interviews are conducted with early founders with 11–50 team sizes to understand the challenges they face in achieving innovation standards.

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## List of Abbreviations

SME – Small and medium-sized organisations

AIC – Adaptive Innovation Capability

KPI – Key Performance Indicators

ROI – Return on Investment

R&D – Research and Development

AI – Artificial Intelligence

NLP – Natural Language Processing

ML – Machine Learning

GenAI – Generative AI

RPA – Robotics Process Automation

GAN – Generative Adversarial Networks

AGI – Artificial General Intelligence

BCG – Boston Consulting Group

EV – Electric Vehicles

OECD – Organisation for Economic Co-operation and Development

IDEO – A global design and innovation company

NGO – Non-Governmental Organisation

ESG – Environmental, Social and Governance

UN – United Nations

SDG – Sustainable Development Goals

IoT – Internet of Things

CRM – Customer Relationship Management

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# 1. Introduction

## 1.1 **Context and Relevance**

### Organisational Competitiveness in Innovation

Organisational competitiveness is a complicated topic that explores how organisations use innovative strategies to create a competitive advantage and performance in the industry. Multiple recent literatures show that there is a correlation between competitiveness and innovation. These studies also suggest that organisations must prioritise innovation in order to survive in today's volatile business environments *(Tohidi and Jabbari 2011)*.

The COVID-19 epidemic underlined the need of adaptation. Companies who applied creative approaches to address issues caused by the lockdown were able to keep their relevance and performance in the markets. While companies which lacked swift situational adaptation and operated with the same conventional wisdom struggled with income increase. The employee experience also declined in these businesses.

A case study that highlights the importance of adaptability is Blockbuster. It is an example of exceptional leadership by Reed Hastings, the founder of Netflix, and the failure of Blockbuster. Netflix cultivated a culture of innovation and responded well to the market needs, resulting in the disruption of the then video rental market dominated by Blockbuster *(P. Maina 2020)*. Blockbuster failed to adopt innovative strategies, assuming that its market was secure. They were too late to take action, which resulted in Blockbuster ultimately declaring bankruptcy in 2010 *(P. Maina 2020)*.

Industry growth depends mostly on innovation as well as profitability. Innovation lets companies create goods and services unique in saturated markets. This helps businesses to grab a bigger market share, thereby attracting more consumers and hence improve their profitability relative to their rivals.

Tesla is one case study highlighting development and profitability resulting from innovation. Names like Ford, General Motors, and Toyota filled the saturated market for electric vehicles. By introducing highly performing electric vehicles with long-range capability and superior autonomous driving technologies in 2012, Tesla changed the EV scene. Comparatively to other firms, Tesla had the biggest percentage of market share by 2023 *(Karamitsios 2013)*.

**The adoption of AI**

Adoption of artificial intelligence has grown recently and will only get bigger in the next years. AI's global income in 2024 is 228.2 billion US dollars; by 2028 it is expected to be 632 billion US dollar *(IDC, 2024)*. Artificial intelligence is considered a key technology and promises to further advance digital transformation. The latest generative AI applications can perform a range of routine tasks, such as the reorganisation and classification of data. But their ability to write text, compose music, and create digital art has garnered headlines and persuaded consumers and households to experiment on their own *(Chui et al. 2023)*. The surfacing of GenAI presents an opportunity and a challenge for leaders looking to steer their organisation into the future (Atluri et al. 2024). A good percentage of the world population thinks that the use of artificial intelligence will change their daily lives in about 3-5 years *(Ipsos, 2023)*. Over the course of the next three years, it is likely that anything that has no connection to artificial intelligence would be regarded as outdated or ineffective *(Atluri et al. 2024)*.

Traditionally, innovation follows a simple growth curve, but with the increased adoption of AI in recent years, this curve has steepened, taking innovation to unmatched speed and capabilities *(Nosta 2024)*. In 2017, the adoption of AI in

organisations stood at 20%. However, in the last 6 years (2018-2023), it was constant at around 50%. It was in the year 2024 when the adoption of AI jumped to 72%. More than two-thirds of respondent organisations surveyed in every region say that they are using GenAI for at least one business function *(Singla et al., 2024)*.

| feature | Human Resources | craft industry | Marketing & Sales | product/service development | risk | services | Strategy & Corporate Finance | Supply Chain Management |
|---|---|---|---|---|---|---|---|---|
| In total | 9 % | 6 % | 25 % | 26 % | 12 % | 24 % | 8 % | 9 % |
| financial services | 9 % | 1 % | 22 % | 20 % | 28 % | 31 % | 14 % | 4 % |
| Business, legal and professional services | 9 % | 5 % | 28 % | 24 % | 10 % | 19 % | 13 % | 6 % |
| Health/Pharma/Medical Technology | 5 % | 7 % | 8 % | 26 % | 7 % | 15 % | 6 % | 11 % |
| consumption/trade | 7 % | 9 % | 31 % | 15 % | 6 % | 22 % | 2 % | 14 % |
| Tech/Media/Telecommunications | 14 % | 6 % | 36 % | 44 % | 7 % | 36 % | 6 % | 9 % |

*Figure 1. Adoption of AI by Industry and Functions Worldwide in 2023 (Source: Stanford University and McKinsey and Company, 2024)*

In the finance sector, AI is used in risk management (28%) and services (31%) for detecting fraud and automation of customer support. In business/legal and tech/media/telecommunication, it is mainly used in marketing and sales (28% and 36%) and for product or service development (24% and 44%), respectively. Similarly, the health sector and the consumption sector also heavily use AI for marketing and products *(Stanford University and McKinsey and Company, 2024)*.

It is visible that organisations use AI to automate comparatively simpler tasks; however, it is not only the use of technology that enables innovation but also the organisational environment for employees and its ability to adapt *("The Future of Work: Embracing AI and Automation in the Workplace," n.d.)*.

**The impact of COVID-19 on organisations**

COVID-19 was both a global health crisis and an international economic threat, and the lockdowns that were implemented across the world to stop the spread of

the virus had generated a variety of challenges for employees and employers *(Kniffin et al. 2020)*. For employees, the COVID-19 pandemic has changed a shift from centralised workplaces to full-time working from home, and also, as a catalyst for the virtualisation of the working world, the pandemic has accelerated company transformation to digitalisation and new work *(Pakos et al. 2021)*. There were new problems that the employees had to face, like creating a distinction between work and personal life. They also faced challenges in creating a dedicated working place at home and adapting to remote culture along with disconnection from the office and colleagues *(Rahmani and Zeng 2023)*.

The COVID-19 pandemic also led to companies adopting things faster that were already set in motion, like more flexibility for employees and adoption of digital technologies. The companies started realising that a lot of jobs could be done remotely without losing productivity.

Considering only remote work that can be done without a loss of productivity, we find that about 20 to 25 percent of the workforces in advanced economies could work from home between three and five days a week *(Lund et al. 2021)*. This realisation led to companies rethinking their policies and need for office spaces. It also made companies invest largely in digital tools for communication, task distribution, and collaborative tools. Face-to-face training became useless, and the companies had to change their processes of employee training. COVID-19 led to the transformation of organisations and their mentality of how work is to be done. The companies today have flexible work policies.

To summarise, research on the impact of COVID-19 on employees and organisations is important to understand the adaptability of organisations and also to be ready and equipped for any further challenges *(Rahmani and Zeng 2023)*.

**Concept of New Work**

The term "New Work" was introduced by Austrian philosopher Frithjof Bergmann. It gained focus in recent years as companies adjusted to the changing work structure. New Work refers to a paradigm shift that prioritises flexibility, collaboration, and genuine participation in the workplace, changing traditional work structures and practices. This change is very important since we live in an age of technology and after the COVID-19 pandemic, which made people more accepting of remote and hybrid work styles.

New Work supports a more human-centric approach to employment. It encourages organisations to prioritise employee well-being and job satisfaction by developing cultures that promote self-determination and creativity. Individual autonomy, meaningful participation, collaborative processes, and letting employees take responsibility for their tasks are some ideas that drive new work *(Bergmann, 2019)*. The change from strict hierarchies to a more democratic structure helps teams to be more creative and flexible *(Blumstengel, n.d.)*.

A lot of studies have shown that using New Work ideas can make people more productive and happy at work. The Joint Research Council of the European Commission did a study that showed people who were flexible in their jobs were happier with their jobs and left their jobs less often than people who worked in controlled settings *(Drebes 2022)*. Moreover, organisations that use flexible work arrangements—such as freelancing and flexible schedules—frequently observe enhancements in employee engagement and performance *(Tušl et al. 2021)*. The flexibility inherent to New Work enables people to balance their job responsibilities with personal commitments, enhancing overall well-being.

New Work has been advanced by the adoption of Information and Communications Technology. Software solutions such as cloud computations, project management tools like Trello and communication app like, Slack make it easier to share or work together irrespective of the geographical area. This digital

transformation enables remote work and promotes a culture of continuous learning and cross-disciplinary work *(Blumstengel, n.d.)*. As organisations constantly use these technologies, they build cultures favourable to employee creativity and collaboration.

New Work also talks about how important it is for people to have a sense of meaning at work. Employees are happier when the things they do in their jobs align with their personal goals *(Drebes 2022)*. This relationship helps people be more committed to the goals of the company, which leads to better overall performance. By highlighting valuable job experiences, organisations may promote a motivated staff that is enthusiastic about contributing to common achievement.

The shift to New Work has several challenges. Organisations should address possible challenges from the staff that has become comfortable with traditional work systems. Also, ensuring effective communication and collaboration in remote environments can be difficult *(Lund et al. 2021)*. To tackle these problems, companies should invest in training programs that prepare employees to succeed in a New Work environment while also creating a culture of trust and transparency.

## 1.2 **Focus and Scope**

This document mainly aims at developing a checklist that shall be useful in Small & Medium Enterprises when searching for innovation issues to solve. These barriers will pertain to internal processes of the organisation, the culture within the organisation, technology integration and risk tolerance in the organisation.
This framework will analyse existing processes that are being used in the organisation and brainstorm on how AI can be integrated into the organisation to enhance creativity, productivity, and competitive advantage. Additionally, this study will also investigate how AI can access and improve these innovation capabilities by gathering data within the organisation.

Besides technical things, the framework will also consider the creation of an innovation-friendly environment. This research will propose practical insights that will help SMEs adapt to evolving markets and support their long-term growth and sustainability in a competitive landscape.
The study will primarily emphasise the creation of the framework rather than AI. The aim of this project is not to create a brand-new technology; rather, it is to develop a holistic model for SMEs that will help them to understand innovation and how to improve it.

## 1.3 **Objectives and Questions**

### Research Objectives

The following are the defined objectives that underline the research to be conducted for the thesis.

The aim of this master's thesis is to give a comprehensive understanding and to create a holistic framework to improve innovation capabilities in SMEs. The focus of the framework will be mass adoption and practical implementation of the process. Qualitative research will be done to understand the current processes and challenges in innovation.

Lastly, the idea is to implement the framework using AI as an enabler to make the framework accessible to the masses and also practical for use.

### Research Questions

In order to give direction to the research, the following research questions are put together:

1. What are organisational innovation capabilities?
2. What are the factors that affect the innovation capability of an organisation based on existing research?

3. What are the aspects that should be considered while creating a holistic framework?
4. What are the challenges faced by SMEs to foster innovation in their organisation?
5. How can AI effectively assess and enhance organisational innovation capability in SMEs?
6. What changes are crucial in order to foster an innovation-friendly environment?
7. How can SMEs integrate this AI-powered framework into their daily processes?

# 2. Literature Review

## 2.1 **What is Organisational Innovation Capability**

Organisational innovation capability is a tricky concept that describes the capability of an organisation to innovate.

### Definitions of innovation capability

One of the early researchers, Fariborz Damanpour, defines innovation as the generation, development, and implementation of new ideas or behaviours. An innovation can be a new product or service, a new production process technology, a new structure or administrative system, or a new plan or program for organisational members. Thus, innovation is defined as the adoption of an internally generated or purchased device, system, policy, program, process, product, or service that is new to the adopting organisation *(Damanpour, 1991)*.

Lawson and Samson define innovation as the mechanism by which organisations produce new products, processes, and systems required for adapting to changing markets, technologies, and modes of competition *(Lawson and Samson, 2001)*.

For Wang and Cheng (2013), organisational innovation capabilities are described as the capabilities to generate changes to reinforce existing services or products to innovate changes that could significantly transform the organisation *(Valenzuela-Fernández et al., 2021)*.

Keeping in mind the above definitions of innovation capability, there are other researchers who have a slightly varying approach. Rakhman believes innovation is not just product and process, but it is affected by multiple internal (strategic orientation, culture, alignment) and external factors (strategic alliances). He puts forward three propositions *(Rakhman S, 2024)*:

i) Companies that invest in the human factor, seeking to implement an environment conducive to learning, sharing information, seeking intellectual capital, and exploratory orientation, successfully establish companies by enhancing their innovative capabilities.
ii) Organisations with an innovation-focused internal organisational environment with well-defined structures, standardised systems, organisational/managerial processes and procedures, and well-designed forecasting capabilities can more easily acquire and maintain their capacity for innovation.
iii) Companies that strategically engage with their stakeholders to acquire knowledge and improve business processes can achieve and sustain their innovation capabilities *(Rakhman S, 2024)*.

The complex and dynamic interplay of corporate knowledge-sharing and organisational learning processes nurtures micro foundational sources of innovative capabilities and enables the firm to sustain a competitive advantage in rapidly changing environments *(D. Schneckenberg et al., 2015)*.
Different researchers define it differently, although each research emphasises gaining a competitive advantage and improving performance and culture.

## 2.2 **Approaches to assess innovation capability**

There are 4 types of approaches to assess the organisational innovation capabilities. The images below showcase the different approaches by researchers and group them into 4 different categories.

### Capability-based approach

Focusing on internal elements of an organisation that enable innovation, the ability-based approach evaluates skills, knowledge, and resources that let the business innovate. This process assesses a company's ability to create fresh ideas, develop them into operational goods or services, and evolve with the times. Important elements of this approach are research and development (R&D),

strategy, learning, and resources. Analysing these factors helps businesses to pinpoint areas in which their current procedures are strong and lacking. Investing in training, implementing new technology, or creating alliances will help them then to increase their capacity for innovation.

| Author | Dimension | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Manufacturing | R&D | Organizational | Resource exploitation | Learning | Marketing | Strategic | Other |
| Chen et al. (2020) | X | X | X | X | X | X | X | |
| Guan and Ma (2003) | X | X | X | X | X | X | X | |
| Guan et al. (2006) | X | X | X | X | X | X | X | |
| Jeng and Pak (2016) | | X | | | | | | |
| Lau et al. (2013) | X | X | X | X | X | X | X | |
| Lau and Lo (2019) | X | X | X | X | X | X | X | |
| Ma and Liao (2006) | X | X | X | X | X | X | X | X |
| Ribau et al. (2017) | X | X | X | X | X | X | X | |
| Ribau et al. (2019) | X | X | X | X | X | X | X | |
| Wang et al. (2008) | X | X | | | | X | | X |
| Yam et al. (2004) | X | X | X | X | X | X | X | |
| Yam et al. (2011) | X | X | X | X | X | X | X | |
| Yeşil and Doğan (2019) | | | X | | X | | X | |
| Zimmermann et al. (2020a) | X | X | X | X | X | X | X | |
| Zimmermann et al. (2020b) | X | X | X | X | X | X | X | |

*Figure 2. Capability-based approach to assessing innovation capability (Source: A. Moreira et al., 2024)*

### Organisational-based approach

Examining the organisational structure, culture, and procedures fostering innovation helps the organisational-based approach evaluate the capacity for creativity. It emphasises elements including decision-making, cross-functional teamwork, internal communication with several departments, and support of leadership. It motivates risk-taking, experimentation, and ongoing education. This approach emphasises how either internal culture may encourage or stifle creativity. It provides a whole picture of how a business should be set up from staff to management to improve creativity at all levels in the firm.

| Author | Dimension | | | | | | |
|---|---|---|---|---|---|---|---|
| | Participative leadership culture | Ideation and organization structures | Work climate and well-being | Development of know-how | Regeneration | External knowledge | Communication |
| Pekkola et al. (2014) | X | X | X | X | X | X | X |
| Sahoo (2019) | X | X | X | X | X | X | X |
| Saunila (2016) | X | X | X | X | X | X | X |
| Saunila (2017) | X | X | X | X | X | X | X |
| Saunila and Ukko (2013) | X | X | X | X | X | X | X |
| Saunila and Ukko (2014) | X | X | X | X | X | X | X |
| Saunila et al. (2014) | X | X | X | X | X | X | X |
| Ukko et al. (2016) | X | X | X | X | X | X | X |

*Figure 3. Organisational-based approach to assessing innovation capability (Source: A. Moreira et al., 2024)*

## OECD-based approach

This approach examines the capacity of the organisation to innovate both inside the business and throughout the whole nation using the OECD model. It addresses both qualitative and quantitative elements, including technology innovation, process innovation, corporate innovation, and product innovation. It lets companies evaluate their performance against global benchmarks of innovation. Focusing on technical and non-technical elements of innovation, the OECD presents a whole picture of how innovation occurs in many sectors and industries, therefore providing legislators with means to use this information across national boundaries.

| Autor | Dimension | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Organizational innovation | Product innovation | Process innovation | Marketing innovation | Administrative innovation | Management innovation | Service innovation | Strategic innovation | Technological innovation | Customer innovation |
| Ali et al. (2020) | X | X | X | X | | | | | | |
| Aljanabi (2022) | | | | | | X | | | X | |
| Arias-Perez et al. (2017) | X | | | X | | | | | X | X |
| Arshad and Arshad (2019) | | X | X | X | X | | X | | | |
| Barkat et al. (2018) | | X | X | | | | | | | |
| Dogbe et al. (2021) | | X | X | | | | | | | |
| Donate et al. (2022) | | | X | | | | X | | | |
| Fahim and Baharun (2017) | X | X | X | X | | X | | | | |
| Gyedu et al. (2021) | X | X | X | X | X | | X | | | |
| Hadj (2019) | | X | X | | | | | | | |
| Hanaysha (2020) | | X | X | X | | | X | | | |
| Hogan et al. (2011) | X | | | X | | | | | X | X |
| Hudnurkar et al. (2022) | | X | X | | | X | | | | |
| Ilmudeen et al. (2020) | | X | X | | | X | | | | |
| Indarti (2012, 2017) | | X | X | | | | | | | |
| Iranmanesh et al. (2021) | X | X | X | X | | | | | | |
| Liao et al. (2015) | X | X | X | X | X | | X | | | |
| Liao (2021) | X | X | X | X | | | | | | |
| Lin et al. (2010) | X | X | X | X | X | | X | | | |
| Mahmud et al. (2017) | X | X | X | X | | | | | | |
| Migdadi (2021) | X | X | X | X | X | | X | | | |
| Migdadi (2022a; 2022b) | | X | X | | | | X | | | |
| Siahaan and Tan (2020) | X | | | X | | | | | X | X |
| Stelmaszczyk (2020) | | X | X | | | X | | X | | |
| Sulistyo and Ayuni (2020) | X | X | X | X | X | | X | | | |
| Taneo et al. (2017) | X | X | | X | | | X | | X | |
| Verma and Rao (2016) | | X | X | | | | | | | |
| Vu (2020) | X | X | X | X | | | | | | |
| Wang, Yang et al. (2020) | X | X | X | X | X | | X | | | |
| Wonglimpiyarat (2009) | | X | X | X | X | | X | | | |

*Figure 4. OECD based approach to assessing innovation capability (Source: A. Moreira et al., 2024)*

### Other Approaches

| Author | Dimension |
|---|---|
| Lawson and Samson (2001) | Vision and strategy, leveraging the skills base, organizational intelligence, creativity and idea management, organizational structure and systems, culture and climate, and technology management |
| Martínez-Román et al. (2011) | Knowledge, human factor and organization |
| Björkdahl and Börjesson (2012) | Innovation strategy, prioritization, culture, idea management, external environment and linkages, implementation, decision systems and rules, and organizational context and learning |
| Saunila and Ukko (2012) | Leadership and decision-making processes, organizational structures and communication, collaboration and external links, organizational culture and climate, and individual creativity and know-how |
| Dadfar et al. (2013) | Strategy, learning, linkages and organization |
| Iddris (2016) | Idea management, idea implementation, collaboration, and learning |
| de Vasconcelos and de Oliveira (2018), Reichert et al. (2016), Alves et al. (2017), Leo et al. (2022), Pufal and Zawislak (2022) | Development capability, operations capability, management capability, and transaction capability |
| Taghizadeh et al. (2018) | Innovation quality and innovation speed |
| Raghuvanshi et al. (2019) | Resource, process, interactive environment, and organizational attributes |
| Le (2020) | Radical and incremental innovation |
| Kolbe et al. (2021) | Innovation, strategic capability, and technology capability |
| Jalil et al. (2022) | Strategic planning, leadership management, and knowledge management |
| Dhliwayo and Chebo (2022) | Process, product, marketing, R&D and knowledge ICs |
| Daronco et al. (2023) | Strategy, leadership, structure and system, and culture |
| Kolbe et al. (2022) | New product development, innovativeness, innovation strategy, and technological innovation |

*Figure 5. Other approaches to assessing innovation capabilities (Source: A. Moreira et al., 2024)*

## 2.3 **The World of Frameworks – Framework Analysis**

This section of the thesis explores various frameworks created by different researchers. These frameworks would also be analysed on the basis of the advantages and limitations of their implementation.
By conducting this analysis, this section will highlight the scenarios these frameworks are best for and also find gaps for improvement.

### Design Thinking Framework

The design thinking framework focuses on three main factors to innovate:

1. Desirability
2. Feasibility
3. Viability

This framework enables teams/companies to make products/services that are desirable for humans, feasible technologically, and economically viable *(Brown and Katz 2009)*.

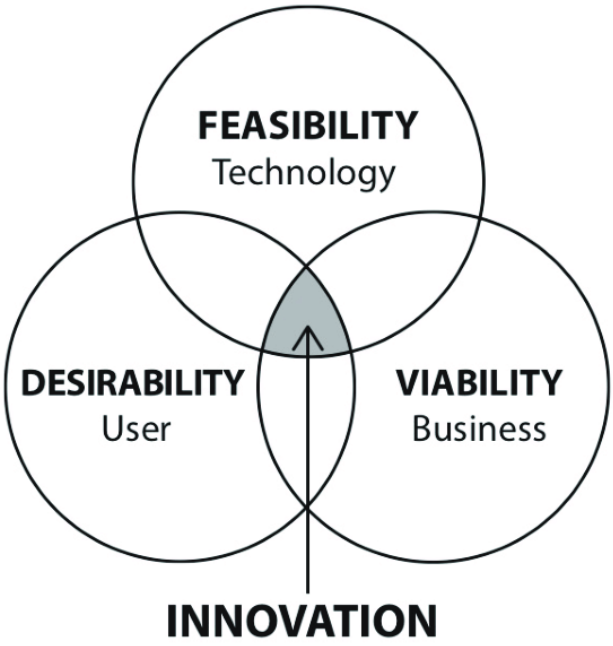


*Figure 6. Design Thinking Framework by Tim Brown (Source: ResearchGate)*

IDEO's is the torchbearer for this framework since it was invented. There's no single definition for design thinking. It's an idea, a strategy, a method, and a way of seeing the world. It's grown beyond the confines of any individual person, organisation, or website *("IDEO Design Thinking")*.

This framework generally follows the following steps:

1. Empathy: Understanding the user by observing and talking to them to identify the problems.
2. Define: Compiling and synthesising the information to define the problem statement.
3. Ideate: Brainstorming without judgement to explore maximum possibilities.
4. Prototype: Creating low-cost prototypes to test in real-world scenarios.
5. Test: Getting real user feedback and insights to refine and improve the product.

Advantages

The design thinking framework is excellent for empathy-driven problem solving

and prototyping. It is also very versatile and can be adapted in various industries. The framework is easy to understand and can be used by anybody.

Limitations

The framework does not focus on scalability and execution. There is a possibility of misalignment with business objectives.

**Innovation Maturity Model**

There are multiple versions of maturity models created by different firms and researchers but all of them outline similar maturity levels.

| LEVEL ONE | LEVEL TWO | LEVEL THREE | LEVEL FOUR | LEVEL FIVE |
|---|---|---|---|---|
| Investigating | Implementing | Capable | Effective | Excellence |
| We realize we need to develop our innovation capability | We have begun implementing better innovation capability | We are capable and have implemented good innovation management practices | Practices we have developed have improved over time and are becoming mature | We have achieved / demonstrated excellence in innovation management capability |
| No significant revenue/ value, or strategic impact from new products, services or processes | Moderate impact | Significant impact | Major impact | Ongoing major impact |

*Figure 7. Innovation Maturity Model (Source: Innovation Maturity Levels TIM foundation 2021)*

A typical maturity model would have the following steps:

1. Initial level: In the initial stage, innovation often happens inconsistently. The focus is mostly on the short-term problems rather than long-term innovation strategy.

2. Emerging level: Some amount of processes and structures are visible at this stage. An organisation at this stage knows the importance of innovation. The focus at this stage is building awareness and structure about innovation.
3. Defined level: At this stage, processes are implemented for innovation from idea generation to execution. The focus is strategic initiative in organisations.
4. Managed level: In the companies that are at this stage, innovation is measurable with KPIs and ROI. They have a culture of continuous improvement and the focus is mostly on efficiency and sustainability.
5. Optimised level: This is the highest level of innovation integration into the organisation. The only focus at this stage is achieving sustainable long-term innovation.

Advantages

The innovation maturity model is good for measuring and monitoring innovation; it provides a clear roadmap for innovation and improves strategic alignment.

Limitations

This framework might not be so useful for small organisations and startups as they don't have resources to plan the steps for the model. Additionally, there is a risk of innovation fatigue in employees due to constant pressure to innovate.

**BCG's i2i Innovation Benchmarking Tool**

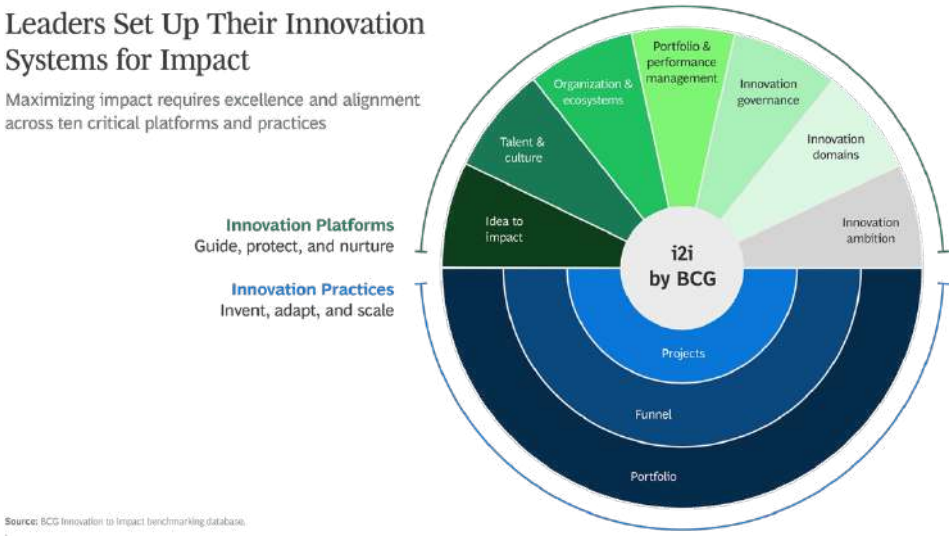


*Figure 8. BCG's i2i Innovation Benchmarking Tool (Source: www.bcg.com)*

The i2i (Idea to Impact) Innovation Benchmarking tool is created by Boston Consulting Group to help organisations check if they are ready for innovation. It also helps them measure how well they convert ideas to impactful solutions. It focuses on ten innovation system factors important for innovation success. Seven factors describe the health of your innovation platforms—your innovation strategy plus the operating model and critical capabilities that support it. And three evaluate the specific practices that drive a portfolio of projects to maximum impact *(BCG, 2021)*.

Five aspects of the Innovation Readiness *(Manly et al. 2021)*

1. Clear Ambition: To make sure innovation efforts are aligned with company goals along with strong leadership support.
2. Innovation Domains: To focus on specific opportunities that give competitive advantages and meet user needs.
3. Performance Management: To apply performance indicators like KPI (Key Performance Indicator) and ROI (Return on Investment) to judge the result of innovation efforts.
4. Project Management: When small and flexible teams work together to deliver results efficiently.
5. External Collaboration: To collaborate with other external organisations to support innovation efforts.

Advantages

The BCG's i2i Innovation Benchmarking Tool focuses on the end-to-end innovation process, starting from ideation to commercialisation. It is also decently comprehensive and business-orientated.

Limitations

The framework overemphasises measurable returns. It also ignores psychological factors and employee experience.

**Agile Innovation Framework**

The Agile Innovation Framework is an approach of using Agile principles for the innovation process. It helps businesses to respond quickly and effectively to customer and market needs. Agile methods were initially created for building software, and they are based on the ideas of flexibility, continuous improvement, and customer feedback. The Agile Innovation Framework creates an environment that encourages testing and quick changes.

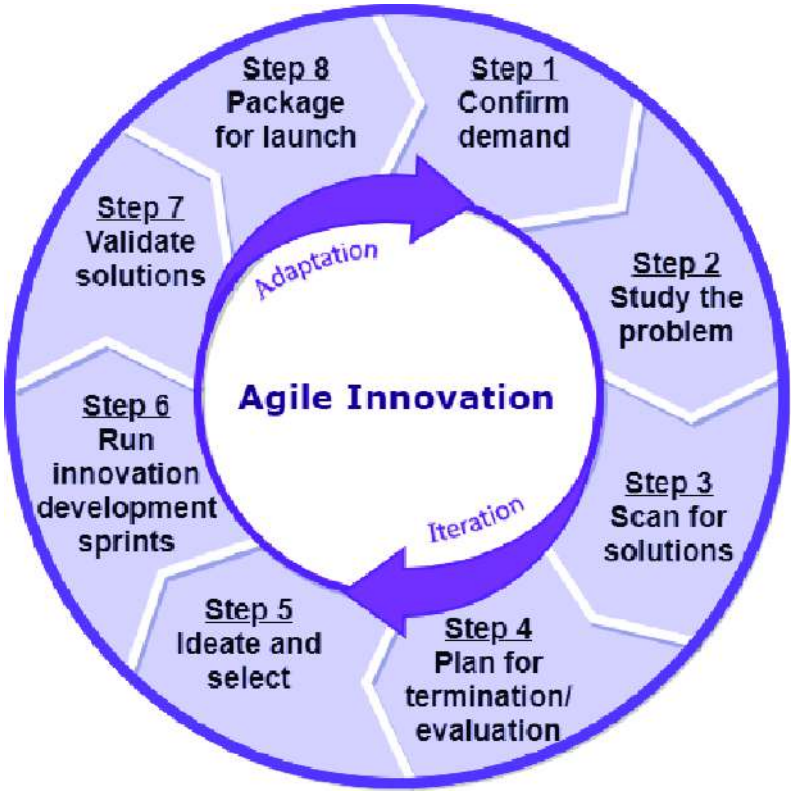


*Figure 9. The eight-step Agile Innovation process (Source: ResearchGate)*

Key Components of the Agile Innovation Framework

1. Cross-Functional Teams: The framework promotes collaboration among teams that bring together different skills and perspectives. Diversity promotes creativity and problem-solving as team members brainstorm and collaborate *(StarAgile, 2024)*.

2. Iterative Development: Sprints assist in identifying and resolving issues rapidly, resulting in faster and more reliable results *(Qmarkets, 2024)*.

3. Rapid Prototyping: Rapid prototyping allows teams to fail fast and learn quickly, minimising the risks of new innovations *(StarAgile, 2024)*.

4. Customer Feedback: Engaging customers early ensures that products and services meet user needs and allows for direct feedback *(Qmarkets, 2024)*.
5. Continuous Improvement: The framework encourages teams to regularly evaluate their processes and results. The analysis highlights possibilities for growth and promotes learning.

Advantages

The agile innovation framework focuses on increased flexibility that allows companies to respond swiftly, faster time-to-market, enhanced collaboration, and a customer-centric approach to increase satisfaction and market success.

Limitations

The agile framework usually focuses on short-term enhancements and might neglect long-term innovation. Organisations can also face cultural resistance from accustomed employees.

**Oslo Manual Framework**

The Organisation for Economic Co-operation and Development (OECD) published the Oslo Manual framework as a way to measure innovation in different areas. The manual has been updated multiple times since it was first published in 1992, which showcases the evolving nature of innovation and the economy. The latest edition, which came out in 2018, adds not only technological developments but also organisational and marketing innovations to the list of things that can be measured as innovations. This gives a complete and broad picture of innovation practices.

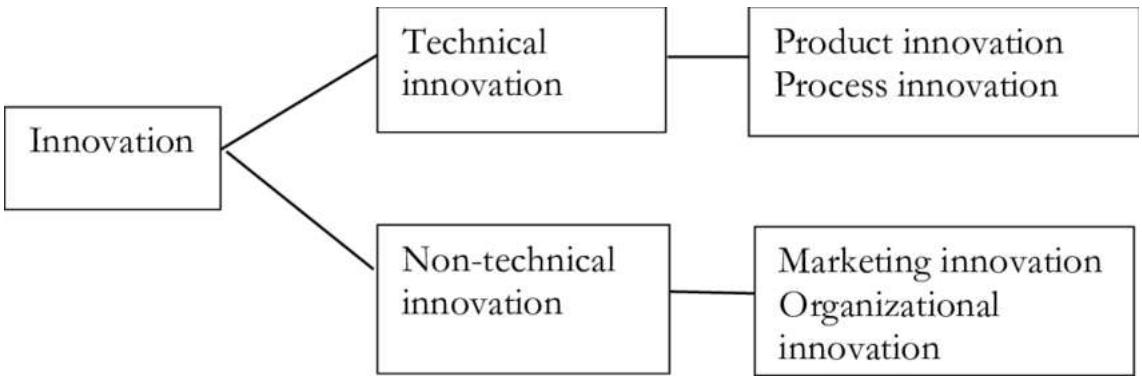


*Figure 10. Classification of innovation by type, according to the Oslo Manual (Source: Žižlavský O., 2020, p.1299[18])*

Key Components of the Oslo Manual Framework

The Oslo manual differentiates innovation into 4 types.

1. Product Innovation
2. Process Innovation
3. Organisational Innovation
4. Marketing Innovation

The framework also focuses on partnerships/collaborations and knowledge flows. It highlights that knowledge flows are necessary for an organisation/team to innovate. The partnerships also significantly impact the innovation outcomes *(OECD, 2018)*.

Advantages

The Oslo Manual gives a consistent way to measure innovation and it gives a complete picture of how businesses come up with new ideas by observing various types of innovation. The framework is also a useful tool for lawmakers who want to support innovation in their economies.

Limitations

The Oslo Manual can be difficult for smaller organisations to implement because of its complex data requirements. It might also struggle to keep up with rapidly changing innovation trends and can neglect qualitative aspects of innovation.

## 2.4 **Research Gaps**

Organisational innovation is the key factor that drives competition and adaptability in today's fast-paced industry. However, the existing frameworks used for assessing the innovation capability of an organisation and improving it are often created and used for specific scenarios. They have gaps that limit their use and effect in the modern work environment.

**Human-Centric Factors**

Many frameworks ignore the important human-related aspects, such as leadership styles, psychological safety, and diversity. The creativity and risk-taking attitude that enhance innovation come through leadership *(Edmondso1999; Goleman, 2000)*. Psychological safety allows the team to experiment without fear of consequence, and this behaviour is important for learning *(Edmondson, 1999)*. Additionally, diversity in the team brings different perspectives and improves creativity and problem-solving capabilities *(Page, 2007)*. The frameworks that ignore these factors impact the human foundations of innovation.

**Integration Across Frameworks**

It is often difficult for organisations to combine process-related frameworks like the agile innovation framework and the lean framework with cultural and behavioural aspects. The lack of harmony leads to a loss in efficiency, leading to less effectiveness of innovation efforts *(Tidd & Bessant, 2009)*. A coherent approach to integrating both procedural and behavioural aspects is important for effective innovation *(Crossan & Apaydin, 2010)*.

**Adaptability to Different Contexts**

Most frameworks are created for specific industries or specific organisational sizes, most of them focusing on medium and larger organisations, which makes them unsuitable for different environments like start-ups, NGOs, or hybrid models. Startups that have limited resources require adaptable frameworks *(Ries, 2011)*. Larger organisations that have more resources and more complex structures need scalable frameworks to support that complexity. This rigid nature limits the application of frameworks *(Christensen et al., 2015)*.

**Metrics and Impact Assessment**

Traditional frameworks focus mainly on short-term financial metrics like ROI, revenue growth, cost savings, etc., and ignore the softer aspects like employee engagement, organisational learning, and adaptability *(BCG, 2021*). These intangible factors play an important role in long-term innovation *(Kaplan & Norton,*

*1996)*. Without proper tools to measure these aspects, it becomes difficult for organisations to get insights into these factors and refine their strategy.

**Sustainability and Ethical Considerations**

The importance of sustainability and ethics is increasing. But most frameworks do not prioritise ESG (environmental, social, and governance) factors *(Elkington, 1997)*. Aligning innovation with the UN SDGs (sustainable development goals) is becoming a crucial factor for modern organisations *(UN, n.d.)*. Not integrating these factors into frameworks limits their relevance and effect in a world that is continuously increasing its focus on sustainable practices.

**Technology Integration**

The emerging technologies like AI, blockchain, and IoT have changed the innovation landscape, yet many frameworks fail to incorporate them effectively *(Brynjolfsson & McAfee, 2014)*. These technologies help in faster decision-making, operations, and scaling. Frameworks that do not leverage these technologies risk falling behind in the tech world of business.

**Dynamism in Organisational Structures**

Traditional frameworks usually use static organisational structures. It does not showcase the dynamic and complex models of modern organisations *(Mintzberg, 1989)*. Companies that have hybrid models or decentralised structures often need innovation strategies that assist change *(Snow et al., 1993)*. They need a dynamic approach to stay relevant in the business scenario.

**Incorporation of Modern Work Concepts**

The paradigm shift of “new work” after COVID-19 promotes remote collaboration, flexible work, employee empowerment, and change in traditional policies. This shift is ignored by traditional frameworks *(Gratton, 2011)*. As remote work and digital collaboration have become industry standards, innovation frameworks must integrate tools and strategies to support these changes *(Bloom et al., 2013)*.

Addressing these gaps with a more holistic and adaptable approach can enable organisations to thrive in today's rapidly changing environment.

## 2.5 **Factors that affect the innovation capability of an organisation**

To assess the organisational innovation capacity, a multidimensional approach is required that will take into consideration the internal and external factors that determine the ability of an organisation to create new ideas and manage and sustain them.
The list below compiles all the factors that affect this capability that are supported by academic and industry sources.

**Vision & Leadership**

1. Innovation Strategy: The innovation goals of an organisation have to be aligned with the organisational vision to achieve consistent progress *(Tidd and Bessant 2009)*.
2. Leadership Commitment: If the top management is supportive and is actively involved, it can drive innovation in an organisation *(Crossan & Apaydin, 2010)*.
3. Transformational Leadership: The organisation where leaders inspire and guide the teams to be creative generally promotes a creative environment *(Bass & Riggio, 2006)*.
4. Risk Appetite: The outcome of any innovation effort is impacted by the willingness of the leader to accept uncertainty and the willingness to take risks *(Lawson & Samson, 2001)*.

**Organisational Culture**

1. Innovation Culture: A culture that promotes creativity and experimentation allows organisations to innovate consistently *(Ahmed, 1998)*.
2. Psychological Safety: To suggest new ideas, the employees need to feel safe in the organisational environment without having the fear of criticism or failure *(Edmondson, 1999)*.

3. Openness to Change: A company that has an adaptable culture is more likely to adopt methods that lead to innovation *(Kotter, 1996)*.
4. Reward and Recognition: The acknowledgement of employees who innovate is directly proportionate to the efforts they put in. If their efforts are recognised, they keep putting in consistent efforts *(Tidd & Bessant, 2009)*.

**Resources and Capabilities**

1. Financial Resources: Assigning a sufficient budget for research and development and innovation projects is important *(OECD 2005)*.
2. Human Resources: Having a talented team/workforce is important. It brings different opinions and perspectives together that promote innovation *(Lawson & Samson, 2001)*.
3. Technological Infrastructure: Having access to modern tools and the latest technologies promotes innovation *(Tidd & Bessant, 2009)*.
4. Time Allocation: Giving employees some time to explore and create new ideas supports creativity *(Krasteva, Liad, and Sharma 2015)*.

**Processes and Structures**

1. Idea Management: A structured system for compiling and prioritising ideas ensures actionable outcomes *(OECD 2005*).
2. Project Management: It is important to have a structured plan and efficient processes for executing and scaling innovation projects *(PMI, 2021)*.
3. Agility and Flexibility: Organisations should have adaptive processes to respond to future challenges and opportunities *(Lawson & Samson, 2001)*.
4. Cross-Functional Collaboration: Collaboration between departments brings expertise from various fields, which leads to innovation *(Tushman & O'Reilly, 1997)*.

**External Engagement**

1. Market Orientation: Understanding customer needs and market trends is very important to innovating a relevant solution *(Narver & Slater, 1990)*.
2. Open Innovation: Collaborations with other stakeholders like startups and academic institutions encourage new ideas *(Chesbrough, 2003)*.
3. Ecosystem Participation: Getting involved in your industry's innovation ecosystem gives access to resources and networks *(Adner, 2006)*.
4. Customer Involvement: Including the customers in the creation phase ensures the product market fit *(Von Hippel, 2005)*.

**Knowledge and Learning**

1. Knowledge Management: The systems for transferring and leveraging organisational information enhance innovation *(Nonaka, 2007)*.
2. Continuous Learning: The organisation investing in employee training builds necessary innovation skills *(Garvin, 2000)*.
3. Trend Monitoring: Staying up to date about the latest technological advancements ensures the relevance of a product in the market *(Tidd & Bessant, 2009)*.

**Innovation Outcomes**

1. Product Innovation: Building new or improved products and services signifies innovation capability *(OECD, 2005)*.
2. Process Innovation: Making quality improvements in internal processes/operations and making them efficient ensures better outcomes *(Tidd & Bessant, 2009)*.
3. Business Model Innovation: Improving how the product/service is created and the way it reaches the audience creates a competitive advantage *(Osterwalder and Pigneur 2010)*.
4. Sustainability and Impact: To succeed in the 21st century, organisations should consider environmental and social challenges and effects that add long-term value *(Elkington 1998)*.

**Strategic Alignment**

**1.** Alignment with Business Goals: To deliver value to the audience, the organisation must ensure the innovation efforts are in line with the organisational objectives *(Lawson & Samson, 2001)*.

2. Resource Prioritisation: The prioritisation of resources for high-impact projects maximises returns *(Tidd & Bessant, 2009)*.

**Performance Measurement**

1. KPIs and Metrics: Measuring performance across four perspectives—financial, customer, internal processes, and learning and growth—helps organisations align their efforts towards innovation *(Kaplan and Norton 1996)*.

2. Benchmarking: The gaps and opportunities are identified by comparing the organisation's innovation efforts with industry leaders *(OECD, 2005)*.

3. Employee Engagement: Keeping track of employee participation in innovation initiatives shows the cultural readiness of an organisation *(Clifton and Harter, n.d.)*.

**Dynamic Capabilities**

1. Sensing Capabilities: Assessing upcoming opportunities and threats is crucial for a proactive innovation approach *(Teece, 2007)*.

2. Seizing Capabilities: Engaging resources to take advantage of identified opportunities guarantees responsiveness. *(Teece, 2007)*.

3. Reconfiguration Capabilities: Adjusting resources and processes to meet innovation objectives builds adaptability. *(Lawson & Samson, 2001)*.

**Digital and Technological Readiness**

1. Digital Transformation: The speed and scalability can be improved by leveraging the digital technologies *(Westerman, Bonnet, and McAfee 2014)*.

2. AI and Data Analytics: Advanced tools help organisations in better decision-making and predicting trends *(McAfee and Brynjolfsson 2017)*.

3. Cybersecurity: Protecting the organisation’s intellectual property and digital assets is important *(Tidd & Bessant, 2009)*.

**Risk Management**

1. Risk Assessment: Identifying and assessing the risks associated with innovation helps organisations to be prepared *(PMI, 2021)*.
2. Scenario Planning: Systematic prediction helps companies with handling uncertainty *(Schoemaker 1995)*.
3. Compliance and Ethics: Ensuring that technologies comply with laws and ethical standards develops trust *(Lawson & Samson, 2001)*.

**Market and Competitive Environment**

1. Market Responsiveness: Adapting to the market and the customer needs quickly improves relevance *(Narver & Slater, 1990*).
2. Competitive Advantage: The market leadership and competitive advantage are maintained by differentiation through innovation *(Porter 1985)*.
3. Scalability: The ability to scale the solution ensures market impact *(Tidd & Bessant, 2009)*.

**Diversity and Inclusion**

1. Cognitive Diversity: Different perspectives improve problem-solving capability and creativity. Organisations can leverage this logic to be more innovative and productive *(Page, 2007)*.
2. Inclusive Practices: Leveraging different employee backgrounds improves the innovation process and leads to better decision-making *(Hunt, Prince, and Dennis Layton 2015)*.

## 2.6 **Artificial Intelligence**

Artificial intelligence (AI): has become an innovation that is enhance in so many ways different sectors. This paper will discuss various AI technologies, how they work and various sectors they are used in.

**Overview of AI Technologies**

AI pertains to a wide range of technologies that act as well as think like human beings. Key areas include:

**Machine Learning (ML)**

A category of artificial intelligence that allows a system to get better at performing certain tasks with time without having to be coded or rewired. In using data, ML algorithms aim at predicting or deciding based on the pattern it identifies within the data. For example, the purchasing and selling websites employ ML in an endeavour to suggest products depending on the consumer's preferences *(Chen et al., 2020)*.

**Natural Language Processing (NLP)**

This technology has to do with computer processing of natural language similar to that of a human being. NLP is a strong pillar of chatbots and virtual assistants that improve customer care resulting from prompt replies to questions *(Hirschberg & Manning, 2015)*. It also supports emotion detection which is useful for businesses that want to know the general perception about their products of the public via the social media or online reviews *(Cambria et al., 2017)*.

**Computer Vision**

This field allows machines to understand images from the world and make reasoning using those images. Some of the uses include; facial recognition in security systems to Industrial quality control where the images taken are analysed for defects *(Goodfellow et al., 2016)*. Computer vision is also valuable in the self-driven vehicles, due to their ability to perceive roads by analysing them *(Esteva et al., 2017)*.

**Robotics Process Automation (RPA)**

RPA is an and approach to automating work that involves emulating human behaviour at the application level. The algorithm is particularly useful in repetitive tasks such as data entry and processing to relieve the human work force and

minimise on errors *(Aguirre & Rodriguez, 2017)*. RPA can be integrated with AI, which is generally more flexible, and thus able to change its behaviour in relation to processes it has to execute with little additional programming *(Willcocks et al., 2015)*.

**Generative AI**

This technology generates new content in text, image or music form using the learned patterns from input data. There are countless techniques available, and main examples include Generative Adversarial Networks (GANs) that include two different neural networks playing against each other in an attempt to enhance the quality of the results produced *(Goodfellow et al., 2014)*. Uses are for something like realistic imagery for a selling point or for generating fake data for use in other neural networks.

**Artificial General Intelligence (AGI)**

Despite being mostly conceptual, AGI stands for machines that can perform any task that a human can reason or accomplish. Achievement of AGI would represent a significant step forward in AI's ability to arrive at ever better solutions to widely ranging problems in almost every field *(Goertzel, 2014)*.

**Deep Learning**

A type of artificial intelligence related with learning from data with the use of multiple layers of artificial neural networks. These include picture recognition and NLP because the deep learning is very good at handling of unstructured data like audio and image *(LeCun et al., 2015)*.

**AI Technologies' Capabilities**

**1. Task Automation**

What I found to my surprise is that AI is perfect for handling endless and tedious jobs. Apart from increasing efficiency, this ability allows employers to direct people to more complex work. Robots with features supported by AI for example, can

methodically accomplish duties required in assembly line production in manufacturing hence reducing costs and increasing efficiency *(Autor, 2015)*.

**2. Enhanced decision-making**

Decision making AI systems are able to compare enormous amounts of data in a shorter period of time than is possible with human intervention. AI use helps to solve problems and make decisions in different fields, such as marketing, healthcare, and finance since it sees patterns that an analyst would not notice. As the analysis of the previous data has shown, it is possible to predict patients outcomes with the help of AI systems and assist doctors in making correct decisions on patients treatment *(Topol, 2019)*.

**3. Greater accuracy and less error rates**

Since artificial intelligence premptively applies algorithms to tasks such as data entry and analysis, it eliminates human error. Helping detect issues that may appear further on or fail to adhere to the rules and norms that are supposed to be followed by the industries where the accuracy is highly significant, like a healthcare or finance, AI systems prove helpful to maintain the rules and norms *(Brynjolfsson & McAfee, 2014)*.

**4. Ongoing education and Adjustment**

They are relative to one another, so they are placed in parallel: The models the machine learning uses improves as it gets exposed to new data information. Due to this flexibility, managers are in a position to move around their plans depending on real information. For instance, to determine when to change their stock online retail stores rely on predictive analytics that analyse customer behaviour patterns and trends *(Nguyen et al., 2018)*.

**5. The ability to scale**

While there may be no proportional increase in cost, AI technology may help organisations increase their capacity to solve problems as the caseload increases. Another benefit of this concept especially for companies that are growing rapidly or

those having the natural fluctuation in demand. Using cloud based artificial intelligence technologies, businesses may improve their performance without having to lay out a lot of money on infrastructure *(Jordan & Mitchell, 2015)*.

**6. Constant Accessibility**

AI systems can work for longer hours without stoppage, or being laid off in the process. This feature is more beneficial for the customer support applications due to chatbots availability for 24/7 while enhancing user experience as well as reducing costs *(Luo et al., 2019)*.

**Uses in Various Industries**

**Healthcare**: The use of AI in diagnostics is also represented by outcome prediction on patients and image processing, such as tumour detection in radiology *(Esteva et al., 2017)*. In operations surgical robots reduce error rates *(Topol, 2019)*.

**Finance**: In banking, AI systems employ immediate spending behaviour patterns analysis to pick potential fakes. Robo-advisors provide personalised investing advice depending on the client's investment goals *(Bussmann, 2017)*.

**Retail**: Retailers apply AI to both manage inventory and provide tailored advertisements based on consumers' behaviour *(Greene et al., 2020)*. Applications that rely on computer vision work to enhance the decision-making processes of buyers during internet shopping.

**Transportation**: Every time self-driving cars need to make little corrections to stay on the road or react to a road situation, they rely on computer vision and machine learning. Logistics also helps in usage of AI with the purpose of achieving shortest route and better delivery time *(Litman, 2020)*.

Manufacturing: Robots operated by AI are key in enhancing the production line and quality assurance in smart manufacturers *(Ivanov et al., 2018)*.

# 3. Methodology

A qualitative method was used for the thesis, which means that founders and experts were interviewed. A literature review is also part of this study to find out how innovative small and medium-sized businesses (SMEs) are and how they can get better at it. The goal of this method is to create a complete framework that encourages corporate innovation by combining ideas from theory and practice in the real world.

**Review of the Literature**

The foundation for understanding the present frameworks and models connected with innovative capacities is established by the review of the literature. Systematic analyses were conducted of relevant studies on organisational capacity and innovation management. This set a theoretical basis and highlighted the shortcomings in modern innovation methods, most especially in small and medium-sized businesses. Four main categories dominated the assessment: change management, the application of technology in innovation processes, organisational and capability-based approaches, and the elements influencing the inventive capacity of companies. Analysing these domains helped the research to pinpoint important elements that might be added to the suggested SMEs' structure.

**Qualitative Interviews**

Two SME founders and two innovation consultants were questioned qualitatively to further enhance the literature review. These interviews aimed to provide a comprehensive awareness of the realistic challenges SMEs face in encouraging innovation and to find out how these challenges could be resolved by means of targeted strategies.

Leading groups of 11 to 50 people, the entrepreneurs talked about how they broke through obstacles to innovation like business culture, a lack of resources, and market competitiveness. Emphasising the need in matching innovation activities

with organisational goals as well as current industry trends and best practices, the innovation experts presented a more complete picture.

While allowing the research of relevant concerns, the semi-structured approach of the interviews covered all the required bases including innovation challenges, strategies, and artificial intelligence integration. The data from the interviews underwent thematic analysis to identify recurring themes during framework building.
Integration of qualitative data from interviews and literature review guaranteed a thorough knowledge of both theoretical concepts and practical applications, therefore enabling the construction of a framework catered to suit the creative demands of SMEs.

## 3.1 **Founder Interviews**

### **Founder 1: Sujit Roy**

#### **Key Takeaways**

BrainAlive moved from EEG hardware to software (FOCII) in the course of COVID-19 keeping its emphasis on human participation while also responding to the conditions of the market. Companies must have a clear goal if they want to develop; resource constraints should stimulate creative ideas (such as maximising artificial intelligence for limited GPUs). COVID-19 has brought with it challenges such as reluctance to go back to the office, trouble communicating when working remotely, and the need for structured tools including Slack. Among the next improvements in artificial intelligence are foundational models, planning tools, blockchain data hosting, and quantum computing innovations.

#### **Summary of the Interview**

Deeply engaged in both technical and strategic innovation, Sujit Roy co-founder and Chief Scientific Officer at BrainAlive and Lead AI Scientist at NASA. His

priorities at BrainAlive are creating AI models, forming strategic alliances, supervising R&D, and expanding technologies to satisfy consumer needs. The company specialises in using artificial intelligence to combine bio-signals to improve user interaction. Sujit showcases his knowledge in many fields at NASA, working on large-scale artificial intelligence model building, training foundation models on massive datasets.

Sujit describes innovation in two main respects. Technically, innovation involves large-scale foundation model training using petabytes of data (at NASA) and refining AI models to work well on restricted GPU resources (at BrainAlive). Furthermore underlined by him is process innovation—that is, organisational process improvement meant to boost staff retention and efficiency. Through a parsimonious attitude, his cross-disciplinary approach combines ideas from physics into computer science, so encouraging creative solutions within limited resources.

Sujit made one of important organisational choices moving BrainAlive from Coimbatore to Noida. This action gave better access to talent, enhanced connectivity inside India, and chances for international cooperation—like those presented by the University of Manchester. This change also led to professional development and gave staff members the top-notch research exposure.

Regarding startup innovation strategies, Sujit emphasises the need of keeping a clear vision and of adjusting to market changes without losing attention on the central goal. Starting with EEG helmet hardware and turning to the software platform FOCII during COVID, BrainAlive's path is a shining illustration. Currently reintegrating EEG capabilities for a complete solution, they created a multi-modal artificial intelligence engine for engagement assessment. Customer success and simplicity of use remain top concerns; possible rewards include cryptocurrencies for data contributions help to drive these factors.

After COVID-19, BrainAlive battled remote work including employee reluctance to return to the office, inadequate communication, and juggling of work-life relations. Sujit used disciplined communication systems like Slack and Trello to handle issues, then progressively sent staff members back into the office. Manufacturing

bottlenecks also spurred a change from hardware to a software-centric perspective.

Looking ahead, Sujit finds great promise in artificial intelligence developments like the emergence of foundation models and the necessity of AI with actual planning capacity. Along with potential effects of quantum computing on artificial intelligence, he also expects blockchain integration for data hosting and user rewards. Still, there are difficulties including distributed artificial intelligence models across networks; but he sees semi-decentralised solutions as a possible fix.

**Founder 2: Zhanna Manzyk**

**Key Takeaways**

To increase output, creativity, and personal development, the firm includes mindfulness techniques including meditation and retreats into its work culture. Supported by consistent feedback and quick testing of new ideas, Jaya Talent tracks industry trends, learns from rivals, and promotes a culture of idea-sharing, therefore fostering innovation.

**Summary of the Interview**

Focussing on hiring across Europe, the MENA area, Asia (Singapore), and the United States (New York and San Francisco), Jaya Talent is a recruitment agency specialising in blockchain and crypto sectors. Their customers comprise mid-level tech and non-technical positions as well as C-level executives. Jaya Talent approaches innovation more in terms of separating themselves from other recruiting firms than in terms of rigorous analytics. Among their notable projects are a special ambassadorship program that provides jobs to excellent candidates while teaching community management and design techniques. Furthermore, previously unpaid, their successful recommendation program now pays a $500 incentive for every successful referral, helping to account for 70% of their hired employees.

The organisation describes innovation as the capacity to distinguish out by stressing specialist sectors like Web3 and blockchain and simultaneously including

mindfulness techniques into their work culture. To promote meditation in order to increase productivity and creativity, Zhanna as a founder, supports mindfulness approaches and organises meditation retreats for her employees. This approach encourages long-term objectives and facilitates both personal and professional growth of an employee.

Jaya Talent monitors sector trends including artificial intelligence in recruitment and draws lessons from rivals and other sectors to guarantee creativity. Having one-on-one meetings and sharing ideas in group chats along with regular feedback sessions helps keep the flow of new ideas going. Short cycles rapidly test ideas, usually inspired by the achievements of rivals. With team members generally hired from companies like AIESEC, known for supporting service and personal development, the team atmosphere fosters innovation.

Jaya Talent is a young organisation with limited data to gauge creativity, but they rely on social media interaction, community development, and before-and-after comparisons to evaluate the effect of new projects. They understand that while a less busy staff is more likely to come up with ideas, manual chores can stifle creativity during peak demand.

The innovative approach of Jaya Talent revolves mostly around mindfulness practices. The founder thinks that practices like meditation and pranayama can lower stress, increase output, and cultivate a good, thankful attitude—qualities that are essential to releasing creativity and propelling invention. The founder's participation in worldwide projects endorsing mindfulness—including attempts to include meditation into corporate and governmental policies—helps to underline this spiritual approach even more.

## 3.2 **Expert Interviews**

### Expert 1: Harald Goegl

#### Key Takeaways

Harald's strategy for innovation is based on design thinking and agile approaches, with a particular emphasis on cultural and team values. Because of their rigid structures, large organisations have difficulty innovating, whereas small and medium-sized businesses have an advantage in terms of agility. Increasingly advantageous for smaller businesses, artificial intelligence is increasingly boosting innovation processes. The driving force behind innovation capabilities is the promotion of an experimental culture.

#### Summary of the Interview

Harald's creative approach combines design thinking with agile techniques highlighting the need of team dynamics, communication, and organisational culture. Beginning at the School of Design Thinking in Potsdam, he has worked with big companies like Deutsche Telecom and Accenture for more than ten years, emphasising inculcating a startup attitude inside more established companies. At Maxpert, Harald is a trainer and innovation lead now interacting with customers via design sprints and hackathons.

Customised to fit every customer, his innovative approach comprises of four main phases: understanding and reframing, research, synthesis, ideation, prototyping, and testing. Emphasising the need of "creative confidence," he exhorts individuals to solve problems. Design thinking is still a great tool for innovation even if it is becoming very commoditised.

Harald also added that small and medium-sized enterprises (SMEs) have more agility than larger corporations which could suffer from rigorous structures and long approval procedures. As AI enables organisations to follow processes efficiently, he sees it as an enabler to drive rapid innovation in small and medium-sized organisations.

The shift to new work paradigms after COVID has also impacted innovation and produced cooperative settings that encourage uniqueness. Still, the acceptance of these concepts differs globally; nations like India see more fast development than stressed economies like Germany.

**Expert 2: Miikka Paakkinen**

**Key Takeaways**

In terms of innovation consulting, large and small companies differ fundamentally; the most significant contributing factors are resource constraints, bureaucracy, and implementation pace. Successful innovation depends on both strategy alignment and a portfolio approach to initiatives as well as the support of leaders. Artificial intelligence is rapidly changing the job of innovation consultant even if it is not yet able to totally replace human knowledge. Small and medium-sized businesses (SMEs) who wish to increase their capacity for innovation must have a thorough awareness of the challenges their consumers experience.

**Summary of the Interview**

Having a Master's in Service Innovation and Design from Helsinki, Miikka has a varied experience in consulting many different fields. Having worked with Finnish public sector customers at Wunder, European corporations during his tenure at Futurice in Berlin, and now as an independent consultant focussing in venture building, customer experience, and business model innovation, he has With an eye on creative service design, his expertise covers startups, NGOs, and major companies.

Miikka emphasises the main variations between advising for SMEs and big companies. Because of bureaucratic obstacles, smaller businesses with limited resources have tighter budgets for innovation but can make changes far faster—often within days—than in the years it can take big organisations. While SMEs provide simpler access to leadership for decision-making, the complexity of

stakeholder management and internal silos makes matching efforts across departments vital for success in large companies.

Miikka underlines the need of mapping stakeholders at the beginning of a project, spotting important players for success, knowing their particular motivations, and personally interacting with them to solve their issues while facing organisational siloes. Key drivers of organisational innovation are leadership buy-in, strategic alignment, and a portfolio approach to invention projects. Miikka also emphasises that failing quickly is better than combining long-term creative objectives with short-term return on investment expectations.

Miikka contends that more important than ideas themselves is execution. Although original ideas are crucial, effective implementation and market fit usually take front stage. While even the most inventive ideas demand perfect execution, a less original idea with great execution can succeed.

Using design thinking, lean startup, and foresight thinking based on the problem context, Miikka's consulting approach rejects rigid adherence to certain frameworks and favours instead adaptation. Offering major efficiency benefits in data analysis, ideation, and market testing, artificial intelligence (AI) seems to him as a game-change. But he thinks artificial intelligence will improve rather than replace consulting so that consultants may operate in more general fields.

Miikka counsels SMEs wishing to increase their capacity for innovation to keep a strong awareness of client needs, create a methodical methodology to gather customer insights, and match innovation strategies with corporate capabilities. When looking at fresh prospects, he also advises thinking about "founder-market fit".

# 4. Data Synthesis

The study provides a detailed exploration of organisational innovation capabilities and factors that influence their development, particularly for small and medium-sized enterprises (SMEs). Below are the key insights synthesised from the literature review and interview findings:

## 4.1 **Literature Review Insights**

### Defining Innovation Capability

Thus, depending on the gathered information, innovation was described as the generation, management, and implementation of new ideas which originated from internal factors, such as culture and strategy, and external factors, such as alliances and markets.

The process of innovation is a mechanism through which such changes are introduced with a view to establishing future-orientated organisational adjustments for growth and sustainable profitability and related changes in competitiveness.

### Factors Influencing Innovation

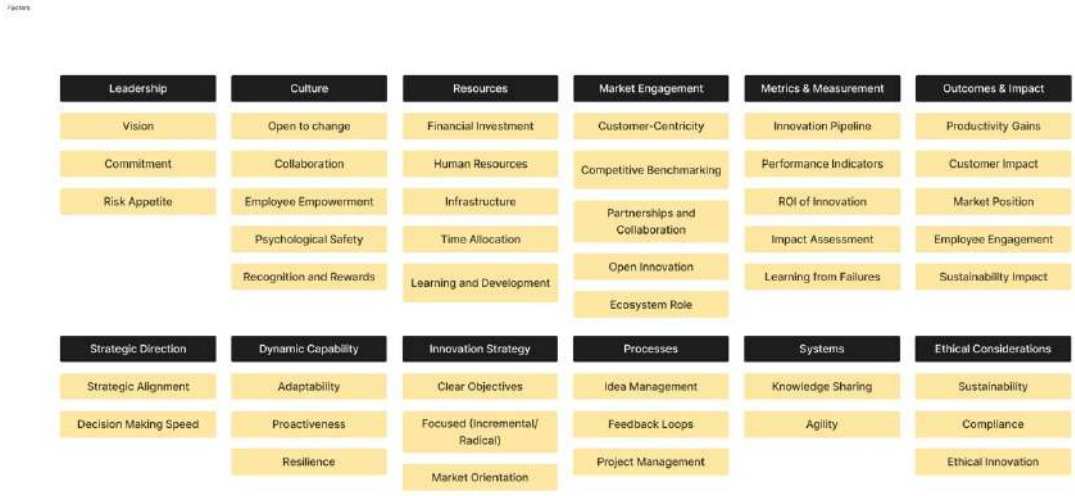


*Figure 11. Factors that influence innovation (Own elaboration)*

**Challenges in Existing Frameworks**

One liability is that human essentials, including psychological safety and Diversity, are disregarded.

Some degree of mismatch for various contexts within an organisation, young companies and big firms in particular.

It, therefore, has no compatibility with other new trends such as the use of artificial intelligence.

Small optimism in terms of sustainability and innovation in ways of working

## 4.2 **Interview Insights**

### 1. Founders' Perspectives

a. Resource Constraints: Another feature concerning innovation Heather mentions is that innovation in startups is rather a result of ideas implemented in the context of limited financial opportunities.

b. Cultural Evolution: By encouraging mindfulness and flexibility, creativity and team durability is the result.

c. Operational Adaptations: Due to COVID strange remote working habits resulted in the need to develop formal communication mediums and ideas like shifting from hardware to software.

### 2. Experts' Perspectives:

a. Leadership Buy-In: There is no doubt therefore that leadership engagement is particularly essential for the success of innovation processes.

b. Execution vs. Ideation: This means that great implementation of ideas overpowers feeble imagination.

c. Role of AI: The role of AI is to complement the existing work by speed up processes, improving decision making and supporting the management of innovation portfolios.

### 4.3 **Cross-Cutting Themes**

1. **AI as an Enabler**: As for what AI offers today, it also gives solutions for the management of resources, the analysis of the market and the control of process. That is why it has a significant influence on the building of the dynamic capabilities, including sensing opportunity and strategic adjustment.
2. **Innovation Practices**: When it comes to iterative, customer experience and cross- functional teams: both are Scrum and Design Thinking methodologies. It is also important to note that, being innovative in a way that follows the current technologies is not a result of previous ignorance or inflexibility.
3. **Emerging Paradigms**: Possibilities offered by the New Work concept, namely flexibility, autocracy, and technology, have changed the traditional attitudes to innovation.

This synthesis therefore explores the several modalities and interactions between strategic leadership, organisational culture and emergent technology as enablers of innovation in SMEs hence fulfilling a gap in current theories and literature that was documented earlier in this paper.

# 5. Framework Development

## 5.1 **Orange Slice AIC framework**

The Orange slice AIC is the framework for small and medium-sized enterprises to help them assess and improve their innovation capabilities. It is a structured approach that focuses on AI insights. The framework that is represented by triangles and layers has three main components that are very important to build innovation capabilities.

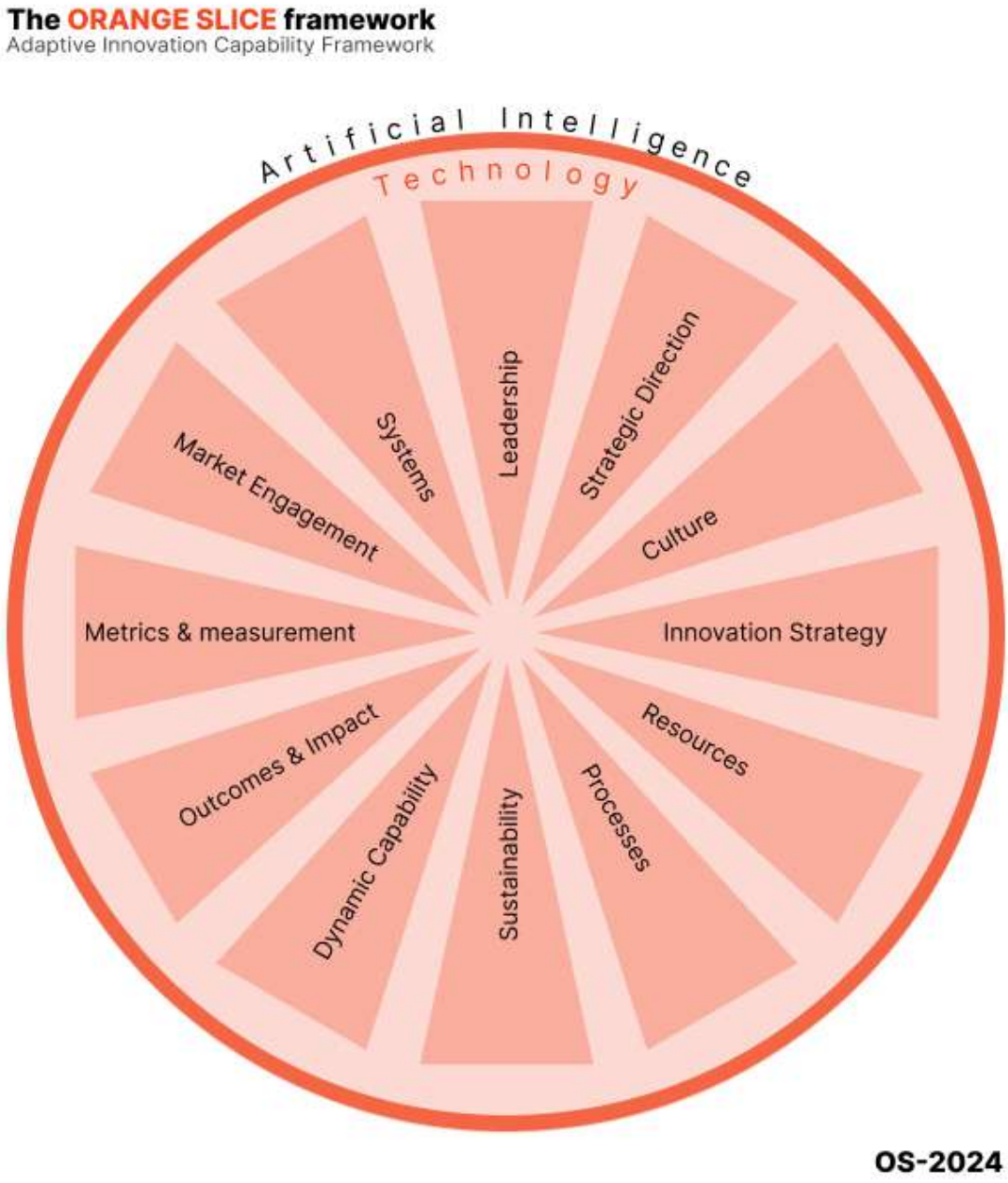


*Figure 12. The Orange Slice AIC framework (Source: Own elaboration)*

1. Factors that affect Innovation Capability in Organisations (Triangles): These aspects are at the centre that forms the core of an organisation. The balance of these factors leads the organisation to innovate successfully.
2. Technology Layer (Background): This layer advocates that technology is not a factor but a necessity to survive in the industry. There is no progress without technology integration in every aspect of the organisation. It enables the organisation to develop data driven capabilities for innovation.
3. Artificial Intelligence Layer (Outermost Layer): The AI layer sits on top of the technology layer. It gives insights by analysing the data collected from different organisational activities.

## 5.2 **Assessment & Key Components of the Framework**

To assess the innovation capability of an organisation, it needs to be evaluated on multiple factors. These factors are represented by the triangles in (Fig. 12). The questions mentioned below helps consultant, innovation experts to get a comprehensive picture of the existing processes and capacities of the organisation.

**1. Leadership**

a. Vision: How does the management communicate and align their vision to increase innovation efforts in your organisation?
b. Commitment: In what ways do leaders support the innovation process at the different organisational levels?
c. Risk Appetite: How do the leaders encourage experimentation and how do they deal with failures?

**2. Culture**

a. Open to Change: How can you say that your organisation is open to change?
b. Collaboration: How do different teams collaborate in your organisation?

c. Employee Empowerment: How do you encourage your employees to be creativity, take risks, and get involved in innovation in your company?
d. Psychological Safety: How do employees feel before sharing innovative ideas in your organisation?
e. Recognition and Rewards: How do you incentivise the employees that work towards innovation?

**3. Strategic Direction**

a. Strategic Alignment: How do you align innovation with the overall business strategy of your organisation?
b. Decision-Making Speed: What kind of word would you use to characterise the leaders' agility for making innovation-related decisions?

**4. Innovation Strategy**

a. Clear Objectives: How clearly does the organisation define objectives related to both incremental and radical innovation efforts?
b. Focused (Incremental/Radical): How do you keep a balance between incremental updates and radical innovation?
c. Market Orientation: How well does your organisation's innovation strategy address current and anticipated future customer needs?

**5. Resources**

a. Financial Investment: What level of financial resources are allocated to support innovation, and how effectively are these resources utilised?
b. Human Resources: How do you attract the right talent for your company and how do you train them?
c. Infrastructure: What tools, technology or facilities do you have in order to support innovation in your organisation?
d. Time Allocation: How does your organisation guarantee that employees will have time to engage in creative and innovative work?
e. Learning and Development: What kind of training initiatives exist so that employees are trained with expertise in innovation?

**6. Processes**

a. Idea Management: What processes are followed to manage ideas from generation through implementation in your organisation?

b. Feedback Loops: In what manner does your organisation collect and implement customer, employee and market data to enhance innovation processes?

c. Project Management: How do you developed and implemented innovative ideas in the organisation?

**7. Systems**

a. Knowledge Sharing: How do you share knowledge about innovation across teams and departments?

b. Agility: In what ways does your organisation adapt and respond flexibly to changes in the environment that may affect innovation?

**8. Market Engagement**

a. Customer-Centricity: How does your organisation guarantee that an innovation process will focus on the customer?

b. Competitive Benchmarking: How do you evaluate the innovativeness of your organisation, relative to other firms in the same industry?

c. Partnerships and Collaboration: What is the significance of partnership between your organisation and startup, academic institutions, or any other venture?

d. Open Innovation: In which way does your organisation ensure access to external knowledge and expertise for creativity enhancement?

e. Ecosystem Role: What roles is your organisation playing in relation to general innovation systems?

**9. Metrics & Measurement**

a. Innovation Pipeline: How does your organisation measure the success of its innovation efforts?

b. Performance Indicators: What are the parameters of evaluating innovation KPIs:

c. ROI of Innovation: How does your organisation monitor and quantify the revenues resulting out of the innovation spendings?

d. Impact Assessment: How does it measure the effects of innovations on customers, its own employees, and the wider society?
e. Learning from Failures: How are failed projects analysed to improve future innovation efforts?

**10. Outcomes & Impact**

a. Productivity Gains: How has innovation helped the employees/organisation to increase their productivity?
b. Customer Impact: How does your organisation solve critical customer challenges?
c. Market Position: How has innovation strengthened your organisation's competitive position in the market?
d. Employee Engagement: How does innovation contribute to increasing employee involvement in your organisation?
e. Sustainability Impact: How are innovations contributing to your organisation's environmental or social sustainability goals?

**11. Dynamic Capability**

a. Adaptability: How does your company remain innovative in changing market conditions?
b. Proactiveness: How does your organisation anticipate future trends and beat rivals through innovation?
c. Resilience: How does your organisation continue to innovate during economic or market downturns?

**12. Sustainability**

a. Sustainability: How do you make sure that your organisations innovation efforts are in line with sustainability goals?
b. Compliance: How do you ensure that your organisations innovation efforts are within regulations?
c. Ethical Innovation: What processes do you follow so that your innovations does not harm the society or the environment?

The shaded background circle at the base serve to illustrate how the technology layer is manifested amid these aspects of the organisation. This layer makes it possible to gather information, which becomes critical for enhancing innovation activities. For example, digital tools might help monitor how different teams work together or grasp customer feedback as part of the organisational market communication process.

1. Which digital tools and platforms your company uses to support its innovation processes?
2. Digital Transformation: In what ways might your company use it to improve efforts at innovation?
3. Data-Driven Decisions: In what ways does your company analyse results and find innovation prospects using analytics and data?
4. R&D Focus: How does your research and development activities support innovation?

By adopting AI, SME leaders can assess their leadership, firm culture, market interaction and other facets of innovation in further detail. Using artificial intelligence can help identify areas that need development and create revenues by using predictive systems that can support decision-making.

## 5.3 **Integration of AI in the Framework**

By analysing huge quantities of data and offering insights otherwise difficult to get, artificial intelligence greatly increases innovation capacity. AI is included into the framework at several levels, each matching to the fundamental elements of innovative capabilities. AI's involvement consists in:

AI can offer insights on leadership and culture by means of study of organisational communication patterns, emotional analysis of employee feedback, and participation of leadership in strategic projects.

AI can help figure out whether the management team is encouraging innovative ideas or a collaborative corporate culture. By use of surveys, sentiment analysis, and employee engagement platforms, artificial intelligence may be coupled to provide real-time information on the direction of the culture of the company.

By means of analysis of internal data and outside market signals, artificial intelligence can monitor the alignment between innovation initiatives and strategic goals. AI can help businesses to adjust their creative strategies to remain competitive by monitoring trends, forecasting industry market changes, and allowing them to monitor developments in AI itself. This includes evaluating market possibilities and risk scenarios using machine learning algorithms, therefore allowing leaders to make data-driven changes to their innovation plans.

By use of performance data, market trends, and operational efficiency, artificial intelligence can maximise resource allocation. Through the prediction of the results of various resource allocation approaches, artificial intelligence helps companies to invest in fields most likely to show success for innovation. By helping to estimate the return on investment (ROI) for various innovation projects, artificial intelligence solutions may guarantee that resources are focused on the most exciting ventures and hence guarantee the direction of resources.

AI identifies bottlenecks, streamlining of procedures, and improvement suggestions so helping to automate and optimise innovative processes. AI-powered project management solutions can monitor innovation projects' development, project timing predictions, and resource needs identification. AI can also help knowledge management systems allowing simpler distribution of ideas and best practices within the company.
AI can also be very helpful in understanding market involvement by analysing consumer data, social media trends, and competition activity. AI helps companies concentrate their innovative efforts on areas most likely to succeed by spotting trends in customer behaviour and competition strategy.

AI-driven analytics tools offer real-time data that let companies understand if their innovation projects are effective. Tracking KPIs including time to market, customer happiness, and new product adoption rates allows artificial intelligence (AI) enable companies to assess their innovation performance and modify their plans as needed.

By means of predictive analytics that enable businesses to react faster to changes in the market, artificial intelligence can improve the dynamic capacity of an entity. AI can, for example, predict how changes in consumer preferences or technology will affect the company, therefore allowing management to respond early to maintain the business ahead of its rivals.

Through analysis of product and process environmental effect, artificial intelligence may enhance sustainability projects. AI tools can assist companies optimise supply chains, lower waste, and spot chances for environmentally friendly innovation. AI can also help create fresh company models combining sustainability with profitability.

## 5.4 **Implementation of the Framework**

To successfully implement the ORANGE SLICE AIC framework, an organisation should follow a structured approach that ensures AI integration into the framework. This includes 4 important steps:

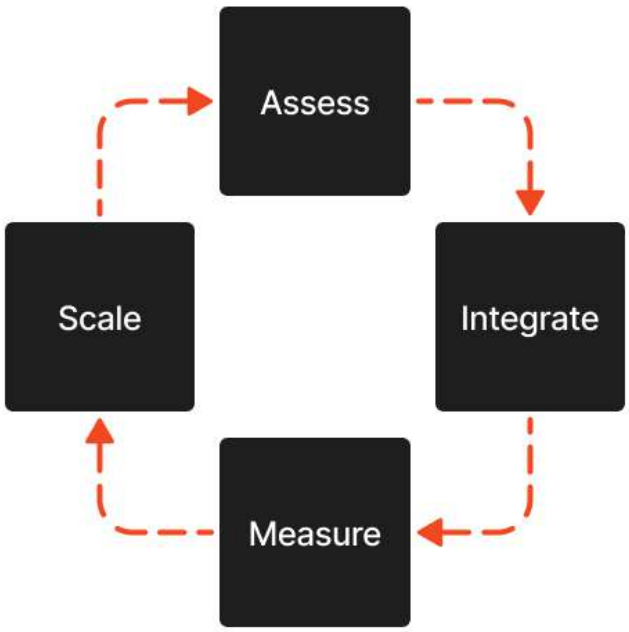


*Figure 13. Implementation process of the framework (Source: Own elaboration)*

### 1. Assess

The first step in the framework is to do a thorough assessment of the company's ability to come up with new ideas. To evaluate, there is a need to gather information about the company's leadership, culture, strategies, resources, methods, interactions with the market, and other important factors. AI tools can help with this evaluation by looking at past data, polling employees, and showing where the company is strong or weak in terms of creativity.

### 2. Integrate

Organisations must have a strong technology base supporting data collecting and analysis if the framework is to run as it should. This covers putting digital tools for data analytics, project management, CRM, and communication into use. These technologies build the basis for gathering the data AI will examine in order to offer understanding of innovation capacity. Once the necessary technical basis is in

place, then apply AI technologies with data analysis ability. This streamlines innovation processes by using artificial intelligence powered project management platforms, predicting market trends by predictive analytics, or understanding customer behaviour using machine learning. The secret is to choose artificial intelligence tools fit for the strategic objectives of the company and demands for innovation.

**3. Measure**

Application of this framework is not a one-time process. It is a loop of continuous observation, feedback and improvement. Real-time insights on the innovation performance of the company made possible by artificial intelligence tools enable executives to make data-driven decisions enhancing results. AI helps businesses make fast changes to their innovation plans by constantly looking at data on things like how well leadership is doing, how resources are being used, amount of market involvement, and more. When AI tools are implemented in a company, it's important to set clear goals for measuring how they affect the ability to come up with new ideas. This can be achieved by keeping track of the performance of newly launched products, figuring out how satisfied the customers are, or assessing the time-to-market for innovative concepts. By evaluating these indicators, businesses can assess how well their innovative methods are working and make the necessary adjustments.

**4. Scale**

Scaling the AI-based framework across the company comes last once it is effectively applied on a limited scale.

## 6. Conclusion

The above research document focused on exploring an AI-based approach to assessing and improving organisational innovation capability. The study focused on SMEs. By the development of a comprehensive framework, this thesis identifies multiple aspects that affect organisational innovation. It also suggests how AI can play an important role in giving insights to improve these aspects. The Orange Slice AIC framework amalgamates factors like leadership, culture, resources, processes, market engagement, and sustainability as core components, that focus on balance in order to foster innovation. AI in this framework acts as an enabler that helps the organisation to automate analysing data and provide predictive insights. These insights allow organisations to act faster to changing market conditions.

Another important thing learnt from the study was how important it is to know that innovation is not limited to one aspect of a company but a lot of things, like leadership, planning, and working with other people. The framework is mainly about how AI can be combined with technology systems to look at these areas, give suggestions on how to make them better and give SMEs the tools they need to keep improving their ability to come up with new ideas. AI can also provide detailed insights about organisational operations, market dynamics, and resource utilisation, everything that can enhance organisational innovation.

This study gives a holistic approach to innovation in SMEs by integrating artificial intelligence with the assessment and implementation plan. Therefore, bridging the gap between academic theories with practical applications. This framework provides a scalable solution that can be customised to fit different situations since SMEs may lack the tools and resources of bigger companies, so ensuring that innovation remains possible for companies with restricted means.

The framework focuses on the need of lifelong learning and feedback, so it is a dynamic tool that changes with the context. SMEs can keep track of their

improvement and modify their strategies by using the real-time data and insights provided by AI. This flexibility guarantees that SMEs stay competitive in fast changing environments, therefore improving their capacity for development and innovation.

## 6.1 **Future Research Scope and Direction**

While the research provides a thorough framework for assessing and improving innovation capabilities, certain topics need additional research. Future research can focus on the following topics to improve the understanding and applicability of the AI-based innovation framework

### Integration of Emerging AI Technologies

There is a rapid evolution of the AI technology with development of advanced technologies such as generative AI, NLP and blockchain-based AI solutions. Further research can focus on how new AI technologies can enhance this framework and improve organisational capabilities in SMEs.

### Industry-Specific Customisation

Although the framework developed in this thesis is flexible enough for many sectors, future studies should concentrate on how best this framework might be applied for a given business, say retail, manufacturing, or healthcare. It might emphasise how artificial intelligence can modify the framework for certain innovation requirements and assist to solve particular industry related problems.

### Longitudinal Studies of Framework Application

This book offers merely a theoretical basis for the framework of artificial intelligence-based invention. Although it lacks the longitudinal data to confirm its long-term efficacy, it has academic support and case studies demonstrating where a particular element of this framework works. Additional study should concentrate on putting this framework into use in companies and tracking them over time to

observe whether the AI-based structure improves anything. This can provide very insightful analysis of the framework's durability and scalability in useful contexts.

**Sustainability and Artificial Intelligence**

Sustainability is turning into the hot cake that both organisational innovation and future depend on. More investigation can probe the sustainability component of the framework and assess how artificial intelligence can help companies match their innovative plans with ESG objectives. This can also cover how artificial intelligence finds chances for producing new sustainable products and helps to lessen the environmental impact of the innovative methods.

**Real-time Adaptation and Agile Innovation**

Future studies should concentrate on how artificial intelligence can help companies to adopt more agile innovation approaches given the fast changing market and technical scene. AI-powered decision-making tools and real-time data analytics can enable companies to react fast to changes in consumer preferences, new market trends, and developing technologies. This study could look at ways to improve the adaptability and responsiveness of the framework even more.

**Developing AI-Driven Innovation Metrics**

Although the present framework suggests various criteria for assessing innovation capacity, future studies should aim on improving these measures by include indicators driven by artificial intelligence. These could include more complex assessments of consumer attitude, market participation, and operational effectiveness offering better understanding of success in innovation.

## 6.2 **Study Limitations**

Although the paper presents a strong framework for evaluating and enhancing creative capacity leveraging artificial intelligence, many constraints should be mentioned

**Limited empirical confirmation**

With scant empirical confirmation, the study is essentially theoretical and based on a review of current literature and frameworks. Although professional interviews shed light, the framework has not been completely tested in actual corporate environments. Case studies and empirical testing should be part of future studies to support the practical relevance and efficiency of the framework in many organisational environments.

**Technical Infrastructure Requirements**

The framework assumes that companies have the required technology set up to allow the integration of AI tools. This might not be true with organisations running in areas with restricted digital technology access. The lack of infrastructure might restrict the efficacy of the framework in some situations; hence, future studies could look at ways to close this difference.

**Over-reliance on AI**

AI has a lot of benefits for making innovation easier, but relying too much on it could have unexpected effects, like making people less creative and intuitive in the innovation process. AI plays a big part in the framework, but there needs to be a balance between AI-driven ideas and human decision-making. If we automate too much, we might lose the ability to think critically and come up with new ways to solve problems that are only human.

**Generalisations Across Different Industries**

The framework is meant to work for many different types of businesses, but the method may not be able to solve the unique innovation problems that some industries have. For instance, the healthcare business has very different needs when it comes to new ideas than the technology sector. A more nuanced approach would be to tailor the framework to individual industries, but the current version doesn't have this level of detail.

**Concerns about ethics and AI bias**

Concerns about ethics arise when AI is used to evaluate and boost innovation skills. These problems are mainly related to data privacy, openness, and possible biases in AI algorithms. AI systems can be biased. If they are not properly supervised, they could make things worse when there are already unfair situations in a company or between market groups. Researchers in the future should focus on ethics and rules on the use of AI.

**Changing Rules and Regulations**

The structure doesn't go into a lot of detail about how the rules for using AI in business are changing. Governments around the world are starting to put in place stricter rules on how AI can be used. Data protection and moral AI practices would be in focus while creating these rules. If these regulatory problems aren't taken into account, the system might not be as useful as it is now.

**Resistance in culture to using AI**

AI can greatly improve the ability to come up with new ideas, but companies that don't want to use AI can make it less useful. Workers who feel uncomfortable with new technology or who fear losing their jobs could not want to adopt AI tools.

In conclusion, although it has some issues that should be highlighted, the AI-based innovation framework developed in this study provides small organisations with a structured and holistic approach to increase their capability to innovate. Future studies should concentrate on verifying the framework in the actual world and developing answers to the moral and technical issues raised by artificial intelligence.

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# Appendices

## Appendix A – Overview of Experts

| Sr No. | Name | Organisation | Role |
|---|---|---|---|
| 1. | Sujit Roy | BrainAlive | Founder |
| | | NASA | Lead AI Scientist |
| 2. | Zhanna Manzyk | Jaya Talent | Founder |
| 3. | Miikka Paakkinen | | Independent Innovation Consultant |
| 4. | Harald Goegl | Maxpert | Innovation Lead |

## Appendix B – Interview Guide

### Founder Questionnaire

Welcome & Introduction

- Collect consent for recording / personal info (if not done previously)
- Give short overview of interview content and outline

Interview Questions

- Can you please describe your role within the organisation?
- What measures do you take to foster innovation in your organisation?
- How do you define innovation in the context of your business?
- What steps do you take to ensure that your organisation remains innovative?
- How do you identify areas for innovation?
- What processes do you follow for idea generation?
- How do you prioritise which ideas to pursue?
- How do you encourage a culture of innovation among your employees?

- How do you measure the success of your innovation efforts?
  What challenges have you faced to achieve innovation in your organisation?

**Expert Questionnaire**

Welcome & Introduction

- Collect consent for recording / personal info (if not done previously)
- Give short overview of interview content and outline

Interview Questions

- Can you describe your professional background and experience in the field of innovation consulting?
- What types of Organisations (e.g., industries, sizes) have you typically worked with in terms of fostering innovation?
- Could you walk me through your general approach to helping Organisations enhance their innovation capabilities?
- Do you follow any specific frameworks or methodologies (e.g., Design Thinking, Lean Innovation)?
- In your opinion, what are the most important factors that enable innovation within an Organisation? (Examples: Leadership support, risk tolerance, Organisational culture, resource allocation, external partnerships)
- How do you help Organisations build or strengthen these factors? Can you provide examples of specific interventions or changes that you have recommended in the past?
- What role do emerging technologies (like AI, big data, or digital tools) play in fostering or improving innovation in your client Organisations?
- What methods or tools do you use to assess an Organisation's innovation capabilities (Examples: Innovation audits, employee surveys, market benchmarking, qualitative interviews)

- In your view, how might AI-based tools or technologies be used to assess and improve innovation capabilities in the future?
- Do you foresee any challenges or limitations in adopting AI for innovation consulting?
- Finally, what advice would you give to Organisations that are looking to improve their innovation capabilities but may not know where to start?

## Appendix C – Transcribed Interviews

### Interview 1 – Sujit Roy
### December 09

0:53 - Komal Bhirud
Yeah, so this interview is going to be about your experience as a founder. And also your experience in general, working in the industry for so long. It is mostly going to be focused on innovation and how it changes with the decisions that you make at the organisation or culture or anything basically.
So I would like to start with you explaining your role at the company. Like as a founder and also at the other company.
1:35 - Sujit Roy
So in BrainAlive, I am the co-founder and the chief scientific officer. And at NASA, I am the lead AI scientist. So in both of the places, my role encompasses primarily the strategic partnerships, innovation in terms of decision-making, and development of AI models.
Then looking over research and development, specifically looking at more of a technological advancement that I can use to meet the customer needs. Customers can come in various forms, like there can be research, you can be academia, you know, user segments, and all of those.
So basically one of those things, and then we work on the BrainAlive side in terms of developing AI methodology to integrate bio-signals so that you can make the

product, which is user engaging and can be used by individuals for their own benefit.

2:41 - Komal Bhirud

And how do you define innovation in the context of both your business, like BrainAlive, and NASA?

2:52 - Sujit Roy

So innovation can be defined in multiple scenarios, so there can be one process innovation and one technical innovation. So let's first go with technical innovation, right? So let's say that you have a problem at hand and you want to develop a solution. Innovation comes; one is obviously you can choose the state-of-the-art method, and you can implement that, and that will be done, right?

Then that is actually the implementation of the state-of-the-art method, which is already researched by other folks like Google, Meta, or something like that.

But when you try, so when you work in the limits of, let's say, when you design an AI model, you're basically what you have majorly one bottleneck, and that is GPU compute. The GPU is expensive, and the computer is expensive.

So you want to find a solution that can work faster and should be utilising a lower number of GPUs and other stuff. So there we try to innovate in terms of mythologies and computational algorithms where we can run things faster. It is less compute intensive, and still we do outperform on those aspects.

trying to just do a sort of comparison. Let's say that when I work with NASA, there I'm getting to design the foundation models. Now in foundation models, we train on large, large amounts of data; we're dealing with petabytes of data. So there we train on, let's say, 650,000 hours of GPU, or you can say, you know, 40,000 or 4,000 GPUs, because your resources are almost unlimited, right?

It's limited in nature, but still, it's very huge, right? But even when you work at a private company, when you try to design there and at a startup like BrainAlive, you don't have that much fun that you can, you know, get these things sorted out.

For example, in terms of pricing, if you look at the NVIDIA DGX, your one GPU DGX costs you $38,000. So if you want to train such machines with 40,000 GPUs, you would be spending millions of dollars just on GPU computers.

So you, you, you, you know, innovate in terms of brainstorming how cross-disciplinary collaborations can work. For example, borrow some principles from physics, applied in computer science, makes things more organised. So all of these things and then in AI and bio-signals as well, trying to innovate in terms of mathematics, what we can do with faster processing, and all of this.
So basically, in technical aspects, you look at innovation, and you try to improve upon it based on the limits that are placed on you.
Formerly, as a human being and a scientist, I understand one point, and I've been taught one point that every task is doable; it's just you just need to find the right way to do it any resources, one can do in any difference. And personally, if I'm very frugal in nature, when it comes down to businesses or something, I would like to do certain things in certain ways. This is in terms of technicality; the same goes for processes as well. So generally, in a startup, multiple times people are like, Okay, I want this thing so much more organised, so much more fashionable, you know, we should be catered to according to large-scale organisations.
So these things sort of handicap the development of individual employees. Because when I hire people, I try to hire the best, but it's not the place for the people, right? They can use my company as a springboard as well. I want to retain them for longer, but it's not my place to hold them for long, right? So they can use it as a springboard and can jump to some other great places for themselves as well. Or I can try to make my company better for them, where they would like to live longer, know, stay, or work together. In all of these cases as well, we try to innovate in terms of processes as well, how they deal with different aspects of technicalities, delivery mechanisms, and work culture, which sometimes differ with my co-peers. But this is how I'm to operate.
6:47 - Komal Bhirud
Okay. You mentioned that you would try to make the company better for the employees. Was there a situation in which you changed any company policies or company culture because of something you noticed from the employees or because of the feedback that you got from the employees?
7:00 - Sujit Roy

So two things: one, I changed the location of my company, BrainAlive, from Kanpur to Noida. That was a very bold move that I took, and then, yeah, I was told multiple times not to do that. I still did, because finding good resources in that location was not optimal, and being in NCR, still, people feel like that at a location which is more accessible by different parts of the country, and they can't reach back to different places, whereas Kanpur… not to be critical and not to be criticising that place, but it becomes more of a, you know, more of an outskirts kind of scenario. So one step that I changed was moving the company away from Kanpur and putting it in Noida. So that was for the BrainAlive, and then other than that, I tried, irrespective of how much, you know, in terms of research and development, I followed my own ideas and principles and how the company should innovate. So partnering and collaborating between national organisations like the University of Manchester and other stuff, that the people, at least from the employees perspectives, and they're doing some R&D, and they work with these world-class organisations, they change their perspective of how research is done, and it adds to their overall growth as well. So this is the fundamental change that I looked at.

8:39 - Komal Bhirud

Okay. Now, in terms of BrainAlive, let's say BrainAlive is like a very small company compared to NASA; it's very huge. So when it comes to a startup, how do you identify areas for innovation? Like, how do you identify trends in the market, and how do you prioritise what aspect you want to work on? Yeah, and how do you, like, identify which ideas to pursue further and which ones to leave or scrap?

9:00 - Sujit Roy

Okay let me take them one by one so in terms of how many ideas or how you'd choose the number of ideas to pursue so fundamentally startups should have one vision and one goal right so you do not have time to play around with a lot of ideas irrespective of how many people steer you towards whatever things are being hot cake in that you know because in every industry and specifically when you look at BrainAlive and its surrounding culture of crypto and other stuff everything is a hot cake right everybody gets so excited with every single thing that happens the AI doesn't work like that AI also takes time to shape you train the models and other

stuff and it appears to be hot cake but it's not hot cake in terms of developing things and you know sustain them because in artificial intelligence specifically look at the industry trends there have been a lot of companies that have been founded for the last three to four years but 90 percent of them died within one year right and then later on the most of them got acquired or something like that so one is like you fix your point where you want to take the company what is what you intend to solve so for BrainAlive we intend to solve for the human so that's what I started with so solving for human engagement right now if you thought if you see through the journey of how we transformed we'll tell you a story of how you know vision was shaping up and ideas were changing perspective for according to consumer segment so looking back in the journey if you look at it like when brain life started in 2018 approximately they were working on EEG headsets so EEG headset as in nature at the hardware device right so forcing people to wear something is a is a cumbersome job so I cannot tell you to wear something and then use some until it's of your own nature and it's of very comfort if any human would decline of you know having an accessory we as a human being we want something which is very slim slick sleek and then you know it's very should be stylish in nature should be very lightweight that's one of the reason apple had grown so much years over the years that so basically the design the fundamental features remain very nascent in terms of what the company's offering but the design is for the apple which comes out in a primary place so we started with the easy and then there were a couple of problems that we started looking at and there was EEG headsets begin off you put it on the head can you put it for longer period of time and stuff on the concept but they could be can we decipher for the human engagement then since easy headset being a consumer great device and medical device it would take the you have to take for the CE certifications and the medical certification not to get to the market a couple of these a couple hiccups.

So making a hardware product into the market would take something around five to six years of a full timeline length based on the funding, and then you've got a lot of investment as well in terms of OEM and stuff, right? Then COVID happened, and then we saw a huge sort of delay in terms of manufacturing in OEM and that stuff, and then I was under severe pressure to take something out of BrainAlive.

And so then I came up with an idea that I can provide for the consumer engagement that how about we start doing something with that everybody has that is a camera. So then we designed the product called FOCII, and FOCII was a multimodal AI engine that was using your camera feeds and the microphone to assess how engaging a person is in terms of conversation and video lectures.
I started it with an idea for the online classes; like in India, you have a massive market for online classes across the globe as well; people prefer online classes these days, but when you look at the professors and the delivery, it's not equivalent for every single class; some are more engaging than some of the others. Based on that idea, we started working on that one for consumer engagement or for FOCII, and then we shaped it because since it was just a software base, now anybody who has a laptop or a mobile phone can be able to access it, right? So that's how we shaped this one up. And later on, we decided that we will have this as a multimodal engagement, and we can plug EEG back into it to form a very holistic view of having these things. So in all of this scenario, you see the priority never changed in terms of the idea that was that—to solve for human engagement.
The technology changed depending on the consumer segment. So now we are still looking at the EEG headset, which is for retail and medical.
Now the two parts which came up, initially in my company, they were very hesitant about the idea of medical-grade EEG. They wanted to launch something, but I was convinced that whenever I'm launching an EEG headset device, which is for reading consumers, in order to reach a consumer's trust, if I can show them that the device can be used in a clinical-grade setting, then obviously the device is pretty good, and in terms of the algorithm nature.
So then the two variants of the headgear came up with the nine-electrode and two-electrode systems, where we formed up the analysis of, like, we designed the algorithms in the nine-electrode system, but it can work on the two-electrode system. So this was overall the things that kept on happening in terms of ideation and changes. The priority always remained with the consumer's success, whatever would be easier for the consumer to adapt to rather than making them

force into something, and then how would you reward the consumer for certain things? And that's how the crypto side of this came up.
That… okay; if I'm using your data, then I should be rewarding you for your data as well, and that's how this whole pipeline emerged.
15:10 - Komal Bhirud
Okay. You also mentioned that during COVID, a lot of things kind of slowed down. Do you see, like, you know, in terms of BrainAlive, what major change do you see before COVID and after that happened in terms of the operation sides of the organisation, like coming physically into the office or like working remotely? Did that affect the working in the organisation? And how did it affect the culture?
15:51 - Sujit Roy
So after COVID, one thing which majorly impacted every place was coming back to the office. Every employee is very reluctant to come to the office.
And when they saw that it worked, right, so working from home still works, and then why will you come to the office and then, you know, sit there for eight to nine hours and work like that?
So it was very, it was a tough situation. And in a startup, if you're a big company and you are working for a smaller part, it's easier to manage.
But when you're in a startup, in a small team, you need to be at one place because, for example, this is one thing that I observed that, not to blame it on demography, but fundamentally speaking, I saw majorly Indian employees being a bit laid back when it comes to working from home.
And that's how it actually impacted their own work-life balance as well. So you would start somewhere around 10 o'clock a day, and you keep working till night because you keep working in fractions; you keep working till night.
So this is something that I was observing, and then it gives a pseudo sort of notion to employees that they are working more than required hours.
Now when we go to the office, you work for six to seven hours because you're already sitting in one place. You have a work environment where you focus and that stuff, and you finish up the major amount of work in six to seven hours, and you're back home.

But when you're working from home, you have so many distractions understanding the Indian culture. Now you're living abroad, or you're living alone; that's a completely different scenario, but considering in a culture where we try to live together with our family or something like that, there's a lot of distraction that happens during a work environment, right?

So you cannot focus a lot. I cannot focus for a long period of time, so your focus breaks up, and you try to work for a longer period of time; it gives you the pseudo notion that you're working more than required hours.

The second problem that starts happening during that time is the communication within your team. It takes time to develop strong communication within your team. And when you are a startup and we're hiring people who are actually sometimes fresh from college, this is a major missing app. They do not know how well to communicate within the team, right? So you have to ping them multiple times. For that we try to adapt them and bring them to Skype Chats; then I also ask them to ping me on Slack and other stuff. Trello to manage boards and other stuff.

One platform I generally hate, which my company still uses, is WhatsApp. I don't consider it to be a professional platform for any communication, but they have 56 groups of every single thing.

So yeah, because that is actually what I find more distracting than anything else, because when you open up WhatsApp, you can have messages from many people, and the moment you open it, you start looking at all of them. So it's better to use something like Slack or something which is better suited for those situations. So I think that was one of the major concerns in terms of communication. Still, I feel WhatsApp is a medium for professional communication, but I'm not sure what it is. It's very difficult.

So that's a couple of things. And after COVID, the adaptation is sometimes very different. For example, when you work for places like NASA, you don't have an option. You have to go to the office. It's a security concern. You don't want to work. You go home. Very simple.

So that's as simple as that. the same thing that we have to do for a startup. And so I saw a very huge reluctance for people coming back to Kanpur and other stuff.

And so Noida became an option, and asking people to come back to Noida. Okay, starting slowly, come down to three to four weeks and work from home. And then three to four days working from home, and then when they start coming in, you come as a whole, and then there was some other. So there are other notions that people adapted, which I was not in favour of. Is that if you're working from home, there is a 15% or 25% deduction in your salary or something like that.
So this was a couple of steps people took in order for people to bring to the office. But yeah, this is one of the major things that we saw.
In terms of operations, we saw a bottleneck in terms of electronics manufacturing or OEM. There was a lot of slowdown, which was expected. And so that's why we, as a startup, couldn't have stopped working. So we switched our domain from hardware to software to keep working and then release that stuff.
So adapting to the different situations that come to terms in order to meet the market delivery. And that popped up a couple of new ideas, which were really good and gave us, in terms of papers as well, so we published a couple of peer-reviewed papers in order to keep the BrainAlive in terms of the research community as well.
22:01 - Komal Bhirud
Great. My last question for you would be what kind of trends do you see coming up in your industry in terms of BrainAlive, and how do you think is the best way to keep up with all the trends that keep coming, technology-wise, and also operation-wise? What kind of trends do you see, like people starting to prefer hybrid or home roles? How do you think that will go on?
Like, what are your views on this?
22:50 - Sujit Roy
To answer the first part of the question, can you define trend? What do you mean by trend here?
23:00 - Komal Bhirud
AI is a trend that is here to stay, right? It started coming after COVID, and it was there for a long time. Now, everybody has access to AI. Now, AR is also a big thing of these. Apple is working with AR. What else do you see? How do you envision the future? Okay.

23:33 - Sujit Roy
So, for artificial intelligence primarily, we see a change.
Yeah, so in terms of artificial intelligence, these days you see a lot of technically advanced things that we see in terms of language models, right?
So you're looking at these ChatGPT sort of methods, and then you have platforms for code assistance or coding. Generally, we call them foundation models, right?
Foundation models, as it's such that you train a model, an AI model, which is huge enough to understand the patterns from the data and can be used by multiple people, where you can cause a very low amount of GPU, So in other terms, this is my bread and butter at NASA.
Like, I designed a foundation model for the time, and till I do that, I'm there.
Otherwise, so we start doing for Earth, we did for weather and climate, then I just started working for Sun, then we'll have for Moon and other stuff, right?
And the same goes for BrainAlive. We are designing sort of a foundation model for human engagement, where you have the multimodal data.
This is what I'm envisioning towards now to understand humans better and how the decision-making is taking place. So this is where I see the future is.
Currently, all of the AI is good in foundation models, and all of the AI toolboxes are good but they're not true AI.
So there is one major part that is missing through all of these artificial intelligence algorithms and it is fundamentally to plan.
None of the AI models can plan in a real way. That is something that I see the future moving towards in order to achieve the AGI sort of situation and this is something that we would like to go towards as well from a BrainAlive perspective.
The two primary things are trying to go towards a planning segment of an AI. Our second thing is making the data over the blockchain so that people can host it and see we can reward the users for their own contribution and the data is good quality, details of good quality in nature.
So, so that about the BrainAlive becomes one of the first companies to have so much data repository in terms of bio-signals.

So this is where I see forward, you know, in terms of irrespective of what a trend comes up, the trend in terms of AI is foundation models these days; tomorrow we will have something else.

You have, you know, obviously augmented reality and stuff; you merge them together, AI and augmented reality; you will have those, and then you have nerve engines for gaming and whatnot. So there are a lot of things, but fundamentally focusing on AI developments right now in terms of algorithms and then compute-accessible artificial intelligence agents to run on these models.

Yeah, probably looking at those aspects on it.

26:52 - Komal Bhirud

Amazing. One question just came to my mind. Do you think there's a difference between central light industry and, let's say, a decent industry difference between both of them? Do you think there is a difference between innovation in the centralised industry and innovation in the decentralised industry?

27:39 - Sujit Roy

Right. Yeah, I'm like, there are a couple of controversial thoughts here when it comes to decentralised parts. I'm like, fundamentally speaking, people in these slides don't actually know what artificial intelligence is.

They still treat something of a so obviously that's not there and making an AI, you know, a decent network, is a very difficult job because you can imagine having one model that is fragmented across the globe and then you try to access the weights through them and multiply them; it is very difficult to manage that.

So we are not there yet in terms of those things. So obviously this is one of the innovation points.

We do train our model in a fragmented sense, right? We have multiple GPUs. For example, we train our model; we train all 200 GPUs.

So you train on multiple GPUs, but how do we host those models so that you can perform inferences on those fragmented settings? That can be one of the innovation points that we can see that people can leverage the GPU and then train the data on multiple streams.

Currently we see AI to be situated on a centralised system. You will have models which are hosted on specific platforms and people will be using them for their own inferences where it doesn't cost them too much.
So these are a couple of innovative things that I think the industry would be looking at for making AI more decentralised in a true sense.
So people would try designing algorithms which could run efficiently on the GPUs using less and less GPU power to compute. And NVIDIA would be from any more and more CPU compute power.
So those things that I think now going forward, you will be looking at something of more sense would be We would see a sort of an increase currently in the terms of the AI industry in the domain of quantum computers as well. We have seen a lot of quantum technologies evolving and that is primarily to cater to the multiple problems of, you know, mutations and other stuff. So these are the couple of factors that we're looking at in decentralisation; it would right now basically look at the data storage to be decentralised; models would be centralised.
So you can call it a semi-decentralised network that can be happening.
30:07 - Komal Bhirud
OK, amazing. I think that is the end of all the questions. Would you add something related to organisational innovation and how you can, or let's say, the challenges that you faced in fostering innovation in a small startup?
30:38 - Sujit Roy
Yeah, I mean, when you talk of innovations in a small startup, that's one of the things that is that innovation comes at a different scale, right?
And in a startup, people should be, so when you design a product or something, the vision should be common.
And your workforce should be of a similar nature. That's why generally I try to follow this, you know, the notion of hiring the best at BrainAlive, which was still going on in terms of hiring the best people so that they understand the meaning of, you know, what we're doing.
We're all on the same level of development and knowledge. When you are actually sharing the knowledge of the same level, then you can innovate from the same level.

So that is something that we were pulling on. But fundamentally speaking, there are a lot of hiccups that you face when you try to innovate something. Sometimes people won't believe in it because you do not have an end result at the time to showcase. So you will have to back up your approach with some sort of data that people have done in the past or something of a very similar relative nature that people have done in the past and what the result was.

Something of a STAR technique that I generally call is situation, task, action, results. Based on the situation, you design the task and you form actions, and what are the results?

These things should be very cohesive in nature, defining any modified approach that you're taking for. And the second thing is like not moving away from the goal.

In terms of the hiccups that you face at multiple organisations or in the startup, it is when you have a very small team. Sometimes a team might feel that they're overworked because coming up with a new solution is something not easy.

And if the people are not aligned with your own vision in the startup, then it becomes more of a challenging task because being an employee and as you feel like an employee and you're looking at a clock like nine to five, then it becomes very difficult to work in a company which demands scientific advancements.

So it should be within your own interest to develop those. Fundamentally, I try to tell people at BrainAlive that they are not working for me or not working for anybody in the company. They’re working for themselves. They don't use this opportunity of solving.

You learn a lot of things at a very early stage. So they should treat this as an opportunity to improve themselves in terms of solving these things.

So that if they don't want to work at BrainAlive, they can go and work at Microsoft or work at Google.

Yeah, but don't just keep switching from, you know, on the startup, on the startup just for the sake of some small amount of money or some, you know, that's something that I feel generally people have, but these are the major hiccups that come with any new tasks that you try to design at any level of organisation, whether it be at a startup or even if it is a fully functional organisation, even at

NASA or any other; unless you have the same scientific vigour and the same alignment, it becomes a very difficult job of driving innovations.
34:07 - Komal Bhirud
Yeah, that is all. Those were all my questions. Thank you so much for all your insights. They were really helpful. Thank you.
35:12 - Sujit Roy
Appreciate it. Have a great day. Good luck ahead.

**Interview 2 – Zhanna Manzyk**
**December 05**

Komal Bhirud:
Can you please describe your role within the organisation?
Zhanna Manzyk:
I am this year and the founder of Jaya talent. And for context, Jaya talent is a recruitment agency that focus on blockchain and crypto space, and the hiring C level people lack of residual CPU, etc. And also we are hiring middle level tech and non tech people about locations. We are hiring in different countries, so it's mostly our focus is Europe MENA in Asia is Singapore, and in the US is New York and San Francisco.
Komal Bhirud:
What measure do you take to foster innovation in your organisation?
Zhanna Manzyk:
Good question. So we are a new company we started last year. So I don't put a lot of you know, some analytics numbers to measure innovations, but in general, how I can understand that I am different from competitors. It's based on, you know, what we are doing, different from them. For example, we launched, already a second time ambassadorship program that we are giving chance to people to learn community management, some design skills to have real task and best people, they're taking job in our Organisations. So I took this practice from big web three companies, and I was like, Okay, let me implement it the same in recruitment agency. I didn't say that before some other recruitment agencies did the same, but

we think we are the first one who made it then. So, in general, measurement for us, it's how fast we are closing roles. I just read your question again, and I think maybe it will be the answer how fast we are closing roles with our current community database, etc. And so we noticed that 44.5% of all roles that we close like they were closed by referrals. First, it was not paid referrals, and now we implemented bonus for successful referral. It's like 500 USD for each row, and we noticed that now almost like 70% of all roles after two months, when we implemented this paid one is close by with referrals. So first, it's more like quality of the community, not like only numbers. Yes, first numbers are important, and we are checking if it's growing on Instagram, Twitter, Telegram, LinkedIn, etc, and how people like if they trust us or not, and if they are referring us clients, their friends who are looking for a job, not only because they want to have, you know, bonus, some of them, they are just saying, like, I know that you have bonus, but I just want to share this CV in case, if you have some role For my friend. So people, they already trust us.

Komal Bhirud:

How do you define innovation in the context of your business?

Zhanna Manzyk:

I already answered in this part in the last question, but I will add few points. So in general, I always say how I am different from other recruitment agencies, what I'm doing different. So first we have focus its web three and blockchain. We are not taking any other roles. Another one is ASIC. What we are doing different. So first it was we launched ambassadorship program. This paid referrals. We are the first recruitment agency who is bringing mindfulness into web three space. So we keep organizing meditations for the last even like more than one year since February 2023 in Dubai, where we have a lot of founders, Chip seekers, mostly folks from web three space investors. They are joining us for meditations. Then we are organizing meditation retreats in India and bringing people from us, Maine region, Germany, to India for meditation. We are sharing with our community some tips related to mindfulness, how to become, you know, less stressed, and how to, you know, be more productive in work. We are sharing with them some tips about manifestation. That is something that was working for me. So it's not like, you

know, we are finding some random information. So we are making sure that those people, they will be different, because if they will keep doing the same, then they will be average. But we want to have mindful people in the space, because this space is growing super-fast, and people, they are having a lot of money. So when you have a lot of money, you have power, and with this power, you can help people or you can hurt people. So we want to make sure that those people will be able to create something, you know, useful and helpful for society. And also, we launch one webinar series we will be publishing soon. It's called Proof of no mind where we will be talking to founders from web three space about their project, about their meditation journey, some tools how to become more productive and less stressful, like why they are building something, you know, like mindful for the society, and some more, like spiritual questions. You can even check in my website, there will be a section for meditation, and you can see all efforts that Jaya talent is doing in terms of meditation and why talk other innovations again, we are going to a lot of events. We are mostly at events. We are learning something new. How we can, you know, bring some innovations to Jaya talent, and also we keep making job seekers. But what I found that like, I think Ray Dalio, he said that most of innovations, when you will see his chart, they came when people they were struggling with something when, let's say it was bad market, for example, with Bitcoin. Why Bitcoin? Because it was financial crisis and because of this, Bitcoin was created. Then in this kind of very tough situations, companies, individuals, they are coming with some new ideas that that exactly will help to solve the problem. But other way how you can bring more innovations is when your mind is relaxed. Let's say you do more meditation, etc, but then you're not bringing so much innovations, because you're thinking, okay, which problem should they solve? What can I bring new to society? So you're you have space time to think about new ideas, but actually you're not solving some like current problems, because when you have stressful situation, bed market, then you start thinking how to solve now, like the current problem.

Um. Sorry, I'm talking a lot.

Komal Bhirud:

What steps do you take to ensure that your Organisation remain innovative?

Zhanna Manzyk:
So what I'm doing, we have group on WhatsApp with my team and on telegram with ambassadors. Because ambassadors, yes, they are working part time, but still, they are bringing something new to our team, so I keep sharing with them some inspirational videos and pushing them the right mindset. Let's say, if they want to achieve something that they need to have ownership approach. Because whatever they want to take from the company, I mean, like skills, etc, even if it's not paid, well, it's not about, you know, or like they didn't receive salary or whatever, they will receive growth and after they can leave this company or whatever, and they can, you know, gain bigger salary, or they can become founders. So always, they need to say long term picture. So I always help people with the right mindset, and helping them to improve this part, and giving them some tools, like meditation, pranayama, sharing with them some books, also pushing them like go watch this video or that video, so that they will have bigger picture, because I don't want them, you know, to start and be average. Even if they will leave company and will start their own company, I will be like, super happy, and it's what happened with my previous colleagues who was working in my team, like when I was manager tech.
Komal Bhirud:
How do you identify areas for innovation?
Zhanna Manzyk:
So based on what is happening with the market, let's say now you have like in recruitment, we have AI, and it's growing super-fast, so I'm thinking how we can implement AI, then I see what competitors are doing, and I see also, like new competitors that that start started, for example, a few months ago, and now they achieve something huge. So I'm like talking to them and also sharing something new from my side that I learned my experience. So we, because I am always mentioning to them that we are not competitors. If you want to make sure that this space will be growing fast, we need to help each other to grow. And if I can help you with something, or maybe you can help me with something, it will be great. So I always have, like, super friendly, because I know usually with service companies, it's very tough to build this kind of relationships, but I found the way, and it's

working for me amazing. And I guess it depends on the personality. If the second co-founder is amazing, of like, let's say his competitor, then it will be very easy. So, then it will be like two points to say what kind of market trends, what competitors are doing, and also I'm checking say something in web three or some other industries, and they have one approach that was working for them. Good, for example, ambassadorship program, because no other recruitment agency used this stuff. And I was like, Okay, let me try. And it was amazing, because our social media, like, we have a lot of like, reports and ambassadors. They are spending knowledge about child talent, and we just don't put this anywhere, but for context, I'm paying them only 20 USD per month. They are working few hours in a month. And they are liking, sharing, commenting every hour, post. Some of them, they are creating content, images, infographics, etc. So it's one, what process do you follow for idea generation? So, as you know, J town, we don't have Office. We have mostly folks. They are working in very different countries, like Ukraine, Pakistan, India, Nigeria, Brazil, etc. So what we are doing, we are having calls. I have calls with every individual one to one. It's monthly calls.

Usually, I'm using those calls, you know, to give them feedback, what is good, what is bad, what improve. And also, I am asking them about some ideas like, because they already work with Jaya talent, what they think we can change in in their department or some other departments. So it's like, in general feedback, monthly feedback, then we have Jaya talent company call every.

Be like every 28 of each month, where I'm giving them updates about company and also asking their feedback and another one. Whenever I have some challenge, I'm posting this in our WhatsApp group for the team and also ambassadorship group. Let's say we have this challenge, we need to grow, or we need to find similar information, or we have this kind of problem, how you guys think we can solve it? Then they are, you know, sharing their ideas. And also, we have idea box where each team member can share their chat like their ideas, and how we can solve those challenges and.

Komal Bhirud:

Hey, tax so see, how do you prioritise which ideas to pursue?

Zhanna Manzyk:

I found that you know if you will be spending a lot of time identifying what will be working or not working, then you will waste a lot of time and maybe end up with something wrong, it will be not working, but he was thinking that it's working. So I'm like always telling to my team to have open mind and just to test ideas like for one two weeks, to see how we can improve if it's working or not working, or if you say that this idea was working for competitors, and in, in our situation, it's not working, you know, we can chat with competitors and ask their feedback, because we have good relationships. So the best approach is to test idea, to give a shot and don't think too much, because you never know.
Maybe something that you will say that it maybe it will not work for us, but it will be like the best solution for us. So we are testing.
Komal Bhirud:
How do you encourage a culture of innovation among your employees?
Zhanna Manzyk:
So first of all, I am hiring people who are having the right mindset they always like to give them to receive. So most of our people, they are ex or current participants of Isaac. Isaac is global volunteering Organisation, and those people who are doing service, they already learn to receive something from the universe. First you need to give so they have already right mindset, and they will be having, most probably, like, more chances to have
founders mindset, and you don't need to follow up with them. They will be like, always pushing you and sharing some ideas, etc.
And also, I always tell them, like, be innovative, and in each monthly call, I'm telling them the same tactics.
Komal Bhirud:
How do you measure the success of innovation efforts?
Zhanna Manzyk:
So see, we don't have so much data, because we just started last year. So whatever we are trying now, it's always like new for us, and a lot of stuff that we are trying something new for the market over, like we are bringing some practices from other industries. So we don't have numbers to compare, but how we can

measure it's more for us. We can, you know, we have some reports. For example, we launched this ambassadorship program, and we see how our social media engagement, if it's changing week by week, if it's growing or not growing, why this happened?
And we have like feedback from my marketing team because, like, we were posting this, this more, or we need more this kind of posts from ambassadors, then we are checking, let's say, how ambassadors if they're active or not, if our telegram channel, for example, if it's growing or not growing. So based on numbers, and we always compare. Let's say, if we are trying something new, we have day one after we have, let's say day seven and day 14. And we compare if it's growing or it's not growing. So it's more
numbers, like our numbers,
we are not, you know, trying to run after the industry. It's more if we can close also if most of our roles grows close to true referrals, or it was by sourcing from LinkedIn in for example.
So it's one
Komal Bhirud:
What challenges have you faced to achieve innovation in your Organisation?
Zhanna Manzyk:
I feel like sometimes when Kim is little occupied with some manual tasks, because time to time, it happens then Most probably they will be not sharing so many new ideas. But when Kim has like more free mind, then they will be sharing more ideas. That's what they found.
Komal Bhirud:
If you had to choose one factor, what drastically affected the innovation capability of your Organisation? What would it be?
Zhanna Manzyk:
Let me think, and I will send you know. So I would say, to bring mindfulness into Organisation, like meditation, pranayama. Then people, they became like because everyone is having stress, but stress, it's not about, you know, if the Organisation good or bad, or whatever, it's more about the person. Let's say, if you have the same situation, something bad happened, it will affect let's say, me more, but you

less, because you're doing meditation like you're more you're better with stress management, so but in let's say, in service business, you already know that you have a lot of changes, like client can hold their role on pause, or say, I am closing the company, or whatever, different factors. And sometimes recruiters, they are not able to understand the reality of business. And it's because, like this, for example, maybe it's there for service business, like experience in service companies.
So it's why I am, like, giving them some tools, some books about manifestation, right mindset, pranayama, meditation, and I found that when they are doing more meditation, they are like becoming more productive, and they have more ideas. They start being more grateful than you know, start like complaining. And I guess you already heard this phrase from OSHA, that spirituality starts when you start moving from complaining attitude to grateful attitude. So I think meditation and even two days ago, I was talking at one conference. It's called conference for meditation leaders, and it was run by ex-IBM guy. He was working in us, even for 10 years with IBM, and he found that meditation is the truth. And now what he's doing, he's pushing meditations to Organisations and trying to make sure that Indian government, because he wants to start with, Indian government, will implement meditation in into policies so that everyone will like, not only meditation in general, mindfulness, pranayama and the world will become better placed, and people will start creating something very mindful. So we did this conference, and in the end, we were having resolution about the same, and we have some data that we that from this conference, they will be sharing with Indian government and pushing this Indian government.

Interview 3 – Miikka Paakkinen
December 09

0:25 - Komal Bhirud
So today's chat is mostly going to be about innovation and your experience as an innovation consultant.

So I actually want to understand a lot of things about innovation from your expertise since you're already working as an innovation consultant.
What I would like to start with is, could you start with explaining your role in your current company and your experience as an information consultant till now?
1:10 - Miikka Paakkinen
Yeah, sure. I'm happy to do that. So right now I'm working as an independent consultant, right? So I am the company and that's my role.
I'm doing everything there. Maybe I can give you a little bit of background on how I ended up doing what I've been doing and some examples of projects and so on.
So I studied for a master's in service innovation and design back in Helsinki, where I'm originally from; nowadays I'm based in Berlin.
After that I started working right away as a consultant. I started doing some freelance projects to start with, then worked with a couple of different agencies. The first one was called Wunder, where I was working mostly with Finnish public sector clients on kind of new services or renewing online services and these types of large public services. their initiatives. Then I went on to a company called Futurice, to their Berlin office, where I was working mostly with large European multinational corporations and working on innovation projects, either kind of like venture building stuff, so figuring out clients had an idea that, okay, we should try to build X, then we would go in and find out does X make sense for this client that could involve the customer experience side, so do users want it, the business model side, does this make any sense financially and also the feasibility side, so can we pull this off technically, legally, those sorts of aspects.
And that's also kind of pretty much the focus that I've been doing as an independent consultant as well. Sometimes I also help startups on kind of, yeah, innovation things and have also done a little bit of NGO work as well on kind of like how NGOs might do innovative services that have some sort of a social or environmental impact.
3:14 - Komal Bhirud
Amazing. You mentioned that you've also worked with smaller organisations, and the problem statement I am working on currently does focus on small to medium-sized organisations.

So would you say there is a difference between consulting a larger organisation and consulting a smaller organisation, and what are the differences when you work with different kinds of organisations?

3:48 - Miikka Paakkinen

Yeah, sure, I think that's an excellent question. There is a difference for sure. I think also one thing that’s also kind of like a factor to consider is that smaller organisations usually have much fewer resources. So that's why, for example, I tend to work a lot less with smaller organisations, and consultants generally tend to work less with smaller companies because they just don't have the budget to hire consultants.

That's already like one thing. I think the resource constraints are one really big challenge for, like, the smaller the company, the more challenging it gets to kind of have people in place who are focused on doing innovation, and then, of course, also utilising externals to do that. When you go into, like, the bigger the organisation, I think the more political and more bureaucratic it gets, the more you're doing this sort of like, okay, how do we bring these stakeholders together? How do we get them to talk to one another? Whose incentives are blocking this innovation from happening? And it's really like I have a friend who works in-house in a corporate innovation like unit and he said I think he said it pretty well that it's sometimes it's almost like this collection of different feudal society is where these like different departments don't want to work with one another and when you go knock on their door they try to their archers come on the gates and try to shoot you down so it's a very different well whereas SMEs it's kind of you know there's a lack of that that's a bureaucracy and politics and so on if you go especially to the smaller side of things but so you usually you get to work directly with leadership of the company and there's much more the chances to actually get things done. So I'm thinking of an example from some years ago where I had advised a small marketing agency on how they might kind of renew their customer experience. What sort of services they might add to their portfolio and so on, work closely together with their leadership team and I think it was like three days after we delivered final recommendations that the first stuff they'd already implemented.

Whereas in corporate, you might, or especially when you go to the public sector, things happen like years after you actually did something as a consultant.
7:00 - Komal Bhirud
So what I understood from what you said is that apart from the budget, the main difference in both of the scenarios is the timeline; also, one of the major differences in both of them is in corporate and in smaller organisations.
Um, you mentioned that your friend is facing a problem in, like, a corporate, um, larger organisation where different departments don't want to work with each other.
Um, have you ever faced a situation like this and what did you do? Like, what other steps need to be taken in such a scenario?
7:22 - Miikka Paakkinen
Yeah, I mean, I think, yes, I have faced situations like that, that for sure. It's, it's kind of, it's just, I think there's just a level of complexity in these sorts of really big organisations that, that when you talk about 10s to hundreds of thousands of employees, then it's quite hard to, to just find this sort of alignment between people.
So I think mostly the cure for that is just to try to, what I do in situations like these, I try to map all of the different stakeholders that I'm going to be dealing with. Understanding, like, okay, who are the really, like, important people here for the success of the project? Then try to, like, get to, like, on the table with them and just understand their motivations and incentives and so on and try to, you know, understand them as, I mean, at the end of the day, it's a bunch of humans in a complex organisation, and humans have human needs so just, like, try to connect with people and try to figure out what their, what their, like, needs and fears are and so on and try to kind of work it from there. I think that that's, like, one thing that I think works, you know, in any type of organisation, so that could be kind of generalised.

8:46 - Komal Bhirud
Yes, that totally makes sense because at the end of the day we are consulting humans but yeah, I totally resonate with that one doubt I have is now that I'm

writing my thesis on this particular topic. I went through a lot of literature and I found a lot of factors that, in theory, people say affect your organisational innovation capability.
It includes a lot of stuff like your vision, your leadership style, your resources, your process, structure, and external engagement. A lot of things, right?
If you are able to take risks or if you have strategic alignment. Would you say, in theory, it is like all of these factors really matter?
Like, what is the difference between theory and practice? How would you like it? What things do you focus on when you start with a project?
9:49 - Miikka Paakkinen
Yeah, right. I do think that all of that matters in theory. At least all of that is kind of like... Yeah, there's nothing in there that I would like to disagree with for sure. I think it's very much about kind of, yeah, you need to definitely have kind of leadership buy-in in an organisation that there needs to be kind of, you know, someone in the c-suite needs to like spend significant time on innovation and innovation needs to be on the kind of strategic agenda.
I think it's really hard to really make a meaningful difference within an organisation if there's no kind of active involvement and belief from the top that this is important and then, on the other hand, that needs to kind of set the strategic direction on what, like, innovators within the firm are doing so.
So whatever is this kind of being done should somehow align with what the company, like that, a company strategically wants to be. I think quite often like one challenge is that especially in smaller organisations it's hard to show immediate return on investment on these innovation things that can be tough especially I think right now it's especially hard with the macroeconomic environment it's quite tough for a lot of companies there's a lot of uncertainty in the air companies are cutting down on the innovation spending generally so it's an especially tough environment for that right now but I think you need to yeah then you need to find these sort of wins and I think you need to have a clear kind of also approach on kind of how do you structure the initiatives that you're not just working on one or two things but you have maybe like a portfolio of ideas and you know you don't

stick with something forever that doesn't work. I think it's also very important to kill projects fast and be clear about when to kill projects.
So I think that's one problem that I stumble upon quite often: organisations are like, They tried one or two things, and they didn't work out, and they're like, Innovation sucks, or We should just focus on operational factors now because obviously nothing comes out of this, but I think it's a portfolio game. It's kind of the same thing as if you're a venture capital investor. You're not going to put your money on two teams of two people who have an idea and then when none of that turned out to be a billion-dollar company, then you don't say, Oh, okay, startups suck so I think it's important to have that sort of broader approach to it.
Some thoughts on, like, is this going in the direction that you're interested in or is there something specific that you'd like to kind of ask me?
13:02 - Komal Bhirud
No, I think this definitely is going in the direction that I want to put into my pieces, like the insights that I really need. It's actually really interesting because I also recently read, like, a blog, let's say, where a lot of people said that, let's say, I have an idea. I have an innovative idea. So the concept was if I don't have a totally innovative idea, something totally different and out of the box. I need to have, like, even if my operations are not so great, it would succeed. Or if I don't have a totally innovative idea, I need to have amazing operations so that I can, I should be able to scale it properly. How do you think, like, do you think that makes sense? Like, what are your views on it?
14:15 - Miikka Paakkinen
Yeah, I think, I think what you, one thing that I've learnt, and I think a lot of practitioners who are experienced in the field also kind of end up preaching, is that the ideas are very cheap.
Everybody has ideas. You probably have five different amazing business ideas in the back of your mind right now. You kind of start thinking about stuff like that, but it's the execution that matters. The idea of that, if you have a super great, innovative business or service or whatever idea, means it's, yeah, it's, you still need to execute it to a very high degree to make anything out of that. Starting anything new is extremely hard, especially if it's something that's kind of more

innovative and more away from the core business or whatever it is, then the harder it is to pull off and I think the execution there is kind of everything.
Then on the other hand, to the other side of the argument, you just execute something super well and it doesn't need to be super innovative. Yeah maybe…
If you just kind of, you need to, of course, offer something, some sort of a unique differentiator in the market, but I mean, you can make a lot of money by starting a good hair salon in the right part of town where there's not a good hair salon, so I think it's sure, but still you need to definitely have something that differentiates you from the competition; otherwise, it's going to be very tough to make the equation work out, I think.
16:13 - Komal Bhirud
Interesting.
So, when you consult with different companies and you work on the print, can you study different scenarios? Do you follow a particular framework or do you adapt to whatever the need is?
Like, how do you go about it?
16:31 - Miikka Paakkinen
Yeah, I think that's a great question. I think it's something that I just actually very recently wrote something about this on LinkedIn. So, you saw that, yeah. I think that's kind of, yeah, that was a misconception that I personally at least had in the early part of my career that, you know, just following a framework is going to kind of, you know, get you there. I think early on, as a practitioner in any field like this, it's also hard not to follow a framework.
Because, like, what sort of experiences are you going to draw upon when you don't have much, much at all? But that's something that I learnt throughout the years: it's just better to try to really think of the problem first and think about, like, what's an approach that works for it. So for example, for me, I would have probably, like, I don't know, four different kinds of frameworks that I draw something upon usually in projects.

So one is, of course, design thinking coming from that background. Another one is lean startup. Then I definitely draw upon a bunch of stuff from what you would kind

of put in a management consultant to innovate, so I quite often approach projects in the same way that a strategy consultant would. kind of breaking, breaking a project down to, like, a high thesis tree and then planning, planning studies around that and kind of taking that sort of approach is for some projects, it works well. And then futures thinking is another kind of bucket where I usually go to and kind of conduct some, some trend research, do some scenarios, and then kind of use that as fuel for ideation and kind of switch from that tool to design thinking in a way, but those would be maybe the four large buckets that I usually draw from that would be kind of four different frameworks, but I usually, I don't follow a certain framework, like super, like strictly, but it's still good to have something in the, like, back of your mind, of course, on, on like, where are we at in some sort of, like, framework in which part of the process are we and so on.

19:07 - Komal Bhirud

Yeah, makes sense. Because when I, when I do the literature study, right, I come across a lot of frameworks that I don't really see people talking about in the industry, like, there is a BCG framework; there are like a lot of old frameworks, right, like created by researchers and stuff, but they're not really being used in the industry these days.

People actually get on towards tools like, well, let's say the board of innovation has a lot of tools that allow an organisation to actually put everything in front of their eyes to see, okay, this is where we're lacking or something like that.

So, yeah, that was my approach. And I'm really interested in knowing your view on how AI might change this industry. How do you see AI changing your job as an innovation consultant? Do you see it as an enabler or do you see it completely acting as an autonomous system?

20:27 - Miikka Paakkinen

Yeah, that's a super interesting question.

Yeah, I think there's, so there's like, of course, the side of like, innovations themselves in a way, I think AI is radically changing, like basically, all white-collar industries are kind of like potentially to be disrupted right now.

So I think that's super interesting from an innovator's perspective that it kind of changes the nature of work that you right now you almost need to kind of figure out, like, how do you use AI in anything that's your any sort of business model. So I do think that it's a sort of technology that's that kind of what we're going to be looking at in 10, 15, or 20 years from now. I think we're going to be thinking about a similar moment to when the internet achieved mainstream adoption or some events like this that really changed how we do business and how we communicate and how we live our lives and I think it's, of course, going to take a bunch of time and it didn't happen overnight. Back then for example, people didn't all start shopping online the next day but yeah, eventually they did. I think and I think the adoption is much faster; the technological evolution is happening in much faster cycles as well so it is a very interesting time to be in innovation from that perspective. Um, to your question on how it's going to change our—like, my job as an innovation consultant—I think it's going to completely upend the industry. I think consulting firms are right now realising that that's so some of my friends are like, Oh shit! This is really affecting how we're going to work. Consulting is an industry that's fully built on selling very expensive hours to clients, and now a lot of those hours can be, I would say, that personally I probably achieved, I don't know, something like 70 percent efficiency gains from just adopting GenAI to large parts of my workflow and you know we're in very early days so I think this is going to still change a lot so I mean you can just put a lot of this sort of data collection and analysis and so on to kind of supercharge that process with these tools. I think it's also very interesting for boosting creative ideation. There's definitely a kind of flip side of the coin: if you externalise your thinking too much to AI, then you just get these sort of rather mediocre results in a way. So I think this is also important to kind of think of the creative ideation side yourself and also to really push these models to kind of go beyond the obvious stuff.

I think it's going to change things. I think there are already examples, some early examples, where some firms are doing kind of like these sorts of full automations of certain parts of the innovation process and that's something that I'm personally also kind of working on to see how much I can push this thing to kind of make it into this sort of like semi-autonomous machine of creating insights. So I think it's

an interesting theme. I think it's definitely going to... Like, when you ask, Is it an enabler or will it fully replace everyone in our field? I think it's an enabler. More than that, you still need to understand kind of, you know, what we were talking about earlier. In the end, execution matters. And I think, you know, it's just going to make the process of going from idea to early market experiments a lot faster.
It's going to make the process of creating good quality ideas that have a strategic fit and that are backed by data. Going to make this process a lot faster. And of course that's what a lot of innovation consulting firms were charging their clients for mainly and that's going to change. I think this is going to be very interesting to see then, like what's the shift in the future in the field?

25:19 - Komal Bhirud
Yeah. Also, apart from AI, till now the industry is kind of shifting from a very operational or technical aspect to a more innovative approach. Like initially, there used to be business consultants, like there still are, but a lot of companies I see are turning towards innovation consultants now to gain insights and from what I read, the difference between a business consultant and an innovation consultant is the mindset and approach, where business consultants focus a lot on the returns or the number side of it and innovation consultant consulting focuses on, let's say, the future challenges the organisation might encounter or finding the right markets or encouraging taking risks.
So, till now, we see this involvement in the role. How do you see it changing in the future?
26:39 - Miikka Paakkinen
Yeah, interesting question. I think, yeah, I do think that there's more overlap in these things as well, that it is not necessarily so kind of black and white in a way; you know, the traditional business consulting, management consulting, and strategy consulting firms have also traditionally done a lot of, let's say, market entry projects where they figure out clients on how to get them into new spaces and so on.

You're right that work has always been more quantitative in nature and management consultants are great at running numbers and figuring out how much a market might be worth and choosing between 20 different markets and where to launch next and why and so forth.
I think right now I would maybe disagree with kind of what you said about there being a shift from going from business consulting to innovation consulting.
I think there was a shift, and that's a lot of these traditional consulting firms were buying out innovation firms, design firms, and so on, and all of the big ones, like your McKinsey's, BCG's, and Bain's of the world, they do have their clear innovation departments now and so on. Right now in this economic situation I think the industry is finding that it's the business consultants that are getting the business, not the innovation consultants.
I think it's the innovation side of the industry where there's been a lot of layoffs, where there's been really significant difficulties in companies landing projects and so on. At least based on my networks and everyone I know in the field, like everybody's struggling. But that's a cyclical thing right now.
I think that's kind of the thing in anything where that's innovation-related. Of course, it's easier to cut from the budget than to figure out how we make money now versus how we make money in the future.
But yeah, I think it's hard to say... where is it all going to go? think that the trend has been for sure that all of these approaches are kind of in a way getting kind of like mixed together and I think that's something that will probably keep on continuing and I think it's also just again like going to this AI theme for example it's much easier for anyone who has a consultant skill set to execute any type of analysis right now so I think it's also going to change a bit from that it's not only going to be like it's the design thinking practitioners are doing design thinking and management consultants are crunching numbers and so on I think it's probably going to just mix more together and people are going to be doing kind of even wider variety of roles in the future.
30:00 - Komal Bhirud

Amazing. Well, I think in conclusion, you mentioned in your, I think the first question that SMEs don't have a lot of budget to hire consultants and, you know, like work with them. So if you had to give advice to these kinds of smaller organisations that are looking to improve their innovation capability and they don't know how to do it, what would be your advice, like what are the things that they should really focus on?

30:38 - Miikka Paakkinen

Yeah, good question. I think, really deeply understand your clients and their problems. think that's the best way to both improve your current service or product offering and get completely new ideas on when you really understand what your clients are kind of struggling with.

I think in the end of the day. That's the kind of starting point for any business, right? That you understand your customers likes and pains and are able to somehow solve them.

So that's probably something that I'd recommend to anyone at these firms. Just talk to your customers, like not once a year, not once a month, but every week, like have some sort of understanding of what's going on, and then just some sort of structure on, like, what did you kind of learn right now on, like, what your customers are like, up to what are they struggling with, and then kind of what sort of ideas does that bring about, and then just kind of having some sort of strategy about how do you approach innovation? So, like, let's say we're in, like, industry X, and there's an adjacent industry Y that could be kind of like an interesting one to create something new in. Let's focus our innovation efforts on, like, something in Y, creating this and that type of value there. So just to have a clear focus, I think quite often in this sort of creative work, limitations actually help.

And of course it needs to have some sort of clear link to why this is a good fit for you as a company. Why should you kind of look into a space like this? Because to successfully pull something new off, you need to have the capabilities to actually do that. And that's why also in the startup world, for example, a lot of people talk about founder-market fit, right? So all of us have also great ideas again, but is it a great idea for you? Or is it like someone else who should pull this off? So I think that's also something that's really important.

33:03 - Komal Bhirud
That makes sense because this is the first time I'm hearing this actually about founder-market fit. I've only heard about product-market fit until now, so it's really interesting. Yeah, I think I have covered all my questions. Would you like to add something in the end that maybe was not covered until now?
33:32 - Miikka Paakkinen
Let me think. Yeah, I can't come up with anything right now from the top of my head. I think you had a very good structure for this, but if anything comes to mind, if you have any follow-up questions afterwards, then just feel free to shoot me a message on LinkedIn. I'm happy to respond. I'm also interested to see your thesis once you get it ready.
33:54 - Komal Bhirud
I will definitely send this to you. Thank you so much for taking out your time. It was a really interesting chat. Thank you. Have a good day. Bye.

Interview 04 – Harald Goegl
December 12

0:40 - Komal Bhirud
Yeah. So the reason for me asking you for this chat is I'm writing a thesis on Organisation innovation capabilities. And given your experience as a head of innovation at Maxpert and your past experience as an innovation consultant, and I thought your insights could be really valuable. So I think we can start by, if you can tell me about your experience as an innovation consultant and as head of innovation and a little about your background as well.
1:18 - Harald Goegl
Yeah, I can. So my journey was actually I started also to working at the school of design thinking and you asked me about Martina Skender actually, I don't know her very well. I think I met her more than 10 years ago, maybe in this context of the D school, the School of Design Thinking, which is placed in Potsdam. That's where my journey starts with this whole kind of creative innovation parts to some kind of how people can come together and create innovations based on design

thinking. This was kind of the core of it. And I took this knowledge when I worked there. And try to start a work of companies. term and this was one part was agile kind of the idea kind of bringing an agile thought into the companies to say okay let's do projects differently and agile manner and the second thing was kind of the more design thinking creative part where people come together and create new innovations and there is much more to it actually there's cultural aspects to it and how teams work together communication aspects and so on and all these things kind of at the end of the day important for innovation or for innovation spirits in a company and this was my perspective on this topic it is sometimes more from the from the software side and less from the innovation management side and I have to say so this was kind of my thing so what I did in the last 10 years 12 years I worked with mostly big companies together and did some trainings and workshops on these topics and to Yeah, to spark this kind of new way of working. So this term new work is also part of this whole thing and which is a term you don't hear so much anymore these days. Yeah, so this was kind of my doing and at the moment I'm at MaxPads, I'm a trainer there, but also responsible for innovation parts. And this is kind of more kind of towards our clients, less internally or sometimes internally but towards our clients to say what could be formats where people come together and create something new. That's the idea of it. these can be hackathons, these can be design sprints, these can be things like this, yeah.

3:46 - Komal Bhirud

Amazing. So you mentioned that you've also worked with a lot of like different clients. Like what kind of clients have you worked with? You mentioned that you've worked with larger organisations. But have you also worked with very small organisations like startups or medium-sized organisations?

4:08 - Harald Goegl

It was usually bigger Organisations, not smaller ones now. I did not work a lot with startups. We were in the consultants branch and startups don't have the money for the stuff. Our idea was to teach startup culture to the big ones, the big companies. The companies I worked with were Deutsche Telecom, for example. it was many years I worked with them. I also worked a lot with Accenture, interestingly. A big consulting company, a huge consulting company, very big in India. the way, I was

numerous times in Bangalore for them. They wanted to try to learn this because this was kind of different topics. They said, okay, we want to learn this new way of working. We need this because we are consultants. We need new ways to communicate with our clients. You need these tools. You have design thinking as part of it, actually as a new way of consulting. So they changed the approach to consulting with this. So it was a training.

5:17 - Komal Bhirud

You mentioned design thinking as a tool. When you work with different clients or different organisations, do you use specific frameworks or how do you go about the whole process?

5:35 - Harald Goegl

So the main thing was what is the question then from our clients and what they need. what are we working on here? And like I said, fuzzy focus was here kind of to change the thinking of the people, so to say, kind of the mindset I don't like this term anymore so much anymore, the mindset of the people and that it can come together and work on new things. This was kind of the, that's what I meant with more of the softer part of it. And it's more about kind of, yeah, thinking and working and collaborating and so on. This was the goal. And, but also at the same time, we use these all these methods and tools kind of to help the clients to facilitate sessions than to come up with new solutions. What was the question I got? I'm not sure if I answered your question. What the tool tools for it?

6:33 - Komal Bhirud

Yeah, if you use a specific process or what do you go about the process?

6:38 - Harald Goegl

Yeah, there's kind of the main process from our side to understand what the client needs is first of all to ask questions, of course and to think about this and then to synthesize together and to collaborate with the client to say, okay, what do you need? And so I'm at the same process and the same tools we teach them. This was kind of also the content. So it was kind of our strategy but at the same time, the content would just be. sometimes. But that's kind of what we did. You want more specific or what kind of, you want to go in deep in this, kind of what the kind of the steps are, process, the phases are.

7:19 - Komal Bhirud

Yeah, I mean if you could just touch on them briefly.

7:25 - Harald Goegl

Yeah, I don't know if you know kind of the innovation cycles and the design process, if you're familiar with this stuff, it's very simple straight forward. think nowadays it's a commodity. The idea is that to say, okay, first of all, you have to understand what the topic is. have to go, we have within our team, we try to have an understanding there are different tools for it, creative reframing or territory mapping. These are just methods you can use to get a common understanding of the topic. Then you do research, design research, maybe you know this talk to people, interviews, immersion, and so on. This is the next step. Then you take this data and then you try to synthesize this data. What is the nuggets here? What is the core idea here? Affinity clustering is one of the synthesized methods. And then you try to find the focus points and say, okay, this is now our topic. The other topic is not our topic. This one is for our topic now. And then you try to create a question out of this one topic. And then you take this question and then you go to the next phase and then doing brainstorming. Different kinds of brainstorming out there. then you come up with many ideas. pick two or three and then you start to work on the MVP. So you do prototyping. You try to create it to make it tangible and so on that other people would understand it because then you want to test it. It's the last phase. And then you go on a test phase and say, okay, now I want to get feedback from the people. I have an idea here. Solution here. And what do you think about it? That's kind of the design process in a nutshell, I would say. that's what we teach a lot, kind of. I would say my core for me was always kind of the creative confidence of people, to say, I have the confidence to find solutions. Because sometimes people just sit there and they are, I don't know, it's not possible, nothing is possible. And I'd say, I want to spark this again, say entrepreneurial spirit. So these are the phases. then afterwards, it's going into the MVP phase, how to do MVPs, and so on. And how to test this kind of in the market, and so on. it's kind of bringing innovation to life.

9:45 - Komal Bhirud

So, yeah. So it's safe to say that it's a design thinking process, broadly, yeah. You're familiar with this? Yes, I am actually from... Yeah, I am actually from the design background. I completed my industrial design for my actual and now I'm doing innovation management. So my topic why I chose this topic is because like the gap that I found is a lot of larger Organisations have the resources and money to hire consultants and you know work with them but with smaller Organisations it's very different like larger Organisations have consultants to work them through the whole process but with smaller Organisations they have to kind of guide themselves through this whole process and there are multiple frameworks in the like there are a lot of frameworks in the industry but I noticed like I spoke to a few founders to understand if they actually understand what are the factors that affect their innovation capabilities like of their Organisation and they don't really understand a lot of things in like in this topic. So my goal is to create like a framework for specifically for SNEs that is that that will also leverage AI so that there is no need for consultants and they can use it as a tool. So in that context let's say you've worked with a lot of larger Organisations but if you had to work with smaller Organisations what do you think are the most important factors that they should be considering and what are the things that they can maybe leave for the future? Leave out or maybe focus on that later but like when they're starting out what are the things that they should be really focusing on?

11:56 - Harald Goegl

So my first reply when I'm talking to these people kind of is you have a big advantage you're small and small as it's a big advantage because the big companies they have the structures they're really stiff and they have huge issues we need to bring something to life so kind of from an idea bring it into the market it's a long way and it's difficult and so on for the small companies because small companies if you're in a really small company I wasn't a company and do everything I know I know the full cycle of it I create something I think about it I bring it to market I have to do sales and so on I have to talk to clients it's sort of full cycle the full range this is a big advantage of the small companies because they understand kind of the they have the whole picture here it's for big companies not the case because they have someone different department so many hands

involved so many signatures you need for the stuff so this is my first answer and I'm pretty sure with the new capabilities of AI and so on its super accelerating this this topic. A friend of mine recently created a chat GPT for innovation projects and for innovation actually for facilitators and so on. He created a specific one that they can use, published it, they can use it for facilitation. So if you have any questions, if I have to create a workshop where innovation is starting and so on, then I can ask this chat GPT. So the question was, what can they do and what should they leave out, actually? It's not easy to say, I would say I would tell them maybe they should really see their advantage that they can build something from scratch till a later stage with a few people kind of. And they should of course use everything they find out kind of to accelerate this and to help them. this is my thing and I think small companies maybe they are small because they just started and there was a spirit in the beginning to say okay we have an idea and we make it into life and if you can maintain inside this the spirit kind of to these new topics you have now then you're in a good way you have a big advantage if you're small in this case for innovation it's a you yeah you mentioned that your friend developed a charge for beauty for facilitators given the increased use of AI in the industry what do you think how does innovation consulting or innovation as a topic look like maybe in five years or ten years I'm not sure if I tell you anything new I think it's it makes a huge difference you see every day is and crazy things people are doing with the tools, so with the tools anymore, actually, with their eyes. it's an accelerator, I think, especially for small companies, for everyone, of course, but also for small companies, if they are just trying to use this, especially also in this whole creation part in the last one year, actually, how you can accelerate everything. If you're doing a design thinking exercise or a design thinking workshop, you can so fast now that you can make use of this whole thing. it makes a huge difference, a huge difference, actually. you can make use of this if you're a small company and find solutions very quickly because you don't have to ask too much questions to someone and for permission and so on.

You can just do it.

15:47 - Komal Bhirud

Do you think it would maybe replace humans someday? Like, yeah, I mean, just an innovation consulting.

15:58 - Harald Goegl

I don't know. I'm not smart and in the rest of the world, I don't know these questions, it's really hard to see what is needed in the future at the moment, we are just trying to figure out how this whole thing works and what is not needed next year anymore, maybe there are many things not needed anymore. yeah it's really tough to say any, to nail something down, because I just think, usually I would say it's always the case if people come together and working together, something magical can happen, but I'm not sure this is the case anymore. So the idea is to say if we are taught, if you want to create something for humans, you need just kind of also the feeling for it, and at the moment I think it still kind of needs kind of people to say okay this is the right thing, we have a feeling about this and so we know how people work, but maybe I also knows how people work and I'm sure what is them.

17:03 - Komal Bhirud

Okay, you mentioned new work. Now, when I looked at so many frameworks that are already existing in the market, specifically for Organisation innovation capabilities and how to increase them, new work is not a part of them because it really started booming after COVID. Do you think now it is an integral part of these innovation capabilities that the Organisation could use?

17:34 - Harald Goegl

It's a good question and I would say yes. So it's an integral part and still a few these are hypes from time to time but I also think many of the ideas of new work is kind of how you work together, how you create a collaboration environment. Now it's the commodities kind of everywhere but I think there is a basis now that people understand okay what is needed, that people come to have a nice space and so on and work together. This is kind of given sometimes. So therefore no one is talking about this anymore. A couple of years ago it wasn't the case. It has to be created. Well it had to be created actually. Yeah, but it's crazy times. It's really difficult because I'm sitting here in Germany and Germany is at the moment and

stress. The economy is stressed so therefore no one is talking about this anymore and it might be different in other countries.

18:38 - Komal Bhirud

Right, because it is actually really booming in India. People are really shifting towards the new work. after Covid they're very reluctant to go to office. They don't want to go to office. They're like oh now we know that it works, that you know like working from home works and now they're like why do we have to go back to the office. yeah, like the Gen Z new work because I think it's in Gen Z. They want to adopt it more than the older generation. yeah, I think those were all my questions. Would you like to add something in context to innovation capabilities in Organisations and how they can increase them?

19:23 - Harald Goegl

No, for me in the core, it's kind of the idea of experimenting to their experiments. That's kind of the core for me. this is not always given. So that's kind of the last sentence, maybe. Yeah. Thank you. Thank you, Harold.

19:45 - Komal Bhirud

It was a great chat. Thank you for taking out your time.