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**CO-PRODUCTION FOR BUILDING PREVENTIVE HR SERVICES:
A CASE STUDY IN A GLOBAL ENERGY TECHNOLOGY COMPANY**

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ABSTRACT IN ENGLISH

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This study indicates that research viewing service design from an employee experience and prevention perspective offers additional potential for HR development and global shared services. The study aims to understand co-production and co-creation within HR services in the case study of a global energy technology company. The research is based on qualitative pragmatic practice-based design research. Gamification as a data collection method was explored in 12 workshops in five countries and three continents with 174 participants. Data was analysed using thematic concept and content analysis.

The study contributes by introducing a preventive co-production framework combining the knowledge of co-creation, co-production, and risk management within HR. First, research conducted an exploratory global case study, which led to creating, testing, and refining the Voice of the Customer gamification concept for understanding employees' needs and improving co-produced processes and HR services. Second, this study takes advantage of a potential research gap and contributes by developing and validating a holistic model of HR Bowtie, a preventive approach to HR development. HR Bowtie can also be seen as a communication tool that visualises the role of reactive and preventive actions and the employees' voice in HR development. This study proved that a human-centred approach might bring HR to the next level by moving the focus from internal improvement to co-production, bringing a more substantial base in a complex digital era.

Keywords Co-production, Co-creation, Service Design, Gamification, Employee Experience, Digital HR, HR Services

TIIVISTELMÄ SUOMEKSI

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Tämä tutkimus osoittaa, että palvelumuotoilua työntekijäkokemuksen ja ennakoivan kehittämisen näkökulmasta tarkasteleva tutkimus tarjoaa lisäpotentiaalia HR-kehitykseen ja globaaleihin palvelukeskuksiin. Tutkimuksen tavoitteena on ymmärtää HR-palveluiden yhteistuotantoa ja -kehittämistä globaalien energiateknologiayrityksen laadullisen tapaustutkimuksen pohjalta. Tutkimus on pragmaattinen muotoilututkimus, jossa pelillistämistä tiedonkeruumenetelmänä tutkittiin 12 työpajassa viidessä maassa ja kolmella mantereella 174 osallistujalla. Aineisto analysoitiin temaattisella konsepti- ja sisältöanalyysillä.

Tutkimus tuo uutta tietoa luomalla ennaltaehkäisevän yhteistuotannon viitekehyksen, jossa yhdistyvät tieto yhteistuotannosta, yhteiskehittämisestä ja riskienhallinnasta HR:ssä. Tutkimus toteutettiin kokeellisena globaalina tapaustutkimuksena, joka johti Voice of the Customer -pelillistämiskonseptin luomiseen ja testaamiseen työntekijöiden tarpeiden ymmärtämiseksi sekä yhteistuotantoprosessien ja HR-palvelujen parantamiseksi. Lisäksi tutkimus hyödyntää mahdollista tutkimusaukkoa ja luo uutta kehittämällä ja validoimalla kokonaisvaltaisen HR Bowtie -mallin – ennaltaehkäisevän lähestymistavan HR-kehitykseen. HR Bowtie voidaan nähdä myös viestintävälineenä, joka visualisoi reaktiivisten ja ennaltaehkäisevien toimenpiteiden roolia ja työntekijöiden ääntä HR-kehityksessä. Tämä tutkimus osoitti, että ihmiskeskeinen lähestymistapa voi nostaa HR:n uudelle tasolle siirtämällä painopisteen sisäisestä kehittämisestä yhteistuotantoon, mikä luo vahvan pohjan kehittämiselle digiaikakaudella.

Avainsanat Yhteistuotanto, Yhteiskehittäminen, Palvelumuotoilu, Pelillistäminen, Työntekijäkokemus, Digitaalinen HR, HR-palvelut

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ABBREVIATIONS

AI	Artificial Intelligence
BTA	Bowtie Analysis
COE	Center of Expertise
CSS	Common Shared Service
EIP	Employee involvement and participation
ERP	Enterprise resource planning
EVP	Employee Value Proposition
E-HRM	Electronic Human Resource Management
EX	Employee Experience
GBS	Global Business Services
HCM	Human Capital Management
HR	Human Resources
HRBP	HR Business Partner
HRIT	Human Resource Information Technology
HRM	Human Resource Management
IT	Information Technology
IxD	Interaction design
MVP	Minimum viable product
RCA	Root Cause Analysis
SDL	Service-Dominant Logic
USD	User-centred design
VoC	Voice of the Customer

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1 INTRODUCTION

I have a dream...

“Do things more intuitively without asking” (Participant in the workshop 12).

“I feel strong because I can exchange my problems with my peers” (Participant in workshop 11).

“Acknowledged - Know what and when happen - well organized, the speed and product increased” (Participant in the workshop 11).

1.1 Aim of the study

The aim of this study is threefold. First, the current human resource management (HRM) development phase and its digitalisation are assessed. Second, preventive approaches in risk management are understood. Third, human-centred approaches in development are explored to see what benefits and barriers drive or hinder the usage of co-production and co-creation in Human resource (HR) services. How employee experience is driving HR as a function is also documented.

This study seeks to understand co-production within digital HR services based on a global energy technology company's qualitative empirical case study. The findings of this study indicate that specific characteristics of co-creation and co-production can help in preventive actions and development in HR. The study contributes by introducing a preventive co-production framework and combining the knowledge of co-creation and co-production within HR.

Despite the growing interest in improving co-creation and co-production in public services with digital technology, there is a lack of studies on HR services. The study suggests a research gap with the following hypothesis and research questions. Two qualities are predominantly relevant to this study. First, preventive HR development must be observed. Second, there is a need to understand and define better the roles that human-centred approaches, especially service design, could play in HR development.

Nonetheless, former studies have addressed the prerequisite for employee experience (Plaskoff, 2009; Sinha et al., 2020), but understanding how service design can be used in HR remains limited. The key assumptions inspiring this research are threefold. Employee experience journey goes far beyond HR. Gamification helps to collect deeper employee understanding and find a way to develop HR services more preventively. The focus of HR development could be moved to preventive actions with co-production to achieve the next level of HR.

Hypothesis

- Employee experience journey goes far beyond HR. From an internal customer perspective, close cross-functional collaboration is required.
- Gamification liberates and helps go deeper into employees' needs and tackle cultural differences.
- Gamification helps to bring a more preventive approach to HR.

Research questions

There are three research questions. The first one is the leading question.

1. How do game-based service design methods enhance preventive HR development?

The other two are sub-questions for the first one and help to answer it.

2. What kind of service design tools could strengthen data collection of customer needs?
3. What could the role of service design be in HR development?

1.2 Background to the study

We are facing an unprecedented situation, as four generations (the traditionalists, baby boomers, Generation X, and Millennials) are working together for the first time. Technology has opened a global marketplace, and companies need to think of different ways to understand and engage with their employees and rethink their relationship with them. (Plaskoff, 2017, 136.) COVID-19 has accentuated the role of Human Resources (HR) (e.g., Norman, 2022, PWC, 2020). The multiple possibilities for remote or hybrid working have made keeping the talents in the organisations even more challenging. People change their jobs and roles more frequently than ever. (Bersin, 2019b, 8.) HR is expected to carry a more

strategic role within organisations, streamlining HR by automating operational and compliance-related jobs and increasing operational efficiency. (PWC, 2020.)

The study started with the researcher's interest as there has been too often a situation where functions, e.g., HR, improve processes and services alone without understanding the employees' and managers' needs. The researcher has found that functional development in organisations is mainly done without involving employees and only based on the best understanding and assumptions of the function. The researcher has 20 years of experience in Human Resources and works in the case study organisation as a Global HR Digital Experience Lead. That gives her a deeper understanding of operational work and a broader perspective on interpreting data. On the other hand, to neutralise the researcher's role, she requested a study leave and was not involved in the operations during the research.

According to a survey among 850.000 US companies, HR is the second most digitised function after finance (Zolas et al., 2021, 55). The interest in how digitisation shapes HR-employee relationships has grown as the scale of digitalisation and remote working has increased during the pandemic. Technology companies are heavily competing and developing new tools for HR processes like recruitment, performance management, wellbeing, learning, and employee surveys, but how are these tools and applications connected to streamlined employee experience? Services have become multi-channeled as they are experienced and consumed in person, online, or robot interaction (Miettinen, 2017, 4). The relationship between technologies and human experiences has become complicated and integrated. There is no longer a clear cut to manufacturing-, technology-driven, or service industries. However, all companies need to pay more attention to user experience as it is hard to compete with price and quality (Sanders & Stappers, 2008, 10.) Numerous technology companies face a challenge where competitive advantage is achieved with good customer service and, therefore, change from a technical to a human-centred approach. Collaboration and communication within large companies have become challenging due to silos, outsourcing, and conflicting interests and budgets of the departments. For industrial service design and designers, this means the adoption of new strategies, technologies, and partners. (Miettinen, 2017, 3-4.)

Since the 70s, people have been involved in service and process improvements. However, applying a human-centred approach to Human Resources is comparably new. Well-known

global companies such as L’Oreal, Coca-Cola, and Cisco have started redesigning their HR function to match the employee experience. Employee experience is more than just a nice user experience in the HR system or a company portal. (Oosterom et al., 2017, 98.) Plaskoff (2017, 137) defined employee experience as “the holistic employee’s perceptions of the relationship with his/her employing organisation derived from all the encounters at touchpoints along the employee journey.”

As Dank & Hellstrom (2021, 21) state, HR often ends up being perceived as a compliance, rules-driven department rather than representing the people side of business success due to HR’s history of top-down implementation of processes and policies. The researcher is interested in studying how this could be changed and rethinking HR value creation in the age of disruptions.

The role of HR shared service centres and service design has not resulted in attention from researchers. Attention should be paid to the potential of service design to improve the customer experience and organisations' performance. Unfortunately, there has been little empirical research on service design and shared service centres.

Sinha et al. (2020, 8) propose that using design thinking could transition the HR function role from a process developer to an employee experience architect. They have also concluded that an identified employee experience improves employee satisfaction and performance (Sinha et al., 2020, 11). Significant impacts on brand reputation, loyalty, and profitability have been reported in companies that have applied ‘design thinking’ and ‘human-centred design’ methodologies to product development and customer service (Plaskoff 2017, 137).

A Japanese business consultant, Sidney Yoshida, introduced the ‘Iceberg of Ignorance’ concept in 1989 (Figure 1). It describes the misalignment between what the employees hear and see and what is communicated to the top leaders. According to the idea, senior managers are often unaware of many issues as most of an iceberg is hidden beneath the water's surface. Yoshida’s research found that executives were only aware of approximately 4 % of the problems within their organisations (Watt, 2021, 22.) The study was done in mid-sized organisations nearly 35 years ago so that the results might vary based on size.

Nevertheless, the message is clear and relevant in the rapidly changing business world, as many challenges still exist. The disconnect risk has increased due to COVID-19 and remote work, which has caused the removal of natural touchpoints between employees and managers. Therefore, the participatory data collection method was selected to research the human-centric approach.

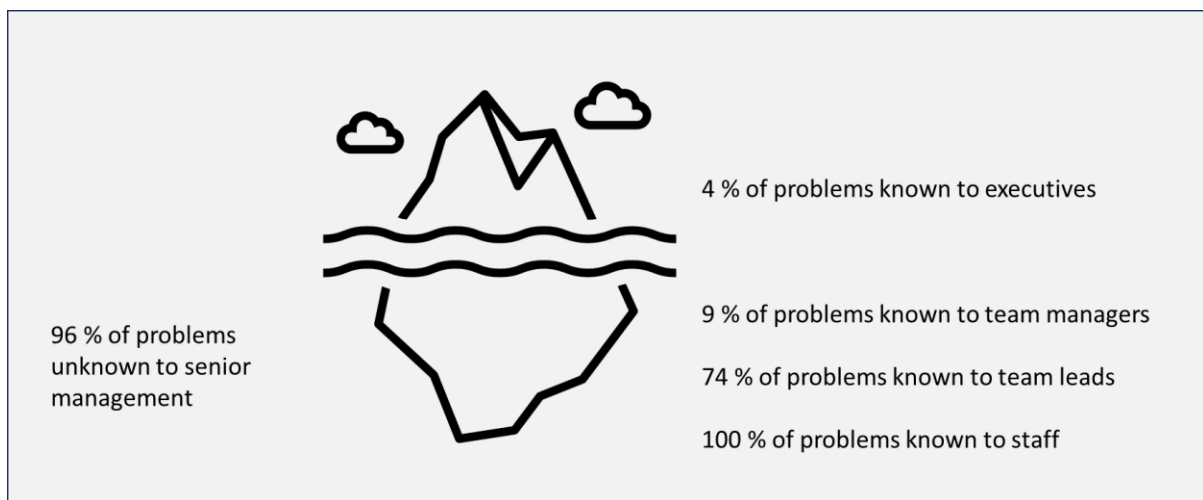


Figure 1. Sidney Yoshida’s Iceberg of Ignorance (Source: Watt, 2021, 22)

1.3 Case study organisation

The case study organisation is a global energy technology company with appr. 40.000 employees in 90 countries. It generates business volumes of over 10 billion USD annually. The case study organisation serves utility, industry, and infrastructure customers. It has completed a massive HRIT transformation, replacing 23 legacy ERPs and appr. one hundred local systems with a new global Human Capital Management (HCM) system and global time management application in 2022-2023. Also, the payroll has been outsourced to two global vendors.

As shown in Figure 2, the HR organisation has been split into three pillars: HR Business Partners (HRBPs), Center of Expertise (CoE) of Talent and Learning and Compensation and Benefits, and HR Operations, including shared services. There are four shared service centres. HRBPs are the strategic partners for the management, CoE improves and develops processes, and HR Operations focuses mainly on transactional work. HR Operations handles

appr. 520.000 tickets annually. Tickets are cases, issues, inquiries, and errors the HR Operations team receives via the case management system.

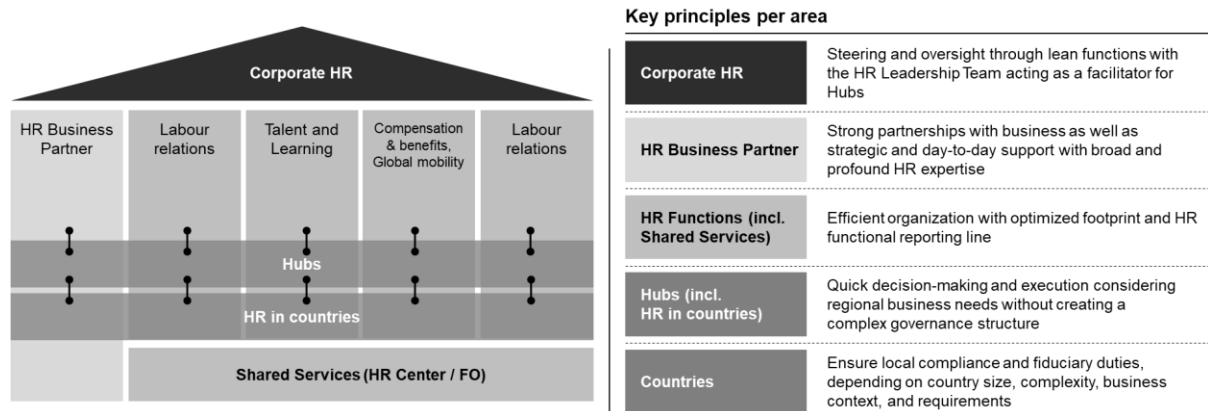


Figure 2. HR organisation in the case study organisation

New global processes and system landscape were launched as part of this HRIT transformation. After this vast change, hearing HR’s customers and understanding how they see the current tools, processes, and services is favourable.

1.4 Definition of key concepts

Before progressing to the literature review, it is necessary to clarify the concepts used in this study. Co-creation and co-production seem defined differently in different areas of the research. In this study, *co-creation* means shared creativity, service, and process improvements between employees and HR. *Co-production* is a series of steps in producing an HR service jointly. In co-production, the employees are seen as co-producers of the service, process, and practice as they have a role in initiating the process, providing input, and approving or/valuing its results.

This study follows Korpikoski’s (2023, 30) definition of service design: “Service design, which holds a strategic development process where analytical and creative reflections intellectually take turns. People (customers and employees), front- and back-end of services, products, digital systems, tools, processes, and practices are naturally the subjects of service design. Service design is not seen as applicable only to designing services but also to

designing organisations internally to develop and produce better-functioning organisations to increase an organisation's risk management and quality.”

All approaches presented above are grouped under the term *human-centred approach* to describe a general approach where development is done in collaboration with employees.

In this study, a *preventive approach to HR* means actions and activities intended to stop something before it happens or before it becomes a problem, meaning that attention is paid to preventive actions, e.g., employee experience and usability of the systems to help employees to the benefit of self-service without needing to raise an inquiry to HR services.

An employee is a person employed by a case study organisation and, in this case, covers both employees and managers unless stated otherwise. This term will be used instead of user and people when referring to human-centred approaches unless there is a need to use the term user to highlight the position.

The researchers have offered different definitions for electronic human resource management (e-HRM), meaning applications to collect, maintain, and circulate HR data for business needs (Stone et al., 2015, 215). It has been called web-based, online, digital, and even ‘smart’ to describe the stage of development (Bondarouk et al., 2017b, 98). In this study, *Digital HR* covers digital HRM, e-HRM, and general HR digitalisation.

1.5 Limitations of the research

HR Operations has multiple customers like white collars, blue collars, line managers, senior leaders, candidates, employees' families, contractors, external networks, other functions, and alums. All employees (white and blue collars) and managers (line managers and senior leaders) were included in the target group for this research. The rest of the customers were excluded because many changes mainly impacted employees and managers. HR as customers (like HR Business Partners) were also excluded purposely to be able to concentrate on the feedback from managers and employees as HR feedback is more readily received in different forums.

1.6 Structure of the study

Following the introduction, the study is arranged as follows (Figure 3). First, a conceptual framework of co-production for HR is built by reviewing and introducing the current theoretical developments and debates of three areas, namely the development of human resource management, preventive risk management, and co-production and co-creation in value creation and design. This chapter is finalised by identifying the knowledge gap based on the current literature. Then, the philosophical approach and research methodology are identified, and the methodological details and rationale underlying the research design, particularly the data collection process and analysis, are outlined. Various aspects of employee participation and co-creation are then illustrated. The study concludes by identifying the theoretical and practical implications of using co-production in HR and the methodological implications of using design research and gamification for similar cases. All these research stages help answer the research questions.

Chapter	Structure of the study
1	Introduction Identifying the case. Determining the design questions.
2	Identifying and reviewing the relevant literature. Building a conceptual framework of co-production for HR. Identifying the knowledge gap based on the current literature.
3	Identifying the philosophical approach and research methodology. Clarifying the data collection and analysis.
4	Explaining the case study.
5	Reviewing the findings of the study.
6	Revisiting the research questions. Discussing contributions and implications to the knowledge and practice. Judging the quality of the study.
7	Concluding the study.

Figure 3. Structure of the study

2 BUILDING A CONCEPTUAL FRAMEWORK OF CO-PRODUCTION FOR HR

This chapter presents an interdisciplinary literature review focusing on human resource management and preventive and human-centred approaches. Preventive human-centredness is treated in the wider design, people involvement perspective, then narrowed and summarised to focus on co-creation and co-production in HR.

The literature was searched from different databases, and references to already-found literature were used to find relevant articles. The primary source was peer-reviewed scientific articles dedicated to human-centred approaches in development. The conceptual framework of co-production is based on articles and books, which are the basis for recent research. Much literature is available in this area, so this review cannot cover everything. The main objective was to understand and create a conceptual framework for how co-production and human-centred approaches connect, which has been researched in human resources.

2.1 Human resource management development

According to the Cambridge Dictionary (2023), “Human Resource Management is the activity of managing a company’s employees, for example, by employing new workers, training them, managing their employee records, and helping them with problems.” The human resource (HR) function has developed and continues with digitalisation.

2.1.1 History of HR development

The Ulrich model has been synonymous with HR functional structure, design, and value proposition for decades. Based on Ulrich’s (1996) recommendation, many organisations have separated the transactional and transformational work according to the so-called three-pillar model:

- 1) service centres driven by technology,
- 2) centres of expertise (COEs) driven by functional process expertise and
- 3) HR business partners are driven by account management.

HR Service centres concentrate on standardised administrative work. Service centres try to find cheaper delivery methods, e.g., using the global scale or self-services. (Ulrich & Grochowski, 2012, 138.) The centre of expertise develops and improves processes, and HR Business Partners collaborate with managers as strategic partners (Ulrich, 1996). According to Dank & Hellstrom (2023, 146), Ulrich's model has helped HR transform from a workforce administration function into a business partner in talent attraction, development, and management.

Some argue that the global business service model (GBS) for service centres has introduced greater organisational complexity but not better performance. According to McKinley's review, the focus must be on customer service, agility, process efficiency, talent development, and cost reduction to benefit from GBS in a digital era. Automation, analytics, virtualisation, and other digital tools can be incorporated into operations to develop more expressive services. (Daub et al., 2017.)

Research on HR processes has been led by the assumption of a traditional linear value chain whereby the HR function designs policies and procedures, and managers implement them (Nishii & Wright, 2008). Recent research is challenging this assumption in a digital era in HR and nontraditional organisations (e.g., project organisations), stating that processes involve more actors (Bredin & Söderlund, 2011, 2205; Meijerink et al., 2016, 236; Keegan & Den Hartog, 2019, 231; Hewett & Shantz, 2021, 12) and processes are complex and not only linear (van Mierlo et al., 2018, 3027). While these bring valuable insights, they lack a guiding theoretical framework that Hewett & Shantz (2021) have tried to bring together by creating a theory of HR co-creation. While it brings some theoretical framework, it lacks empirical validation and further analysis.

2.1.2 Digital HR

HR digitalisation and transformations from legacy systems to cloud-based solutions have been broadly documented (e.g., Bondarouk et al., 2017a; Bondarouk et al., 2017b; Chán & Balková, 2022). Digital HR can support service characteristics like intangibility, simultaneity, and customer participation (Bondarouk et al., 2017a, 1333).

The literature suggests that digital HR can improve service quality (e.g., Kovach et al., 2002; Bondarouk et al., 2017a). Based on the studies, the experience is more favourable if both human resource management and digital HR are strong, the application is easy to use, and the data stored and processed are high quality. Digital HR is considered substantial if it ensures that it is straightforward and relevant for end-users. According to the studies, the strength of HRM plays an even more critical role in service quality than the strength of technology. (Bondarouk et al., 2017a, 1338, 1349.) However, some empirical findings have shown that adopting IT does not necessarily result in improved HR services due to increased workloads in technology-related activities or a lack of exploitation of the available data (e.g., Stone et al., 2015, 225). Even though benefits like improved speed and cost-efficiency are known and appreciated, the most common barriers to adoption are the digital skills of HR professionals, costs, and changing legal framework (e.g., BearingPoint, 2021, 3; Chugunova & Danilov, 2023, 2).

Digital data and digital communication are the first steps in digitalising processes and introducing advanced digital value-creation tools (Chugunova & Danilov, 2023, 6). Based on the research, most companies report that the HR master data has been stored digitally (digitisation), and core HR processes have been digitised even though more than 50 % of the researched companies do not use digitised processes for strategic HR decision-making. The usage of people analytics and artificial intelligence (AI) in HR management is limited. (e.g., Chugunova & Danilov, 2023, 5.) According to the recommendations, digital data should be transformed into strategic-driven decisions, e.g., people analytics (Strohmeier, 2020, 361).

There is a call for more digitalisation and automated decisions in administrative tasks, especially in companies already using digital HR tools. (Chugunova & Danilov, 2023, 15-16.) Growing advancements in digital human resource management and self-service technology have provided transformational opportunities to change the design and delivery of HR. Based on the research, their usage remains limited due to resistance. (Huang & Martin-Taylor, 2013, 621.) Technostress might impact job satisfaction and work-related stress (Tarafdar et al., 2007). Companies adopting artificial intelligence admit that digital HR applications might raise work-related stress but do not improve communication effectiveness. However, they enable HR professionals and managers to communicate more efficiently, complete tasks faster, and find more time for strategic tasks. In summary, the negative impact of digital HR applications on the workflow and workload is minimal. Most companies expect

increased digital technologies, especially in interview scheduling, onboarding, and administrative tasks. (Chugunova & Danilov, 2023, 12-13.)

HR specialists provide intangible HR services for managers and employees who must participate in HR roles via self-service (Bondarouk et al., 2017a, 1333). Service employees are accountable for quality during service production. As customers are involved in service delivery as co-producers, there is a special relationship between service employees and customers. (Chung & Schneider, 2002, 71.) Service is built of relationships, interaction, and co-creation and combines frontstage and backstage processes and experiences (Vaajakallio et al., 2017, 17).

According to Lengnick-Hall & Moritz (2003, 376), the amount of accountability and responsibility that can be transferred to employees and managers in HR self-service might be limited after the 'break-even point,' and organisational effectiveness and employee productivity may be reduced.

2.1.3 Employee experience

Even though service design, design thinking, and employee or people experience are just coming to human resources, some steps, mainly from the IT application perspective, have been taken during the last decades in HR service delivery. The history of HR service delivery started in the 1970s when companies recognised the need for employee-facing systems for HR. Figure 4 shows how modern and efficient employee experience could look. 1) Phase 1: HR business partners support employees as generalists, an efficient model for small companies. 2) Phase 2: Companies set up specialised service centres. Most companies are at this level today. It includes centralised employee services, specialist roles, and cross-functional centres with integrated case management systems. 3) Phase 3: At this level, companies offer employee self-service portals (ESS), which usually involve the setup of multiple applications and require continuous maintenance and investments. 4) Phase 4: Companies add intelligence, predictive systems design thinking, and chat to offer efficient and customised solutions. (Bersin, 2019b, 4-5.)

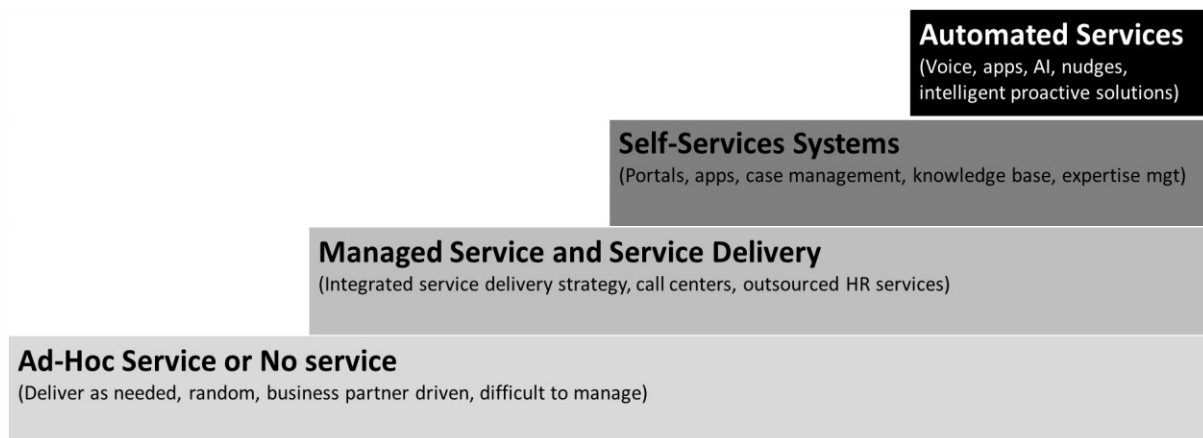


Figure 4. The evolution of Employee Experience in HR. (Bersin 2019b, 4)

Bersin (2019a) predicts that as more employee journeys are automated, the HR service centre must become cross-functional and coupled, e.g., with IT and finance. Service teams must be interconnected and redefined to cover employee journeys and touchpoints. It offers an opportunity to reduce costs and improve the more engaged and productive employee experience by using AI and data. Without coordination and collaboration between the functions, the employee experience is fragmented and inconsistent; accomplishing a simple task can be time-consuming and frustrating (Bersin, 2019b, 7).

According to Plaskoff (2017, 137), reframing the relationship between employees and companies is needed because current frameworks and assumptions narrowly affect employee satisfaction. Underlying assumptions (e.g., economic rationality and profit) have built up processes, organisational structures, and relationships that oppose a collaborative, innovative, and engaged workplace. Thus, HR usually starts building practices that align with the business goals and needs (profit, shareholder value, and efficiency). These practices seek to impact or control employees' actions to fulfil the company's goals regardless of whether they meet the employees' social and psychological needs.

In HR, there is a lot of talk about the need to 'add value' for the business and be a real business partner without clearly quantifying and defining what this value is (e.g., Ulrich, 1996; Dank & Hellstrom, 2021; Azam, 2023). HR projects can often block getting work done as HR asks people to do extra tasks like filling out a form or ticking a box (Dank & Hellstrom, 2021, 5).

Global Human Capital Trends (Deloitte, 2023) summarises the survey results of more than 10.000 business and HR leaders. This survey stated that organisations and employees must learn to navigate this new world together to succeed. That means that ownership models, new rules, new boundaries, and a new relationship must be co-created. Plaskoff (2017, 138-141) has proposed six principles to change HR focus from transactions to employee experience. 1) Understand employees' needs, 2) Welcome holistic and expansive thinking, 3) Visualise, 4) Enable participation, 5) Experiment and iterate, and 6) Appreciate and trust the process.

The HR development journey, its' continuation with digitalisation, and employee experience were reviewed in this section. They provide a basis for the next steps of HR development. Based on this, further understanding of the participatory approach and prevention is required. Therefore, the preventive approaches will be monitored next.

2.2 Preventive risk management

Before human-centred approaches are elaborated, a closer look is taken at what can be learned from preventive, proactive, and anticipatory approaches within industry-leading practices in general, especially within the risk management area. The researcher sees here several potentially essential contributions to HR Services.

2.2.1 Elements of the bowtie model

The Bowtie analysis (BTA) is a widely used deductive framework in risk management to identify the consequences of hazards and root causes and show barriers that can prevent events from happening (Joy, 2018; Aust & Pons, 2020). The elements of Bowtie have been visualised in Figure 5. The left side identifies the controls intended to prevent the event, and the right side should analyse all controls to reduce the release's impact based on considering all significant consequences. In the bowtie analysis, the term 'control' refers to initiatives that intend to minimise risk and are in the following categories: acts, objects, or technological systems. Procedures and training can be supporting activities for the act. Controls without human intervention are called objects. Technological systems as controls combine an object with required human acts. (Joy, 2018.)

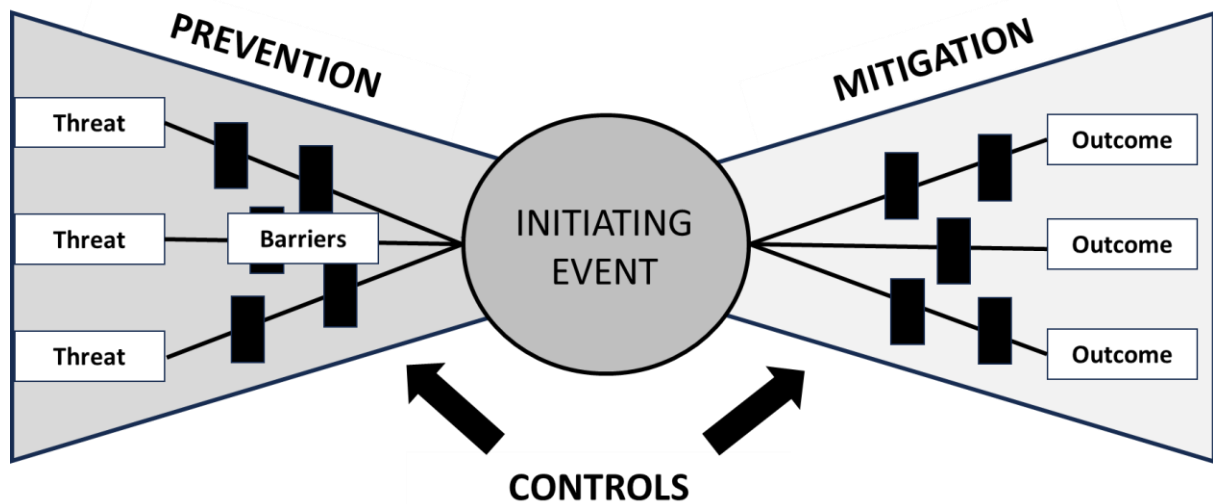


Figure 5. Bowtie Analysis (BTA) illustration (Source: Joy, 2018)

There are qualitative and quantitative bowties. The qualitative bowties communicate risk to the audience using more straightforward cause-effect scenarios with barriers. Quantitative bowties are used in risk management with a fault tree, barriers, and event tree to calculate and analyse the risk. (de Ruijter & Guldenmund, 2016, 211; Joy, 2018.)

Using and developing the bowtie model offers possibilities to improve process safety by highlighting the importance of safety barriers. Bowties can also be used to test the need for barriers in the design phase. The bowtie model helps focus on preventing and mitigating barriers and regulating degradation. The purpose of the preventive obstacles is to block the top event from occurring, and the mitigation barriers decrease the magnitude of seriousness if the top event appears. A single failure is not usually a reason for major accidents, but they are caused by several barrier breakdowns, which cause significant consequences and a loss of control. (CCPS 2018, 4-5.)

The Bowtie model has been broadly used in safety, risk management, and communication, especially in aviation, mining, and oil & gas (e.g., de Ruijter & Guldenmund, 2016, 211; Aust & Pons, 2020, 1). The exact origin of the bowtie model is unknown. Still, it is generally accepted that it was mentioned first in the Imperial Chemical Industry (ICI) course on hazard analysis at Queensland University, Australia, in 1979. At the end of the 1990s, when Shell integrated it into its company practices, the bowtie became a standard method within many other companies (CCPS 2018, 6.) and theory for research mainly in risk management (e.g., de

Ruijter & Guldenmund, 2016; Aust & Pons, 2020). European Union, Institutes in the oil and gas and mining industry across the globe have adopted bowtie or barrier approach to their regulations and instructions. It has been recognised as the best way to manage risk, which involves effectively applying controls to mitigate or prevent an unwanted event. (Joy, 2018; CCPS, 2018, 7.)

2.2.2 Fishbone diagram

Kaoro Ishigawa proposed to present cause and effect in fishbone diagrams in industrial processes in the 1960s. It was initially called an ‘Ishikawa diagram’ but was switched to a fishbone diagram due to its similarity to the bones of a fish. A horizontal spine represents a problem or effect, and bones represent the causes of the problem in continuous improvement. (Gartlehner et al., 2017, 2.) Ishikawa established categories to help determine the root causes in a production environment. The elements starting with the letter M are 1) man (mind power), 2) machinery, 3) materials, 4) methods, and 5) Mother Nature (Aust & Pons, 2020, 6.) There are multiple variations on the basic idea, like equipment, process, people, materials, environment, and management (Gartlehner et al., 2017, 2), and the classes can be amended as needed. The fishbone model started in production and is therefore limited to its industry (Aust & Pons, 2020, 6). It has been used also in the software for construction and healthcare services (Gartlehner et al., 2017, 2).

This section gave some overview of preventive approaches in industry practices to inspire. First, the bowtie model used in risk management was described to show how the prevention barriers block the top event from happening and help focus on preventive actions instead of mitigation. Second, the fishbone model was announced to help understand the problem's causes in continuous improvement.

2.3 Co-creation and co-production in value creation and design

This chapter examines the theoretical foundations of co-creation and co-production from a human-centred approach. First, human-centred approaches such as service-dominant logic, participatory design, co-creation, and co-production are reviewed. Second, co-creation in design thinking and service design are discussed.

There has been a parallel development in human-centred design research and the involvement of consumers, employees, and users for over 45 years. Interestingly, the well-known advocates of co-design originate from business or marketing, not design practice. Five main approaches to co-creation and co-production can be seen in literature: 1) service-dominant logic, 2) co-production, 3) co-creation, 4) participatory design, and 5) co-creation in service design. In addition, interaction and user-centred design are also included, which will be described shortly. Each of the approaches is defined in the following subsections.

2.3.1 Human-centred approaches

The researchers generally accept that the value of professional services is co-created (Bonamigo et al., 2022; 2338; Cheng et al., 2022). The *Service-dominant logic (SDL)* was developed to respond to the goods-dominant logic in marketing (Vargo & Lusch 2004, 2008, 2016, 2017; Lusch & Vargo 2006). According to goods-dominant logic, value is in the services and products, and this existing value is delivered to customers. It was addressed that it is only potential value, and consumers create real value through their product or service use. The distinction is not about design being intangible or tangible but, in conjunction, on the value produced in the context of the user or customer. (Vargo & Lusch, 2004, 5.) Initially, the Service-dominant logic contained eight foundational premises (Vargo & Lusch, 2004, 3) but was renewed to have two added premises (Vargo & Lusch, 2008, 7). Regarding the value creation, the changes in the premises are the most interesting. Vargo & Lusch stated 2004 that “The customer is always a coproducer” and updated it in 2006 to be “The customer is always a co-creator of value”. According to them, co-production looked more at goods-dominant logic in the past but should be seen as one of the factors of co-creation as Lusch & Vargo (2006, 284) state, “participation in the creation of core offering itself.”

The co-creation and co-production have different histories. The co-creation has been developed in marketing research (e.g., Prahalad & Ramaswamy, 2004; Grönroos & Voima, 2013) and continued in public services (Osborne & Strokosch, 2013). There is a shared understanding that both concepts – co-creation and co-production - involve people (e.g., citizens), but there has been a variety of interpretations of the theories in general. Some research has targeted defining terms and citizen engagement more generally (Lember et al., 2019, 1667.)

Elinor Ostrom et al. (1978) described *co-production* for the first time in the 1970s. She used the term to explain why crime rates increased when police officers switched from walking the beat to patrolling in cars. She claimed that policeman need the communities and their tacit knowledge, and communities need the police. Co-production was used to describe this relationship between the communities and the police. Since then, co-production has been mainly used in public services. In the 1990s, market-driven improvements were more critical, and there was little research or discussion around co-production. Since the mid-2000s, there has been an interest in co-production, which has been, to a greater extent, used in public management, e.g., in the UK. (Osborne & Strokosch, 2013.)

The collective creativity in design has been researched since the 1970s. The Collective Resource Approach was shown to add value to industrial manufacturing by engaging employees in developing new tools for the workplace in Scandinavia. Representatives of labour unions were involved in these computer application design projects. (Bodker, 1996, 218.) Meanwhile, participatory design began elsewhere in Europe as the papers from the book of Nigel Cross were presented at the Design Research Society's Design Participation conference in Manchester, England, in September 1971. Teachers and practitioners of architecture, building science, design, design research, economics, mechanical engineering, and planning contributed to the papers. (Sanders & Stappers, 2008, 7.) In the participatory approach, users are seen as partners, led by Northern Europeans (Sanders & Stappers, 2008, 5).

The concurrent user-centred design (UCD) approach also started in the 1970s and became common in the 1990s in the development of consumer products and design (Sanders & Stappers, 2008, 10). This phenomenon has been mainly US-driven and used in the IT industry, e.g., in UX design (Sanders & Stappers, 2008, 5). User-centred design is an approach to system, product, service, or software design closely related to software development life cycle, design thinking, and interaction design. Design is one stage in the software, system, service, or product lifecycle, and user-centred design is one approach to design. (Gulliksen et al., 2003.) The user-centred design approach sees users as subjects (Sanders & Stappers, 2008, 5). Sanders & Stappers (2008, 5) argue that user-centred design cannot address today's complexity. We are designing the products, services, and experiences for people and communities who are now connected. Co-design changes the roles of the person, researcher, and designer and the landscape of design practice. People have been given

more flexibility to bring their expertise and participate in conceptualising and creativity in the design phases.

Interaction design, often called IxD, was found by Bill Moggridge and Bill Verplank as ‘Soft-face’ – the combination of software and user-interface design in 1984. Still, it took over ten years before the concept started to take hold. It is the design of the user interface or how a user and product respond to each other. A central objective of interaction design is to understand the user and their context and develop intuitive, enjoyable, and compelling interactive services and products. Interaction design is the umbrella term that describes the field, including its theories, approaches, and methods. It is often connected to user experience design (UX), interface design (UI), product design, user-centred design, web design, software design, and interactive system design, which can be used as synonyms (Rogers et al., 2011.)

Human-centred design (HCD) offers a wider perspective than just ‘user’ (Wetter-Edman, 2011, 74). This term is preferred as it points to the design’s relationship to human concerns and needs (Hanington, 2003), and it takes the reasons from people’s lives and brings them to a greater audience through the design process (Krippendorf, 2005).

2.3.2 Co-creation in design thinking and service design

Design thinking originated in the 1950s, and it was based on the engineering and teaching philosophy of John Edward Arnold. In Design Thinking, creative engineering links technical skills with a human-centred approach to design. The design process forces creativity and tools for thinking in a different way and focuses on problem-solving. “Knowing what questions to ask and how to ask them is sometimes more important than the eventual answers.” (Arnold, 2016.) Design thinking is an iterative process to understand people, challenge beliefs, redefine problems, and create new solutions to test and prototype. It comprises five phases: empathise, define, ideate, prototype, and test. (Brown, 2008.)

Service design constructs on the viewpoint of co-creation, design thinking, empathy, and other customer and human-centred approaches and tools in service development (Sangiorgi & Prendiville, 2017; Stickdorn et al., 2018). Service design has adopted methods like design management, design research, participatory design, and service management and marketing

(service-dominant logic) (Wetter-Edman, 2011). It started to receive attention after the first service design conference in 2006 (Sanders & Stappers, 2008, 10).

Service design aims to create human-centred solutions that make the experience feel competitive, unique, desired, and logical and raise company innovations and engagement (Miettinen, 2017, 4). Miller (2015) crowdsourced the definition of service design: “Service design helps organisations see their services from a customer perspective. It is an approach to designing services that balance the needs of the customer with the needs of the business, aiming to create seamless and quality service experiences. Service design is rooted in design thinking, bringing a creative, human-centred process to improving service and designing new services. Through collaborative methods that engage customers and service delivery teams, service design helps organisations gain a true, end-to-end understanding of their services, enabling holistic and meaningful improvements.” According to Vaajakallio et al. (2017, 17), service design looks holistically at both sides of the service: customers’ experiences and service producers’ processes. In the first one, the focus is mainly on individuals’ emotional experiences. In contrast, the second focuses on technical systems, methods, and tools and easily oversees individual service employees and their experiences.

Methods and tools are often seen as core in design as the intangible nature of interactions in service creates a need for visualisation (Wetter-Edman, 2011, 66). Segelström (2010) describes six standard visualisation techniques of service design: persona, blueprinting, customer journey mapping, desktop walkthrough, system map, and storyboard. According to Wetter-Edman (2011, 66), prototyping can be used to understand and develop an ongoing practice as it shows different aspects than traditional techniques involving people and artefacts. The challenges in prototyping services are other than in products, and they are predominantly related to a lack of control of the service setup, including genuineness of context and behaviour, validity of valuation, and inconsistency in service delivery.

Co-creation and co-design are often seen as synonymous with one another. Sanders & Stappers (2008, 6) see co-creation as any collective creativity and co-design as the creativity of designers and non-designers collaborating in the design process. Co-creation and participatory design entail designing *with* people instead of *for* people (Wetter-Edman, 2011, 67). According to Sanders & Stappers (2008, 13-14), the researcher is seen as a translator between users and the designer in the traditional design process. In co-design, the researcher

plays the facilitator's role, which requires a different skill set, such as guiding, leading, and providing a stage to encourage people to be creative.

Wetter-Edman (2011, 69-70) has summarised service design practice to the model of five characteristics found in literature:

1) Interdisciplinary,

Service design is interdisciplinary, involving several competencies and distinct practices.

2) Visualisations & prototyping,

Service design is a visualisation and testing practice, but understanding what participation and co-creation mean varies.

3) Participation,

The process of doing so is as necessary as the result.

4) Transformation, and

The design object is an individual, organisational, or societal transformation.

5) Value creation.

The focus is moving from products and single interactions to understanding service as value creation.

In this study, all these approaches mentioned above are called human-centred approaches to reflect their willingness to understand people. The level of understanding and the relation between people and designers varies in different approaches. In the next section, these approaches are elaborated on from the perspective of human resources usage.

2.4 Evaluation of the human-centred approach in HR

This section synthesises the above-described human-centred approaches from the HR perspective, asking three questions: What? How? and why? Since many of the value creation and human-centred approaches reviewed above have been developed in marketing and design research and used mainly in public management, IT, and design, this study needs to go through and understand if they are relevant to be used for employees.

2.4.1 What human-centred approaches in HR could be?

There are a limited number of studies in HR about co-creation in value creation, and they have been inspired by service-dominant logic (e.g., Meijerink et al., 2016; Meijerink & Bondarouk, 2018; Hewett & Shantz, 2021). The dominant assumption is that implementing the ‘right’ HR practices produces value (e.g., Applebaum et al., 2000). Early feedback collection is uncommon in HR (Dank & Hellstrom, 2021, 8). According to the traditional linear value chain assumption, HR designs processes and procedures, managers implement them, and employees respond and react according to the hierarchy (Jiang et al., 2012; Wright & Nishii, 2013).

According to the latest research, these traditional assumptions about HR value creation are no longer applicable (Hewett & Shantz, 2021). Even though the impacts of digitalisation on co-creation and co-production have been researched mainly in the public sector (e.g., Lember et al. 2019), incremental digitalisation continues to change the nature of HR, where analytics drive many HR decisions and self-service is now business as usual (e.g., Keegan & Den Hartog, 2019). Technological advancements have made employee journeys and their management more complex (Lemon & Verhoef, 2016). Based on Keegan & Den Hartog’s (2019) studies, multiple actors are involved in digitised HR services and value creation. According to recent studies, HR co-creation creates value by satisfying the needs of the users better than the practices that HR has developed alone (Hewett & Shantz, 2021, 9).

Conventionally, employee involvement and participation (EIP) has referred to traditional, formal mechanisms whereby employee representatives (such as unions and work councils) and managers meet to discuss local contracts and employment conditions not covered by collective bargaining agreements (Marchington, 2005). EIP represents the distributive ‘win-lose’ assumption and is mainly connected to compensation and benefits. HR co-creation requires parties to operate jointly by placing people’s needs at the centre, whereas EIP is controlled from above. EIP can occur without co-creation, but HR co-creation is unlikely to happen without EIP. (Hewett & Shantz 2021, 12-13.)

2.4.2 How could human-centred approaches be used in HR?

As we can see, the role of the people varies in different human-centred approaches. Some see people as subjects, like users of certain services, and others as partners. In co-design, people can be experts in their experiences in design teams if appropriate tools and opportunities are given to express themselves (Sanders & Stappers, 2008, 12). According to the research, there are multiple benefits to human-centred approaches and people's involvement in value creation and service design. Based on the studies, employees are not just passive recipients of HR practices and can create value through their skills or actions (e.g., Meijerink & Bondarouk, 2018; Kehoe & Han, 2020).

Hewett & Shantz's (2021, 4-5) theory of HR co-creation summarises how stakeholders, jointly with HR, create value: 1) HR practices and procedures create value only when they are put to use, 2) people are active in the value creation process, 3) HR processes create value by satisfying the needs of people, 4) multiple needs can be met with integrative approach, and 5) the value of HR practices is a sum of the value of multiple stakeholders.

According to research on product development, consumers are more committed to co-created products and services (Atakan et al., 2014). This commitment phenomenon is recognised as "the IKEA effect" (Norton et al., 2011). Therefore, it could be assumed that people are more willing to use HR practices that they have co-created and are committed to, which would create value (Hewett & Shantz, 2021, 9).

Hewett & Shanz (2021, 5) highlight that HR co-creation includes two interdependent and interconnected parts: collaborative use of HR practices and co-design. Collaborative use occurs when feedback is proactively given or sought about people's experiences, needs, or challenges. People or HR can initiate this. The gathered feedback can then be integrated into the design through co-design. HR and employees utilise their skills, experience, and knowledge to design practices together. Collaborative use continues after implementing new practices as people provide feedback and the practices are refined (van Mierlo et al., 2018). Co-creation requires both co-design and collaborative use. If co-design occurs only, there is a risk that processes do not meet employees' needs as continuous learning is missing. Similarly, collaborative use without co-creation is just employee feedback to HR (Hewett & Shantz, 2021, 5.)

2.4.3 Why should human-centred approaches be used in HR?

Design thinking has just started to be seen as an approach to employee experience, even though it has been successfully used for user and customer experience (Brown, 2008; Plaskoff 2017, 136). Employee experience uses design thinking tools, principles, and processes. It can be described as a holistic understanding of the relationship with his/her/their organisation along the employee's journey and the employee being a hero of this journey. Employee experience is understood from cognitive, economic, emotional, physical, political, and social perspectives. (Plaskoff, 2017, 137-138.)

Many Service-dominant logic researchers have proposed that command and exploitation are not relevant to the cooperation and co-production central to value co-creation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The critics certify that harmonious value co-creation is naïve and over-simplistic (Chowdhury et al., 2016). Different stakeholders might have different needs. According to HR research, multiple user needs are more accessible when complementary (Peccei, 2004). The integrative approach adaptation drives value creation optimisation by finding creative solutions and seeking synergy among different needs (Tantalo & Priem, 2016). Instead of maximising the value for one individual, the goal is to maximise the value that all stakeholders create in the system (Tantalo & Priem, 2016; Hewett & Shantz, 2021, 9).

Design researchers highlight that it took so long for participatory design and co-design to make an effect because it is not commonly believed that everyone is creative. The participatory approach is against the generally accepted 'expert' mindset thinking (Sanders & Stappers, 2008, 9). Based on the business-driven approaches of co-design, only 'lead' people can become co-designers. Co-design challenges these power structures by providing control to people. It might be uncomfortable for those who have been successful while being in control. It is easier for younger generations to distribute and share control and ownership. The internet has made this change possible by giving a voice to people who were not even a part of the discussions earlier (Sanders & Stappers, 2008, 9.)

Employees and HR connect in co-creation when they are psychologically safe to be vulnerable and take interpersonal risks (Hewett & Shantz, 2021, 8). HR co-creation involves learning, sharing new ideas, and evaluating ideas to enhance HR practices (Hewett & Shantz,

2021, 8). According to Watt (2021, 22), the strength of a feedback culture is underpinned by the confidence employees have in their ability to raise their concerns fearlessly.

Based on the research, there might be a feeling of psychological distance between HR and employees (Guest & King, 2004), interaction with HR is limited (Glaister, 2014) or when HR is not visible (e.g., remote or outsourced) (Rainnie et al., 2007). Co-creation offers opportunities for interaction and collaboration, which might strengthen the relationship between parties (Hewett & Shantz, 2021, 10). In closer relationships, individuals feel psychologically safer, enabling more significant occasions for co-creation (Edmondson & Lei, 2014), and are more likely to trust other's abilities and knowledge (Kim et al., 2018). Consequently, all parties are more willing to cooperate when they have a shared purpose and are in a closer relationship (Bundy et al., 2018).

In this chapter, the comprehensive framework of co-production for HR was created. The researcher paid attention to diverse assumptions behind the various approaches to people involvement related to HR service development. This chapter provides an overview of what is needed for a successful HR service. Based on the literature review, the following knowledge gaps were identified: 1) A need for a more comprehensive understanding of co-creation and co-production usage in HR, 2) a need for research on preventive actions in HR development, and 3) empirical research of the benefits of HR co-creation and co-production. Despite the growing literature on co-creation, there is still no empirical evidence on co-creation and co-production, especially outside the public sector.

3 RESEARCH DESIGN

This study is interdisciplinarily associated with design research, preventive risk management, and the development of human resources management. Chapter 3 explains the approach and research design of this study. According to Yin (2014, 29), in case study research, five components of a research design are essential: the case study’s questions, propositions (if any), its unit of analysis, the logic linking the data to the propositions, and the criteria for interpreting the findings. Case study research is most likely suitable for “how” and “why” questions. Figure 6 shows the overarching nature of this chapter.

Research Philosophy	Pragmatism
Research Strategy	Qualitative Research Design Research Practice-based research
Research Methodology	Case study
Data Collection Methods	Documentation & archival records Gamification workshops: observation (ethnography), physical artifacts
Data Analysis Methods	Thematic Analysis <ul style="list-style-type: none"> • Concept analysis • Content analysis Pattern matching and logic model
Timeline	

Figure 6. Research design – Chapter 3

3.1 Philosophical approach – Pragmatism

According to Saunders et al. (2019, 131), the research philosophy refers to a system of assumptions and beliefs about knowledge development. Pragmatism attempts to accurately and rigorously merge objectivism and subjectivism, facts, and values. Additionally, the different experiences consider theories, concepts, ideas, hypotheses, and research findings as instruments of thought and action and their practical outcomes in specific contexts. The practical effects of ideas and knowledge are valued to enable successful actions. (Saunders et al. 2019, 151.)

Pragmatism has been selected as a philosophical approach to this study as it indicates how the researcher sees the world. Pragmatism is also suitable as a research philosophy when the research question does not explicitly suggest adopting a particular method or knowledge. According to Saunders et al. (2019, 151), this only confirms the pragmatists' view that working with different techniques and knowledge is possible. Pragmatism is not only concerned with knowledge of "what-if" but also with an orientation to the world that might become ("to-be"). This perspective knowledge sees knowledge as a possibility to improve and intervene in the future to construct a better world. (Goldkuhl 2012, 86-87.) Pragmatism is a research philosophy that involves knowledge for action and change (Goldkuhl 2012, 92).

3.2 Research strategy – Qualitative practice-based design research

The research foundation of this study lies in multimethod qualitative design research. Based on the selected philosophical approach presented in Chapter 3.1, there were different strategic options, such as grounded theory, action research, ethnography, and practice-based research. As research was done for a case study organisation, it was natural that the research strategy would be practice-based.

This study has been conducted using multimethod qualitative research. According to Saunders & Tosey (2013), in multimethod qualitative research, more than one qualitative data collection method is used with connected analysis methods. Even though this is qualitative research, the amount of the data gave some possibility to do quantitative research.

3.3 Research methodology – Case study

The need for a case study appears when there is a need to understand complex social phenomena in depth (Yin, 2014, 16) and focus on a single unit of analysis, e.g., one person or organisation (Saldaña, 2011). Case study research is valuable when the phenomenon under the study and the concepts and variables are challenging to quantify and demonstrate outside its natural settings and contexts (Ghauri & Gronhaug, 2005). This research follows Yin's (2014) case study methodology. Based on this, the stages of this iterative case study are the following: planning, designing, preparing, collecting, analysing, and sharing.

3.4 Data collection methods

In this study, design methods were used as research methods to design the overall structure for the case study and collect the data. Service design methods are not widely utilised in the case study organisation, and therefore, this was a unique opportunity to test the service design approach in workshops and listen to and understand the internal customers of HR.

According to Yin (2014), case study evidence may come from six sources: documents, archival records, interviews, direct observations, participant observations, and physical artefacts. In this study, all these six sources, documentation, archival records, interviews, direct observations, participant observations, and physical artefacts, in addition to the researcher's overarching field notes, were used as sources of evidence in developing the convergence of evidence. Their use as part of the data collection is covered next. The stages of data collection have been named according to the design thinking approach: 1) discover, 2) define, 3) ideate, 4) prototype, 5) test, and 6) analyse and summarised in Figure 7.

				Empathize	
Phase	1. Discover	2. Define	3. Ideate	4. Prototype	5. Test
What?	HRIT transformation has changed processes, tools and ways of working Need for customer understanding	Problem statement	Find a way to collect customer understanding on a regular basis	Preparation of concept, pilot and prototypes Iteration	Iteration Minimum viable product
Aim	Gain "empathetic" understanding of the problem to be solved	Create a list of problem statements that will help to find solutions in the next stages	Challenge assumptions and create ideas	Identify the best possible solution for each problem found	Evaluate the prototype
Method	Desk study Data analysis	Empathy map	Brainstorming	Gamification Data analysis	

Figure 7. Summary of empirical study

In the Discover phase, multiple internal documents and archival records of the case study organisation were used, e.g., employee engagement survey results, customer satisfaction survey results, KPIs, HR Operations Core team meeting minutes, and other internal administrative records. This documentation was used to gather an understanding of the current state, background, and need for the actual field work in workshops. These documents and archival records were supplemented with unstructured group interviews of HR Operations leaders. The findings of these data sources were documented in the internal PowerPoint presentations and summarised in this study in the empathy map presented in Figure 9 in Chapter 4.2.

3.4.1 Participatory research through gamification workshops

The actual field data was collected by using participatory research through gamification workshops. According to Gubrium & Harper (2013, 13), participants are increasingly seen as collaborators in participatory research. Participatory research might provide opportunities to build new skills, while at other times, participation may seem like a burden to participants (Gubrium & Harper 2013, 198). As the research questions focused on the impact of using participatory methods in HR development, it felt logical to use them for data collection, too. Games are influential in creating emotions, enhancing cognition, and stimulating behaviour.

There are two approaches to introducing games in a practical context: gamification and serious games. There are many definitions for gamification. One is gamification, which uses game elements in non-gaming systems or contexts. There are two aspects in gamification design: 1) designing gamification that motivates people to use the system, which mainly reflects user engagement with the system or game, and 2) designing gamification with the expected outcome when used, meaning engagement with the topic, context, or behaviour. (Deterding, 2011.)

Gamification was selected as the data collection method because it enabled the collection of more profound and richer data than more traditional surveys or interviews. The assumption was that it would also fade some cultural differences in multicultural organisations by improving engagement and experience with a problem or issue. The researcher also expected to have a more relaxed and deeper interaction. As service design, in general, was new to the organisation, a limited number of gamification elements were decided to be included in the prototypes and testing so as not to lose attention.

The gamification workshops for employees and managers were called Voice the Customer workshops. The researcher facilitated a series of 21 Voice of the Customer workshops (VoC). Twelve out of them were selected for this study. This study excluded nine workshops held in the same countries but in other locations than those included. The reason for having so many workshops was to have an appropriate overview based on the headcount and global coverage of the case study organisation. Twelve selected workshops represent the case study organisation well, its international coverage, diversity, cultural differences, and language dependency.

At first, the countries where the workshops were held were selected based on headcount and global coverage. Five countries out of 63 countries were chosen for the workshops, with a split into three categories based on the headcount.

- A big country with a headcount of over 1500 (3 countries selected)
- A medium country with a headcount of 200-1500 (1 country selected)
- A small country with a headcount of less than 200 (1 country selected)

The chosen countries cover 32,5 % of the whole population of the case study organisation. Three big countries cover over 30 % of the population, and two smaller ones cover appr. 1 %.

The data collection took place between September 2023 and October 2023. In this study, the gamification was experimented with, tested, and adjusted in 12 workshops in 5 countries, five physical locations, four regions, and three continents. The number of managers and employees who joined the workshops is 174, which is 0,41 % of the whole population of the case study organisation.

The data collection was executed in four stages. The data collection started with the pilot. According to Yin (2011, 37), it provides an opportunity to practice. It helps to test and improve one or more aspects of a final study, e.g., its design, data collection methods, or analysis plans. 1) The pilot covered one face-to-face workshop for managers and one for employees. 2) Prototype I consisted of 6 face-to-face workshops, 3) prototype II covered two virtual workshops, and 4) Minimum Viable Product (MVP) 2 face-to-face workshops.

Coding was used to anonymise the workshops to protect confidentiality and follow the research ethics. Henceforth, codes W1-12 refer to the workshops conducted (Table 1).

Stage	Workshop code	Country size	Date	Participants	Amount of the participants
Pilot	W1	Big country	06/09/2023	Managers in the factory location	9
	W2	Big country	06/09/2023	Employees in factory location	12
Prototype I Face-to-face	W3	Big country	11/09/2023	Employees and managers in the factory location	13
	W4	Big country	11/09/2023	Employees and managers in the factory location	24
	W5	Big country	13/09/2023	Shared service employees and managers	16
	W6	Big country	14/09/2023	Shared service employees and managers	11
	W7	Big country	15/09/2023	Employees and managers in the office location	25
	W8	Big country	15/09/2023	Employees and managers in the office location	22
Prototype II Virtual	W9	Small country	19/09/2023	Office employees and managers remotely	10
	W10	Medium country	20/09/2023	Office employees and managers remotely	14
MVP	W11	Big country	25/10/2023	Shared service managers	8
	W12	Big country	25/10/2023	Shared service employees	10
TOTAL					174

Table 1. Gamification workshops

While collecting data, the researcher started to think about the benefits of co-creation and co-production for HR. It was assumed in the hypothesis that it would bring some priorities for HR development, but in addition to that, a more preventive approach to HR development could be found. The researcher must select the theory development approach from deduction,

induction, and abduction. In the abductive approach, data is collected to explore a phenomenon, identify themes, and explain patterns to develop a new theory or modify an existing theory, which you consequently test through data collection. (Saunders et al. 2019, 153.) This study theory was built abductively by understanding preventive, proactive, or anticipatory approaches in other fields and exploring what the empirical data brings to the topic and vice versa.

Participants provided their insights and solutions with cards or sticky notes, depending on the session, as part of the workshops. These physical artefacts were digitised into Excel. In addition, the data collection was documented with photos, observation ethnography, participant feedback, and notes.

3.4.2 Ethnography

In this study, the researcher attempted to understand the reality of the HR transformation phenomenon through the views of workshop participants. The data collection was documented with photos, observation ethnography, and notes. The researcher analysed not only the visual outputs of the workshops but also the gestures, hesitations, and other possible clues to interpret the reality of participants. Ethnographical observations of co-facilitators were used for this purpose.

Interviews and surveys as data collection methods are mainly based on listening and asking questions. Ethnography is based on direct observation, secondary document study, and listening. Ethnography can be done with non-participant or participant observation. In non-participant observation, the subjects are observed from a distance without interacting and interfering with the subjects' actions. In participant observation, the researcher might have a direct relationship with the subject to monitor and describe their social actions and interact with them. (Gobo, 2011, 16-17.) Doing organisational ethnography means using multiple methods in data collection, like observation and collection of documentation or interviews as a 'fieldwork' and data collection - or herself through physical presence in organisations (Eberle & Maeder, 2011, 54).

Direct observations in a field setting can focus on real-world events, physical environments, or human actions by listening, using senses, taking notes, and creating a narrative based on what you might have seen, heard, or otherwise sensed (Yin, 2012, 11). In this study, a mix of participant and non-participant observation was used. The co-facilitators had a role in the workshop to help provide the participants with cards/sticky notes, voting stickers, and repeating actions. Still, their main focus was observation, and in some smaller sessions, they could focus only on observation. What comes to the observation is that it was asked to be done ‘from a distance.’

The most formal observational methods will include a formal setup and indication of specific occasions for making the observations (Yin, 2011, 143). In this study, each co-facilitator filled in the observation form with three questions and evaluated the participation, feelings, concept, and impact using ethnography. The questions in the observation form were the following (Appendix 1).

1. What do I hear, what do I see? What participants do or say, what they don't say.
Reactions, gestures, hesitations.
2. Situation, circumstances. What works well in the workshop setup, and what does not?
3. My reflections and feelings. How did I impact the discussion or situation?

In ethnography, observation is the primary source of information. Ethnography concerns observations of actions as they are performed in concrete settings. Consequently, it has limitations and is not usually used as a primary data source, e.g., community studies. (Gobo, 2011, 25). The participant-observers may be able to manipulate minor events such as discussions (Yin, 2014, 117). Considering these potential risks, the observation was used as a supplement data collection method to understand how the Voice of the Customer concept worked. By understanding this challenge of the mixed observation approach (participant and non-participant), co-facilitators were asked to self-reflect on how they impacted the discussion or situation in the workshop (Question 3 in the observation forms). The data collection process has been captured in detail in Chapter 4.

3.5 Data analysis methods - Abductive thematic analysis

The data analysis was two-fold. First, the Voice of the Customer concept and its prototyping and testing were analysed, and the learnings elaborated. Second, items created in gamification workshop discussions were examined by using abductive thematic content analysis. Theming is used widely as an analysis method in qualitative research. The analysis methods were selected based on research questions and collected data. The details of the analysis methods are explained in the following subsections.

3.5.1 Concept analysis

The content analysis aims to analyse how the VoC gamification concept worked. This study started by defining current theoretical positions in literature before creating an understanding from praxis. The empirical research was accomplished in three stages: first, to test gamification as a data collection method. Second, to prove that it can be used virtually, and third, to test the minimum viable product of the Voice of the Customer concept. Figure 8. summarises the stages of concept analysis. It was exposed to continuous feedback and iteration with observations and participants' feedback to understand how the experimental gamification workshop concept worked.

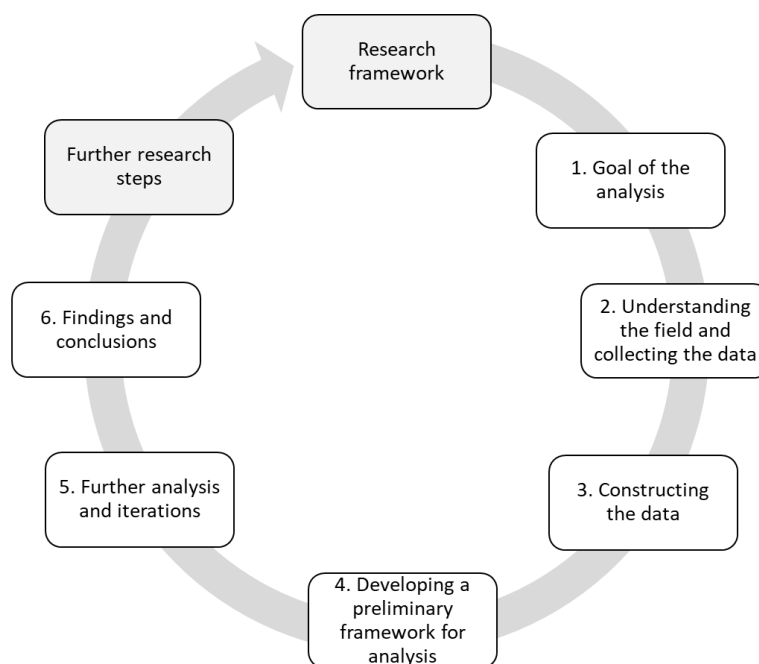


Figure 8. Concept analysis

The data collection process followed the iterative service design approach, where the approach was tested and improved. In every session, different co-facilitators were trained before or at the beginning to support facilitation by providing cards or sticky notes to the participants, clarifying the questions, encouraging participants to open discussion in a local language if needed, and shadowing and observing the event. After each session, there was a debriefing session to hear the first reflections and improvements to be implemented for the following sessions.

3.5.2 Content analysis

Hsieh & Shannon (2005) state that content analysis aims to develop new phenomena, models, or concepts but not new theories. Conventionally, the categories of the content analysis are formed based on data. The categories represent the central information of the study and its findings (Tuomi & Sarajärvi, 2018) and can be words, sentences, or paragraphs to support abstraction and condensation (Graneheim & Lundman, 2004).

All comments from cards and sticky notes were digitised and themed in Excel. This data was brought from Excel to Miro for further analysis. The number of items made it challenging to analyse the data using Miro AI. Therefore, the researcher continued analysing the data in Excel.

In this study, the content analysis took place to find the key themes of strengths of HR Service, challenges, and dreams of the HR customers in the case study organisation. The data collection generated 1554 items. Items concerning the pain points were the biggest at 687, working well at 416, and dreams at 451. The content analysis combined both quantitative and qualitative methods. In this study, the content analysis was done in three iterative cycles. The first cycle items in data collection were preliminary themed to 183 categories to see that the Voice of the Customer concept worked and provided relevant data. In the second cycle, items were further divided into 15 categories to have a reasonable number of categories and see what performed well and what the pain points were. As part of the third cycle, items were categorised under four key themes to find the essential items for preventive HR development.

The purpose of the content analysis was to support the concept analysis to create a minimum viable product for the Voice of the Customer concept. The other aim was to research the critical elements for preventive HR development abductively. Details of the data analysis and results have been described in Chapter 5. Results.

3.6 Ethical considerations and limitations

Ethical considerations have been reflected in designing the data collection approach, selecting the participants, and deciding the data analytics. In this study, all data was collected, stored, analysed, and reported anonymously by following the guidelines of the Finnish Advisory Board on Research Integrity (2023). The workshop sessions were documented with photos, which were used for research purposes to present the setting and findings of the research. The images and other materials were anonymised. The researcher respected the dignity and autonomy of human research participants by collecting the consent forms (Appendix 2) from all participants and stating the items mentioned above. The study participants had a right to withdraw from this study at any time, as highlighted in the consent. All workshop participants signed the consent forms.

While participants' consent and assurance of confidentiality are important aspects of ethical research practice, Gubrium & Harper (2013, 23) propose to broaden ethical considerations of power differentials and how they influence the participatory research process, as well as its outcomes and manner of dissemination. These dimensions of power include considerations of how trust and rapport are built in the research process, the type of interchange accorded with the participants, and the recognition of power balances inherent to matters of representation. The participants were able to provide feedback anonymously after the session. The feedback was collected by using an MS Office form. The participants' feedback was utilised as a part of the concept analysis described in Chapter 5.1, Voice of the Customer Concept Analysis.

Diversity and inclusion were the critical factors in selecting the participants. All participants were allowed and encouraged to use the local language in the discussions to ensure open and honest interaction. The workshop materials and consent forms were translated into local languages when needed.

Co-facilitators were new to the topic, and the researcher did not know them. They got a short training before the workshop. Their primary role was openly monitoring and observing everything they saw, felt, and heard. This was one of the ways to try to avoid bias and find a way to collect data without prejudices. The observations and the feedback of the participants were all anonymised.

The study can be criticised for having an internal researcher. Having the background knowledge and being able to analyse the connections gave her a strong base. On the other hand, could there be something she does not notice or sense as being objectively too close to the topic? Co-facilitators observed the workshops to minimise this risk.

The following chapters illustrate how the research design was introduced by using gamification as the data collection method and abductive thematic analysis as the data analysis method.

4 GAMIFICATION IN AN ENERGY TECHNOLOGY COMPANY

In this chapter, the data collection process of this study with gamification workshops is presented. The study was conducted in a global energy company. The data was collected in 12 workshops in 5 countries, five physical locations, and four regions. 174 managers and employees joined the workshops. The data collection was executed in four stages. The data collection started with the pilot, continued face-to-face and virtual prototyping, and was finalised with minimum viable product testing. The data collection process of this empirical study followed the iterative phases of the design thinking approach: 1) Discover, 2) Define, 3) Ideate, 4) Prototype, and 5) Test. These phases challenge assumptions, redefine problems, and create innovative solutions to test and understand customers. Figure 7 in Chapter 3.4, Data Collection Methods, summarises the process.

4.1 Discover - Listen

The data collection started by outlining the business challenge and identifying the problem. The Discover phase aimed to gain an understanding of the problem to be researched. As mentioned in Chapter 1.3, the HRIT transformation has changed processes, tools, and ways of working in the case study organisation. The request from the case study organisation was to create a concept to standardise the ways of working in HR Operations. The investigation of the current situation started with a desk study. Understanding the current state was collected based on discussions with HR Operations leaders, reviewing the employee and customer satisfaction survey results (2023) and KPIs of HR Operations (2023).

The ticket volume of HR Operations is high - approximately 520.000 tickets annually. Customer satisfaction is also high at 89 %, but simultaneously, the response rate of customer satisfaction related to tickets is meagre - only 4 % - therefore, responses are unreliable for further analysis. The recent employee engagement survey highlighted recruitment, performance management, and diversity & inclusion issues. In anonymous surveys, you receive a lot of negative feedback and nearly nonpositive. In addition, there are hardly any proposals for solutions, and after the survey, the requestor is left with many complaints. In the discussions with leaders, the hospitality industry wording came up, and its' metaphors

were used to summarise the challenges of HR Operations’ current situation to the empathy map (Figure 9).

<p>SAY</p> <ul style="list-style-type: none"> • The kitchen is moved, up and running • Cooking all “dishes” to be compliant with statutory requirements and a variety of local regulations • No-one is walking around being hungry • No “restaurant hall” available • The “restaurant hall” is still in the design phase <ul style="list-style-type: none"> - No waiters serving and explaining the menu - Waiters are still to be engaged (HR Customer Service model) • Everyone (all customers) is directed to talk to the cooks in the kitchen 	<p>DO</p> <ul style="list-style-type: none"> • Work overtime • Leave the organization • Handle huge amount of tickets and ticket backlog
<p>THINK</p> <ul style="list-style-type: none"> • Persistence • Discipline 	<p>FEEL</p> <ul style="list-style-type: none"> • Dedication • Sacrifice • Disappointment

Figure 9. The current situation in the case study organisation’s HR Operations

After the desk study and discussions with the leaders, it was clear that stabilisation was only part of the issue. The bigger question was what to stabilise and prioritise.

4.2 Define – Understand

The primary purpose of the Define phase was to understand and identify the problem, begin to prioritise the critical areas of focus, formulate the problem statement, and validate its business value. Based on the discussions with HR operations leaders, the first list of problem statements was created to help focus on suitable topics in the subsequent phases. The problem statements have been summarised in Figure 9.

The shared service center structure with four centralised service centres is in place. In addition, there are front offices for more local topics, a Center of Expertise for process improvement, and HR Business partners for managers’ support (Figure 2). The ticket volume of HR Operations is high, with approximately 520.000 tickets annually. Service centres are like factories that can handle ticket volumes and take mitigation actions when something is not working correctly. This is the strength of HR Operations. However, one of the critical problems in HR Operations was having fewer tickets and a smaller ticket backlog. Many improvements have been made since the HR IT transformation and implementation of new

applications. Typically, HR development and enhancements are done based on the feedback collected from the HR organisation.

4.3 Ideate – Concept

In the Ideate phase, assumptions were challenged, and thought outside of the box based on solid background knowledge, looking for unconventional ways to view the problem and identify creative solutions. The researcher wondered if it would be possible to find a more preventive approach to HR Operations. Would that reduce the number of tickets and streamline the processes? What would be a way to bring it? The human-centred approach was experimented with for that purpose, and customers were brought into the development and improvement to see if it adds a more preventive approach to HR development.

Service design and human-centred approaches (excluding surveys and some interviews) were new to the case study organisation. The researcher started to review and find an answer to one of the research questions, ‘What kind of service design tools could strengthen data collection of customer needs?’ and understand what the practice could be to get a deep understanding of customer needs. Some boundary conditions came up in the discussions with HR Operations leaders. The tool or concept should be efficient, scalable, suitable for employees and managers, consider cultural differences, and be easily trainable. The concept should also offer a way to collect customer understanding regularly. Based on these, the proof of concept for the Voice of the Customer workshops was created and approved in the case study organisation.

Galeote et al. (2021) have listed gamification elements into three categories. The categories are achievement/progression-oriented, social-oriented, immersion-oriented, representation, resources, and materials. For this study, the following gamification elements were selected:

Achievement/progression-oriented	Social-oriented	Representation, resources, materials
<ul style="list-style-type: none"> • Tasks, clear goals • Increasing difficulty • Timer, speed 	<ul style="list-style-type: none"> • Cooperation, teams, collaboration • Collective voting 	<ul style="list-style-type: none"> • Debriefing by facilitators • Physical cards as resources • Physical cards as events and challenges • Digital cards as events and challenges • Real-time dependence

Table 2. Gamification elements used in the case study

4.4 Pilot – Project

Having chosen the data collection method, the preparation for it and the pilot of the gamification workshops took place. The pilot case represented a complicated case of a big country with language dependency. The assumption was that doing this specific pilot would help identify nearly all the relevant data collection issues they would most likely encounter in this pilot case. The pilot preparation included choosing the workshop participants, designing the procedures and materials for the workshops, selecting the co-facilitators, training them, setting up the workshop dates, times, and places, and giving the agenda overview for the participants in advance.

Diversity and inclusion were the key drivers in selecting the participants. The different nationalities, cultures, religions, business units, and gender diversity were considered to learn the employee experience from multiple perspectives. HR Business Partners (HRBP) helped to select various participants. The researcher did not know who was nominated and could not impact the selection or results.

The workshops aimed to explore the thoughts, emotions, and motivations of the managers and employees of the case study organisation to identify pain points, moments that matter, problems, and what is working well. The agenda of the workshop is presented in Appendix 3. Participants were split into table groups of 3-5, depending on the workshop size. Three topics were selected to be discussed in workshops.

- What is working well in HR services, processes, and tools?
- What are the pain points or challenges?
- What are the solutions, ideas, dreams, goals, and wishes?

The participants of the workshops were a mixture of employees and managers. In the first and last workshops, separate workshops for employees and managers were organised to test the differences. As the findings were the same in both groups, mixed groups were tested, and based on the observations, the mixed groups with high diversity worked well. Different approaches in grouping were tested. In some cases, they split the regular working groups and, in some cases, let them be in the same group to see the differences.



Figure 10. Piloting gamification in the Voice of the Customer Workshop

A dot voting method was used at the end of the session to prioritise the most critical touch points and process steps. Each person placed three dot votes against the moment or issue they thought mattered the most. This was the essential step in seeing the prioritisation of the participants.

The co-facilitator was able to run the second workshop in the local language by participating in the first session. The materials were translated into the local language right from the beginning. Participants felt more confident and effective in having group discussions in the local language even though the company's official language was English, and the workshop was run in English. The recommendation for the participants was to use the local language whenever feasible. Therefore, the co-facilitators were local and could understand the local language and make the observations.

After each session, participants had an opportunity to give feedback anonymously. There were three questions in the feedback form:

- 1) How do you rate the overall experience of the workshop – On a scale of 1-5 (1 = Far Below Expectations, 2 = Below Expectations, 3 = Normal/Fine/Meets Expectations, 4 = Fully Meets Expectations, and 5 = Exceeds Expectations)

- 2) Comments regarding what is working well in the Voice of the Customer workshop.
- 3) Comments or suggestions for improving future Voice of the Customer workshops.

4.5 Prototype I – Test

The pilot demonstrated that the Voice of the Customer concept worked as there were open discussions in the workshops, inputs were given on what could be seen based on the number of cards, and feedback from the participants was positive in general.

Based on the feedback of co-facilitators and participants, some adjustments were made to prototype I to ensure digitised participant feedback collection. The feedback form was a paper form in the two pilot sessions, and after that, it was digitised and provided to participants at the end of the session with a QR code and via email link. The concept and materials remained the same, but some attention was paid to the verbal instructions.

The participants preferred the use of cards as a tool over sticky notes. From the facilitation perspective, sticky notes offered other benefits as it was easier to put them on the wall for theming and voting. In the finalised concept, cards could be utilised. It was intriguing and educational to receive instant feedback from co-facilitators and participants. It helped to modify the facilitation for the following workshops and continue experiments.

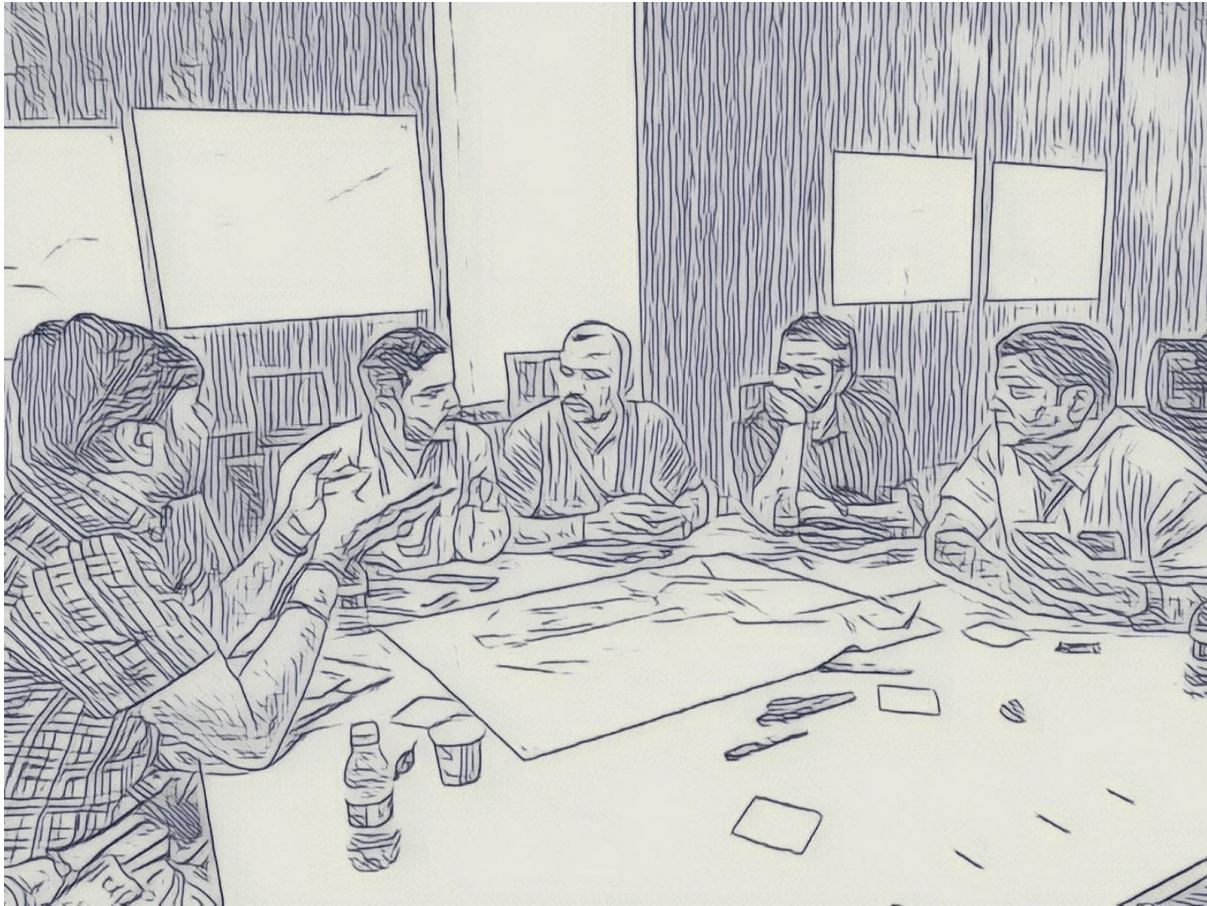


Figure 11. Prototyping gamification in the Voice of the Customer Workshop

4.6 Prototype II

The researcher wanted to test whether the same concept could be used virtually. Therefore, the gamification workshop concept was tested remotely. Prototype II explored how the Voice of the Customer concept works remotely. Two virtual sessions in Teams were organised, and Teams Whiteboard was used for the facilitation. The participants were divided into breakout rooms for group discussions and brought back to the central meeting to share the key points from the talks.

The concept worked in general, but there were more challenges in facilitation. Keeping the group together was difficult as participants jumped to other meetings during the workshop. It was also challenging to prepare in advance as participants did not accept the invitation, and planned groups needed to change in the middle of the workshop. The facilitation of the virtual workshop was more confronting as participants kept changing and needed more support in group discussions. It also provided the items on the virtual sticky notes as the tool

was new. Some of the participants joined also via mobile phones. The observer commented, *“Most of the participants have cameras off, which to me makes the overall communication in the break-up rooms less efficient. I’ve observed that laugh is a good icebreaker. Couple of jokes in the break-up room changed the atmosphere to be less-like-at-school. Also it helps if there are colleagues in the group which already know each other - these people are sharing more openly, and it’s easier to get other people involved into the discussion.”* (W9, O33.)

Usage of the Whiteboard was reviewed in theory as part of the introduction and practised by adding a name to the virtual sticky note and warm-up question. All co-facilitators needed to stay in the breakout rooms to support the participants in discussions, and they ended up writing sticky notes on their behalf. Therefore, it was challenging to get virtual sticky notes ready for voting. Based on the observations, there might have been multiple reasons for it: *“Some participants are hesitant to share the feedback in written. Some prefer to share it in a small break-up room group, but don’t want to use the virtual tools nor share later in the bigger group. It looks like participants don’t want to give evidence of their opinion. It might have something to do that if they use the post-its, then each virtual post-it note is labelled with their names”* (W9, O33). All these pain points were improved and tested in the second virtual session, which was much smoother. The participant feedback remained positive, and there was no difference from the other workshops regarding input or content.

4.7 Minimum viable product

The minimum viable product (MVP) was created by evaluating prototypes I and II. The feedback received from the participants was generally very positive. The improvement ideas were related to the continuum and vagueness of what to expect next.

The discussion in the workshops was lively and inclusive. The participants felt that they could openly share their thoughts. They also liked the workshop's length (2-2,5 hours), which was purposely planned so that it did not take too much of the valuable time of managers and employees.

Even though the concept was generally working fine, and participants were satisfied, some changes were required from the facilitation perspective to find a more focused and scalable

solution. The biggest challenge was the number of items provided in the workshop and the time to analyse them. Therefore, some categorisation was needed to bring more structure and next-level gamification to the discussion. There was a need to find an easy, repeatable way to collect customer understanding. There was a need to prototype the next version of the concept.

The saturation point was achieved as part of the prototypes, and the workshop items were repetitive with some local flavours. There was a desire to go deeper and understand how co-production of HR services could be brought into the picture.

In the discussions with co-facilitators, the Fishbone diagram came up. The Fishbone Diagram is a visual quality management tool that helps find a problem's root cause. Categories of causes often used in Fishbone are 1) Methods, 2) Machines, 3) Materials, 4) Measurement, 5) People, and 6) Environment. They might vary according to the nature or domain of the industry. *Methods* is a category for documents and instructions of the business process where the defect has been found. *Machines* cover all the elements related to equipment or machines used in the business process. *Materials* refer to raw materials used during the process. *Measurement* represents measurement units or quality standards used. *People* include all the people involved in the business process. *Environmental* category refers to the external factors that impact the functioning of the process. (Kajal 2022.)

Based on fishbone benchmarking and the preliminary content analysis created after prototypes, the researcher decided to have four categories: 1) Service, 2) Tools and systems, 3) Processes, and 4) Documentation. These categories were drawn to the whiteboard films on the table and used to lead the workshop in Minimum viable product testing. Based on the testing, the new concept created a limited number of items. The concept also pushed teams to work on empty areas: “*We don’t have anything in Documentation. Is there something we would like to add here?*” (W12). The concept helped describe the needs of the HR Service in the future state in more detail and develop deeper emotions.

This chapter summarised how data collection with gamification was done in this research. Based on the data collection, the received data was analysed and linked to the theoretical framework of co-production. These learnings and findings have been described in Chapter 5. Results.

5 RESULTS

The data collection process (described in detail in Chapter 4.) provided a large amount of data as there were 1554 items (sticky notes or cards), 35 observation forms, and 118 feedback forms with open comments. This chapter presents the data analysis process and the study's results. The data analysis was two-fold. First, the Voice of the Customer concept and its prototyping and testing are analysed as part of the concept analysis. Second, the content of workshop discussions is analysed on a high level. This chapter is anticipated as a stand for the discussion that follows in the next chapter. The details of the analysis methods used and the study results are explained in the following subsections.

5.1 Voice of the customer concept analysis

The key focus of the concept analysis was to see how the Voice of the Customer concept works, further improve it, and test it again. The concept analysis was done by searching for the patterns and insights from the observers' comments and participants' feedback. The concept analysis is summarised in Table 2 using principles of service design (Stickdorn et al., 2018, 27) and original boundary conditions for the concept. Coding was used to anonymise the workshops to protect confidentiality and follow the research ethics. Henceforth, codes W1-12 refer to the workshops conducted, and codes O1-35 to the observers.

Theme	Adoption in this case study	Workshop outcome based on the workshop observations	Workshop outcome based on the participants' feedback
<p>Human-centred</p> <p>Study the experience of all the people involved in the service.</p>	<p>174 employees and managers of the case study organisation joined the workshops</p>	<p><i>"Animated gestures"</i> (W3, O8) <i>"Amazing interaction between participants."</i> (W7, O23) <i>"Making it an interactive session is helping people be more active and interact of voice their opinion more."</i> (W6, O16) <i>"People are confident in sharing their perspective."</i> (W4, O12) <i>"Segregation into groups and having their own discussion and then presenting it to entire session is working well."</i> (W6, O16) <i>"Open for difference of opinions."</i> (W7, O25) <i>"Overall, I think the feedback is given very carefully, and one participant asked me before the meeting if he can be very transparent in the meeting - which I encouraged."</i> (W10, O31)</p>	<p><i>"Good platform and feedback is being honoured and listened"</i> (W3) <i>"Feedback from the participants well received. Improvement feedback is well taken."</i> (W8) <i>"The very fact that someone cared to ask for voices :)"</i> (W10) <i>"Participates of this VoC workshop discussed the topics openly, shared their thoughts without holdback. Look forward to the future improvements and feedback (for the raised issues)"</i> (W2)</p>
<p>Collaborative</p> <p>Stakeholders of various functions and backgrounds should engage in the service design process.</p>	<p>Diversity and inclusion were vital in selecting the participants. Twelve workshops were conducted for five countries in 6 different locations, face-to-face and virtually. Diversity in gender, religion, work experience, culture, age, business unit, role, and factory vs. office were considered.</p>	<p><i>"Diverse people of experience is part of the group."</i> (W6, O19) <i>"Cross team collaboration."</i> (W7, O23) <i>"Teamwork, listening to everyone's points."</i> (W5, O14) <i>"Knowledge transfer - What one feels benefitted is something new to other person."</i> (W5, O14) <i>"Discussion about transparency is appreciated"</i> (W4, O11) <i>"Learning from others feedback"</i> (W6, O16)</p>	<p><i>"The workshop has been conducted with good reasonable pace which provided good time and opportunity to connect with people and discuss more"</i> (W8) <i>"Group session illustrated similar experiences."</i> (W9) <i>"Structured approach and enough time for discussion"</i> (W11) <i>"Good to hear different point of view from another departments"</i> (W12)</p>
<p>Iterative</p> <p>Service design is an adaptive, experimental, and exploratory approach, iterating toward implementation.</p>	<p>Gamification was used to collect the data. The iterative approach was a base, and the concept was exposed to continuous feedback and improvement in observations and instant feedback in each session.</p> <p>The data collection and analysis were conducted in cycles.</p>	<p><i>"Nervousness on answering some questions."</i> (W5, O13) <i>"People wrote multiple points in single green card and single points in red cards. Due to which green card number is looking less in comparison with red."</i> (W7, O23) <i>"If the seating would have been as a team, then more pain point, positives and dreams could have come out."</i> (W7, O23) <i>"Few points shared by other group were not audible due to speaker issues."</i> (W7, O22) <i>"Some participants are speaking more openly about the tools and data rather than teams and processes."</i> (W9, O33)</p>	<p><i>"Engaging and lively"</i> (W9) <i>"Good that we were able to discuss positive, scope for improvement areas and ideas in a common place."</i> (W8)</p>

Real Needs should be collected, ideas prototyped, and values evidenced as physical or digital reality.	Everyday activities of employees and managers were captured.	"Given enough space to everyone to express their view." (W6, O20) "When they hear the same keyword, some managers nod their heads slightly in agreement." (W1, O2) "Areas covered are in wide range." (W5, O14)	"Open discussion on all the relevant topic" (W4) "It was simple, clear and to the point." (W2)
Holistic Services should address the needs of all stakeholders across the journey	All HR services, processes, and tools were within the workshop's scope. What is working well, the pain points, and what dreams were discussed?	"Grouping participants ideas together made them realize their common ground" (W6, O20) "They had more points under the to be improved section than what's working well." (W7, O22)	"The process we followed in workshop is simply superb. Now I hope there is enough information on what is going good and what is not." (W6) "Cover all subjects" (W3)
Efficient	The workshops were conducted in 2-2,5 hours.	"Workshop set up was appreciated by the participants." (W7, O22)	"Great Initiative! Effectively collected the feedback. Hope this will help to effectuate HR services." (W8) "Open discussion, efficient and good results/outputs" (W1)
Scalable	The number of participants varied between 10-25.	"Logistics & set-up is well." (W7, O24) "None of the participants hesitated in sharing their feedback / suggestions." (W10, O32)	"Diversed participates from different business functions, which enabled to collect broad views, feedback, and issues." (W2)
Suitable for employees and managers and different cultures	The same concept was used in every location.	"Diverse groups (mix of employees/people managers) are having more vibrant conversations." (W4, O12) "One manager didn't leave the workshop soon. He talked to me that it's a very good workshop with relax atmosphere and everyone discuss the topics with the clear focus." (W1, O4) "Employees session are more relax than managers session." (W2, O7) "The workshop was a good opportunity for the employees / managers to share first-hand feedback to the HR." (W10, O32)	"It's a good initiative to address the very crucial challenges faced by managers." (W8) "Well organized, logical and did lead the discussion in good way" (W1)
Shared value	Shared priorities were selected with voting.	"When the keyword is controversial, the proponent feels frustrated and want to take the keywords away from the discussion." (W1, O2) "Voting on important task let us know their priorities" (W6, O20) "People are agreeing on points" (W4, O11)	"Well organized, logical and did lead the discussion in good way." (W1)

Table 3. Findings

It was interesting to see how the energy level of participants went up when the discussions about what was working well started. Some participants found getting up to speed or finding positive items challenging, but everyone was still focused. They also tended to change to the local language, and the workshops were held in three different languages. The workshop is a process, and it takes some time to get familiar with the setup, even though instructions were given verbally and were visible to the participants on the screen. *“Bit hesitation with what working well”* (W7, O24).

In some situations, it was noticed that the presence of one's manager brought some hesitation to the discussions. *“Initial hesitation when the manager of the employee is in the same group”* (W5, O15). It was seen that working well was more dedicated to everyone's thoughts. The question ‘What is working well’ helped the participants to reflect on what has happened as part of the IT transformation, what has changed, and how they feel about current processes, systems, and HR services. Pain points brought the groups together, and they found common ground. *“When one person is speaking rest of the group start agreeing with them”* (W3, O8). Enthusiasm grew when groups got to their dreams and ideas, and the participants were eager to create solutions and participate in improvement.

All HR Business Partners and HR Operations team members who joined the sessions as co-facilitators commented that they learned something new. *“Very informative session to understand the feedback from our customers”* (W5, O13). *“Had a lot of personal take aways and learnt more on HR processes”* (W8, O28). That is proof that this concept brought up some items that have not been addressed using some other data collection method utilised earlier, like interviews or surveys. The participants wished this kind of workshop would be a regular event and proposed that it could be organised with HR Business Partners. *“Feedback sessions to be conducted regularly by local HRBPs”* (W4).

Based on the prototypes, the concept brought up relevant information for the case study organisation, such as pain points and improvement ideas for HR tools, processes, and services. It also concretised future expectations and underlying dreams of employees and managers. This led to the following findings. There are areas where roles and responsibilities need to be clarified, and more personal support is required from HR in addition to digital services. The usage of Service Design, gamification, and this kind of feedback collection was new in the case study organisation but was well accepted and appreciated. Gamification as a

data collection method worked. Workshops were interactive and engaged participants. People who wanted to go after some time stayed the whole session. In summary, *“People have more clarity on things they address & which concern them.”* (Feedback, W5).

5.2 Content analysis

The content analysis took place to find the key themes of the items working well and the pain points, solutions, ideas, and dreams of the HR’s customers in the case study organisation. The analysis method was an abductive thematic analysis. The data analysis method was selected based on the research question and research data.

The data collection generated 1554 items on the sticky notes or cards. The pain points were the biggest at 687, working well at 416, and dreams at 451. Some items were in the local language, and co-facilitators helped translate them into English. The volume of the thoughts proved that the Voice of the Customer concept works. The concept analysis is described in more detail in Chapter 5.1.

The data was appropriately detailed and rich to explore the phenomenon, identify and explain themes and patterns, and uncover insights. Even though the main objective was to do qualitative data analysis, the amount of data allowed for some quantitative analysis. The data collected is manifold and wide, permitting data analysis from different perspectives. However, the research question *‘How do game-based service design methods enhance preventive HR development?’* gave the data analysis guidelines. This simplified the analysis and led the researcher to focus on discovering how service design could help in preventive HR development.

Theming is used widely as an analysis method in qualitative research. The theming process is iterative and can be done in cycles. In this research, there were three rounds of theming analysis, which are summarised in Table 4. On the first cycle, 1554 items were preliminarily themed to 183 themes to see if the concept worked and brought valuable data for HR development. As part of the second cycle, items were categorised into 15 themes for a reasonable number of categories. In the third cycle, items were further themed to four key themes to find key categories for improvement items. This method accommodates the

discovery of the moments that matter for employees and helps prioritise the most critical problems that must be solved first.

Cycle	Theming	Working well	Pain points	Ideas	Total
1st CYCLE OF THEMING To see that the gamification concept works as expected and brings a wide range of valuable data for HR development.	183 PRELIMINARY THEMES				1554
2nd CYCLE OF THEMING To analyse the elements related to past, current, and future development. To bucket different themes under a reasonable number of categories.	15 THEMES Annual process Appreciation Branding Compensation & Benefits Cross-functional Culture Service Reporting and People Analytics Knowledge management Leadership Local practices Self-service Service Excellence Smooth processes Transformation				
3rd CYCLE OF THEMING To have preliminary design principles for barriers as a recommendation.	4 THEMES HR Service Knowledge management Self-service Smooth processes	124 50 84 158	160 53 190 284	165 34 115 137	449 137 389 579

Table 4. Abductive theming

The researcher began her analysis by assessing the people or employee experience in general. Next, she focused our attention on the gains and strengths of HR services. She then analysed the pains and weaknesses of current HR services and how they impact customers' daily lives and success. This analysis was kept light as the primary purpose of this content analysis was to show that the Voice of the Customer concept provided relevant information for the case

study organisation and not to cover all the details. The recommendation was that the details be further analysed and used for future research, as in Chapter 6.6.

Based on the feedback, managers and employees appreciate how the digital transformation and simplification of processes have been handled in the case study organisation. Digitalisation of standard HR tools and processes has increased the effectiveness and transparency of communication.

The Human Capital Management system is working well, bringing visibility and transparency to the managers. According to the workshops, new HR processes and tools are functioning well on a high level, and employees and managers appreciate timely salary disbursement, training and development initiatives, and responsive and approachable HR teams.

Employees face challenges with multiple HR tools, lack of clarity on policies and processes, slow response times, and documentation. Improvement is needed in time management, onboarding, recruitment, training, and communication.

5.3 Pattern matching and logic modeling

After theming, the findings were further analysed using pattern matching. In pattern matching, an empirically founded pattern is compared with a predicted one made before data collection (Yin, 2014, 143). The hypotheses of this study were the following:

- Employee experience journey goes far beyond HR. From an employee perspective, close cross-functional collaboration is required.
- Gamification liberates and helps go deeper into employees' needs and tackle cultural differences.
- Gamification helps to bring a more preventive approach to HR.

Next, these three hypotheses are reflected against the findings of the study one at a time. Based on the data analysis, gamification workshops brought up 389 items related to self-service. 190 were pain points, 84 worked well, and 115 were ideas and dreams. They are all linked to tools and applications and require close collaboration with IT. There are also 24 items related to travel, which might require collaboration between multiple teams as business

trips might cause incorrect time management stamps and deductions in salary payments. Self-service includes 173 time management items requiring cooperation with an external vendor. The same applies to 55 payroll items under smooth process and self-service. Therefore, there is a solid conclusion between the hypothesis *'Employee experience journey goes far beyond HR'* and the study results. From an employee journey perspective, comprehensive cross-functional collaboration is required.

Before the data collection, the assumption was that *'Gamification liberates and helps to go deeper into employees' needs and tackle some of the cultural differences.'* The same Voice of the Customer concept was used in every workshop. Based on observations and participants' feedback, discussions in the workshop were open and collaborative. *"Although it's a random group, people are open about opinions"* (W5, O13). *"Making the participants feel comfortable to speak out"* (W6, O17). *"The process we followed in workshop is simply superb. Now I hope there is enough information on what is going good and what is not"* (W7). *"Great Initiative! Effectively collected the feedback. Hope this will help to effectuate HR services"* (W8). The detailed analysis can be found under 5.1 Voice of the customer concept analysis in Table 3.

The last hypothesis was *'Gamification helps to bring a more preventive approach to HR.'* Based on the desk study, HR Operations are vital in shared services, processes, and tools. It is like an engine or factory providing HR services. Much effort has been spent developing methods and tools, which is the strength of HR Operations. This is visualised on the right-hand side of Figure 12. The researcher proposes that the focus of process improvement or HR development should be lifted from an internally driven development focus to a business and employee-driven focus. The study aimed to research whether service design helps to move the focus from internal development to employee focus. The researcher anticipated seeing if human-centred approaches work as preventive action to prevent and mitigate unwanted events.

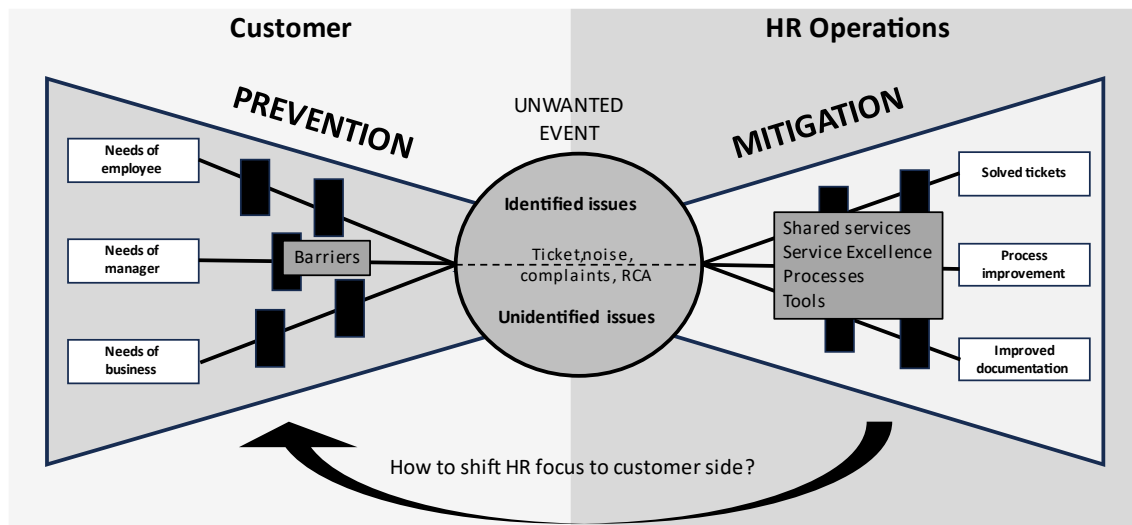


Figure 12. HR Bowtie – to prevent and mitigate unwanted events

According to Yin (2014, 155), the logic model operationalises a complex chain of occurrences or events. These events are staged in a recurring cause-effect pattern, whereby a dependent variable (event) at an earlier stage becomes the carriable (causal event) for the next stage. The use of logic models consists of matching empirically observed events to theoretically predicted events, and therefore, it can be considered another form of pattern matching. However, it should be characterised as a separate analytic technique due to its sequential stages. The researcher used the logic model to find the critical barriers to preventive actions.

Figure 13 summarises the results of this analysis, where the left part of the HR Bowtie has been taken for closer examination. 1) The barriers must be understood to minimise the number of tickets, meaning unwanted events coming to HR Operations. 2) Based on the content analysis above, the key themes were HR Service, knowledge management, self-service, and smooth processes. HR Service and partly smooth processes are related to the right-hand side of the HR Bowtie, meaning HR Operations' mitigation actions when a ticket has already been raised. Therefore, these are not reviewed in detail when analysing the preventive actions here. Knowledge management, self-service, and time management, the most significant pain points, can be seen as barriers to unwanted events. 3) Table 3 shows that the workshop participants have already provided 451 improvement ideas. These can be

seen as a starting point for improvement in addition to pain points. Employee needs collected in gamification workshops can be seen as preventive actions. Therefore, the researcher draws the link between the hypothesis ‘*Gamification helps to bring a more preventive approach to HR*’ and the empirical results of the study and proposes that the use of human-entered approaches can help bring prevention into HR development and shared services.

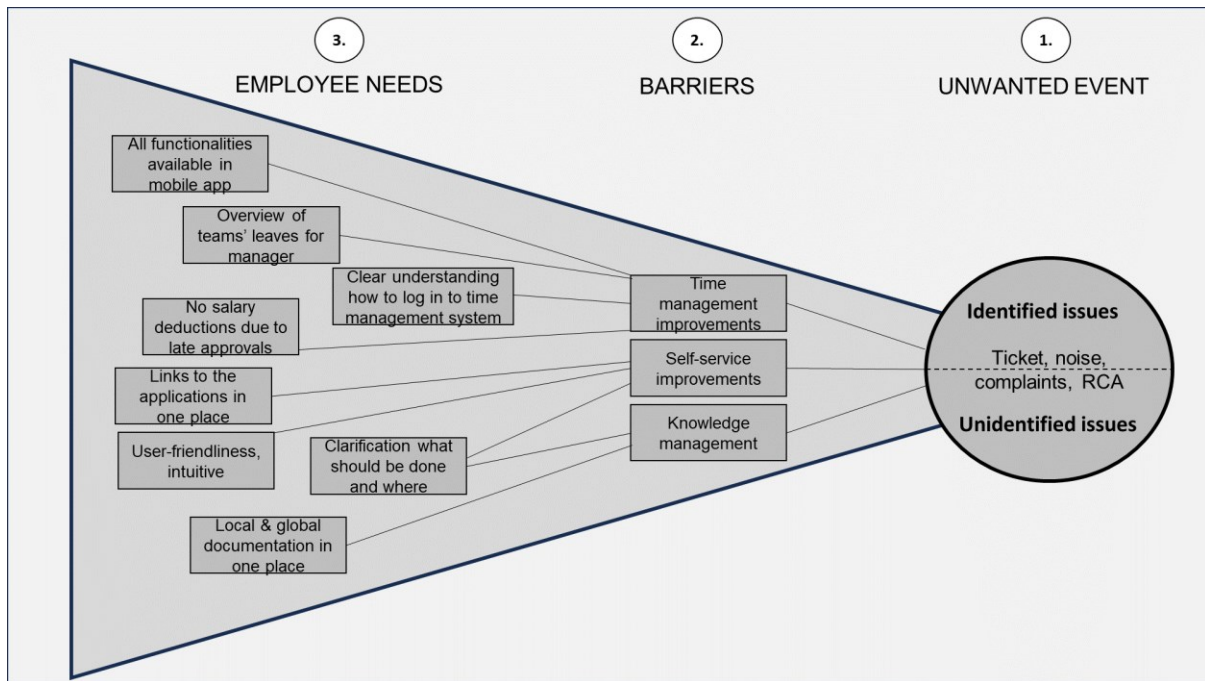


Figure 13. Preventive Actions in HR

This chapter summarises the main findings and supplements them by reflecting on the findings of the theoretical discussions of this study presented in Chapter 2. The findings extend the understanding of co-creation and co-production in HR services. The findings of the study can be summarised into four main points. *Firstly*, using service design and gamification, and this kind of feedback collection, was new in the case study organisation but was well accepted and appreciated. The gamification concept brought up some items and creativity that have not been addressed using other data collection methods. *Secondly*, the data was relevant for the case study organisation and helped to concretise the future expectations of employees and managers. *Thirdly*, the study's findings extend the understanding of co-creation and co-production in HR services. *The study's fourth and most valuable finding* refers to using service design in HR. The gamification helps to bring a more preventive approach to HR as customer needs collected in the workshops can be seen as preventive actions. This draws the link between the hypothesis and the study's empirical

results and proposes that using human-entered approaches, especially service design, can help bring prevention into HR development and shared services.

6 DISCUSSION

The purpose of this chapter is to discuss the contributions of this study, its limitations, and some general observations. This study began by building the conceptual framework of co-production for HR. Continued with a case study using gamification workshops and ended with data analysis of preventive HR development. In the following subsections, the researcher relates to the research questions and how they contributed to the development of the study.

The knowledge gaps in the literature identified were:

- 1) A need for an understanding of co-creation and co-production usage in HR,
- 2) A need for research on preventive actions in HR development and
- 3) Empirical research on the benefits of HR co-creation and co-production.

This led to the overall objective of understanding co-creation and co-production in HR services. The research questions will be discussed next.

6.1 Revisiting the research questions

This study explored *how game-based service design methods enhance preventive HR development*. The primary assumption to be tested with the service design was whether it is possible to bring a more preventative approach to HR services and minimise the number of tickets by listening and understanding employees and co-producing the processes with them. The selected analytic strategy was an abductive approach based on the research question.

In shared service centres, there is usually a vast volume of transactions. That is also the situation in the case study organisation, where HR Operations handles approximately 520.000 tickets and inquiries annually. Therefore, the researcher started to investigate whether human-centred approaches such as service design could bring some prevention to HR services. The Bowtie model is broadly used in risk management to identify root causes and consequences of hazards and show barriers that can prevent or mitigate the events from happening (e.g., Joy, 2018; Aust & Pons, 2020). First, studies show that attention paid to preventive actions limits the number of unwanted events. Secondly, with preventive actions, risks can be

managed more systematically, cost-efficiently, and through open cause-and-effect relationships. Owing to this study, the bowtie model can be examined from a preventive HR and employee experience perspective.

The second research question was, '*What kind of service design tools could strengthen data collection of customer needs?*' Based on the researcher's review, gamification was the only possible way to involve many participants quickly. The participants built their ideas on top of each other's comments and got deeper into the discussions and topics. Surveys or interviews would not have offered this opportunity. A focus group would have been suitable only for a few participants.

Insights from the workshops suggest that the participants generally found the Voice of the Customer concept usable. It enabled them to discuss HR processes, tools, and services from an employee's perspective and identify challenges, strengths, and solutions together. The concept was considered especially relevant and meaningful by managers. The concept helped to discover the moments that matter for employees and managers.

The experimental prototyping and testing and their analysis helped to create a functional minimum viable product that was tested. The Voice of the Customer concept could collect insights from employees in different locations, organisations, and setups like individual processes or services. The concept is not HR-specific and could be scaled easily to the other functions.

The third research question was, '*What could the role of service design be in HR development?*' Based on this research, the customer understanding collected during the gamification workshops could help prioritise preventive actions for further development of HR services. Users were generally satisfied with HR digitalisation, and there were no complaints about self-service if tools and processes were working, meaning nobody requested HR to take over the tasks expected to be handled via self-service. However, there is a need to improve tools and processes, especially in time management. All employees and managers use time management daily or weekly; improvement in this area would be a massive time-saver for the organisation. That could also decrease the number of queries (tickets) coming to HR Operations. There is also a need to clarify some roles and responsibilities between managers and HR and bring more human touch and empathy to HR and digital services. The

findings of the workshop help to understand where the HR of the case study organisation is coming from (past), where it is now (current state), and where it should go (future) from the employee perspective.

6.2 Co-production in HR

In the digital era, and especially in project and matrix organisations, multiple actors are involved in processes and services (e.g., Keegan & Den Hartog, 2019; Hewett & Shantz, 2021). Also, in this study organisation, the employee experience is a mix of cross-functional, multi-actor activities that should be co-produced to offer a seamless experience. For example, the following actors are involved: employee, manager, manager's manager, HR Business Partner, IT, Travel, HR Operations, and payroll or time management vendors. This study is grounded in the assumption that the employee experience journey goes far beyond HR. It was also noticed in the gamification workshops that the topics raised require cross-functional collaboration, e.g., between HR and IT, to ensure improvements in employee journey, self-service, and usage of digital HR services. To orchestrate this collaborative intelligence, there must be some tools to collect and understand the experience and priorities.

Co-production (Ostrom et al., 1978) is seen as a term more related to production and goods-dominant logic (e.g., Lusch & Vargo, 2006) and not necessarily services or only a part of co-creation. This study provided an opportunity to widen the understanding of the usage of it. It is not only about creation and design, where employees' perspectives should be considered. In digital HR services, employees and managers, in collaboration with HR, are all daily co-producers of HR services. Efficiency and success combine design and delivery, and everyone's role is critical. Employees do not just provide feedback and participate in the design but are part of the HR process with the HR team members. They co-produce the processes.

As documented in various research (e.g., Meijerink & Bondarouk, 2018; Kehoe & Han, 2020), employees are not just passive recipients or users of the processes but can create value through their actions or skills. According to this study, employees are active agents and play a vital role in the HR processes and service and their continuous improvement. Employees and managers are eager to be part of the co-production and commit to the shared

organisation's success, as also stated in the feedback of the workshop participant: "*Day of collaboration and cooperation between all stakeholders working to achieve more success for the company*" (W10). Employees are also interested in developing HR services to have smoother experiences and free up some of their time.

According to the research, consumers are more committed to co-created products and services (e.g., Norton, 2011; Atakan et al., 2014), and HR co-creation creates value by satisfying the needs of the users better than the practices that HR has developed alone (Hewett & Shantz, 2021). Based on this study's findings, this also happened in the case study organisation. 451 creative improvement ideas show some commitment already in these workshops. According to this study, the value of HR services is co-produced. To be able to do any co-production, you need to understand your customers' needs. This study offered a concept for the Voice of the Customer.

Based on the research (e.g., Guest & King, 2004; Hewett & Shantz, 2021), there is often a sense of psychological distance between employees and HR. According to this study, the distance has grown due to the pandemic and digital services. Using gamification or a human-centred approach could strengthen collaboration between employees and HR and improve closer and stronger relationships to minimise psychological distance as they would work hand in hand in improving the experiences.

When employees and HR feel psychological safety, they can be vulnerable and connect in co-creation (Hewett & Shantz, 2021). There is a need to learn to offer relevant experiences to facilitate people's expressions of creativity. In this study, a safe place for creativity was offered with gamification. One of the learnings of this study was how crucial it is to ensure that participants feel psychologically safe to share their thoughts and new ideas, bring up their creativity, put their ideas at risk, build on top of other's ideas, and learn from others. It is easier to ensure psychological safety face-to-face than remotely. There might be hesitations if the HR Business partner or own manager is part of the group. This needs to be considered when planning this kind of workshop for the future, as participants hoped for. "*Consider frequent employee feedback sessions that will help with continuous improvement - sessions like this*" (W10).

6.3 New model and theoretical framework

This study addressed *how game-based service design methods enhance preventive HR development* and focused on the relationship between service design and preventative actions in HR development. Two important concepts have been identified in the intersection of prevention and human-centred approaches. *First*, the Voice of the Customer concept was created, tested in global gamification workshops, and improved so the case study organisation could listen to and understand employees' needs. Gamification workshops enabled open and honest discussions about the strengths and pain points and liberated the collective creativity for new solutions. *Second*, from the theoretical discussion, the researcher proposed that prevention can be brought to HR services by using HR Bowtie, which was created based on the findings of this study.

The bowtie model used in risk management (Joy, 2018; Aust & Pons, 2020) showed how the prevention barriers block the top event from happening and help focus on preventive actions instead of mitigation. This led to a refined concept of the HR Bowtie model, combining the current knowledge of human-centred approaches, preventive risk management, and HR development and validating it as part of this case study. This study suggests that using service design adds prevention to HR services.

The concept creation and these workshops can be seen as a starting point for a more people-centred culture in HR Services, which can be approached in collaboration with employees. These might help build a more open culture to experiments, testing, prototyping, and failures. The case study organisation might focus more on how and less on what, meaning that the customer understanding and co-production will assist in improving collaboration and shared responsibility in HR processes and finding the critical priorities for HR development.

6.4 Contribution to knowledge

This study attempted to clarify the nature of co-creation and co-production in HR through empirical research, which has led to the introduction of a new preventive framework for HR. This study has contributed knowledge that enriches the understanding and relevance of service design for prevention in HR development and vice versa. As a theoretical

contribution, this study *first* introduced a conceptual framework of co-creation and co-production for HR, combining the current knowledge of human-centred approaches and HR development.

Second, it conducted an exploratory case study with 12 gamification workshops to understand the benefits of using service design as a data collection method. Gamification workshops helped to understand the pros and cons of participatory research.

Third, this led to a new, preventive concept for HR development. The HR Bowtie concept combines the knowledge of human-centred approaches, especially service design, preventive risk management, and HR development. This study took advantage of a potential research gap and made significant contributions by developing and validating a holistic model of HR Bowtie, a preventive approach to HR development.

6.5 Implications for practice

This research conducted an exploratory global case study with 12 workshops in five countries and three continents, which led to refining the gamification concept for understanding employees' needs and improving co-produced processes and HR services. This study proved that a human-centred approach might bring HR to the next level by moving the focus from internal improvements to co-production, bringing a more substantial base in a complex digital era.

This study benefited the case study organisation by creating and testing a Voice of the Customer concept to listen and collect an understanding of employees' needs. This customer needs mapping concept is scalable and can be extended to other functions and organisations.

The study also captured a wide range of data for further analysis, development, and research. The data collected in the workshops using the concept is relevant and meaningful for the case study organisation, and based on the study, applications, HR processes, and services can be further developed.

6.6 General observations by the researcher

Gamification involves adding game-like principles and mechanics to a non-game activity to encourage participation. Fun and problem-solving elements will make regular tasks more compelling. Engagement and motivation were there based on the workshops. It is not easy to design fun. Based on the feedback, the workshops were enjoyable. With gamification, the researcher tried to create a relaxed atmosphere and simplify the complex concept by providing an interactive interface that was as easy for participants to open to the discussion. Based on the feedback, they enjoyed the social fun. *“Good that we were able to discuss positive, scope for improvement areas and ideas in a common place”* (W8). *“Engaging and lively”* (W9).

The gamification as a data collection method worked fine. It brought even too much feedback and needed to be reshaped. Focusing on the selected topic was challenging as the data set was so comprehensive. The research questions helped. The prototyping was purposely started with quite an open approach, not limiting or guiding the participants' thoughts to see what they bring up related to HR services, tools, and processes. The concept was adjusted for the minimum viable product to lead the discussion to the themes that employees and managers disclosed as part of the prototyping. The data collected was helpful in the case study organisation and can be used further in experience, service, tool, and process improvements.

This kind of study, where you involve many participants in the co-production process, sets up expectations. The participants stated in the feedback: *“More time to do more discussion... thank you so much for this workshop very useful and very good to share our idea and improve our system”* (W10). *“I am concerned if the pain points and some good wild ideas will be considered”* (W4). *“Feedback after some time, what was possible to change in compare to suggestions given”* (W12). Though long-term outcomes might be challenging to track, being able to present short-term results may drive continued participation in the project, build participants' confidence in the process, and develop the capacity of a project to continue.

6.7 Judging the quality of this study

According to Yin (2014), there are four standard tests for judging the quality of research: 1) Construct validity, 2) Internal validity, 3) External validity, and 4) Reliability. Number two is used only in explanatory or causal studies and is therefore excluded from this study. The usage of the other tests is described in the following subsections.

6.7.1 Construct validity

Construct validity indicates the capability to identify correct operational measures for the studied concept (Yin, 2014, 46). The following methods were used to improve the quality of this study based on construct validity.

In this study, multiple sources of evidence were used as data was collected using archival records, interviews, documentation, direct and participant observations, and physical artefacts created in the participatory workshops.

The chain of evidence and triangulation of these multiple sources of evidence in the data collection and analysis was thoroughly documented and explained in Chapter 3. Research design and 4. Gamification in HR.

6.7.2 External validity

External validity defines how research findings can be generalised or applied to real-world settings beyond specific study conditions (Yin, 2014, 46). The main criticism of case studies concerns the generalisability of a single case. The data collection was completed in one case study organisation but in 12 workshops in five locations and three continents. What comes to the Voice of the Customer concept and its generalisation is that it was repetitively used and adjusted based on the feedback through pilot, prototypes, and minimum viable product testing. Therefore, it is proven to be usable in different contexts and cultures.

The main research question of this study was, ‘How do game-based service design methods enhance preventive HR development?’ Based only on this research, it is too early to say if the

number of tickets decreased, but some preliminary thoughts can be brought up based on the findings of this study. 1) Employees appreciated feedback sessions and hearing out, and they see value in it. 2) They are willing to participate in the co-production, as they brought up 451 concrete improvement ideas in the workshops and volunteered to be part of the testing and reference groups. 3) They would like the self-service to be faceless, automated, and efficient. On the other hand, there is also a need for a human touch in special cases like ad hoc cases and career paths. Based on this, it could be assumed that the findings of this study can be generalised.

6.7.3 Reliability

Reliability justifies that the operations of a study (e.g., data collection) can be repeated with the same result (Yin, 2014, 46). The data was collected from 12 workshops in five countries with 174 participants. The data collection provided 1554 items. The same concept was repeatedly used in all workshops, giving similar input in items, observations, and feedback. Based on the data analytics, the essential items and some local flavours remained the same in all workshops.

According to Yin (2014, 49), reliability aims to minimise biases and errors in a study. One of the goals of this study was to find a scalable concept that can be easily used in different locations and cultures. As part of the study and its prototyping and testing of the concept, it was proved that workshops could be reliably repeated by following a case study protocol even though location, participants, co-facilitators, and countries changed. Co-facilitators were also able to run the workshop in the local language without impacting the results of the workshop. The workshop details, including agenda, materials, consent forms, observation forms, physical artefacts, and field notes, have been documented and stored in a case study database.

The persistent criticism of ethnography is that its results are difficult to generalise because they are based on a few cases, sometimes on only one. This critique is also valid for many other data collection methods with limited cases. If the focus of ethnography is on behaviour, then it is likely that generalisations are possible. (Gobo, 2011, 29.) In this study, observations were used as only one source of evidence. Instead of a single observer, multiple observers

were employed to make the observations in the workshops to increase the reliability of the study. All in all, 35 observers (co-facilitators) reported their observations, which were used in the data analysis. The number of observers, excluding the researcher, varied between one and five per workshop. So, each session was observed by at least two observers.

In this chapter, the study's findings were described by reflecting on the research questions. The researcher showed how and where service design can bring the preventive approach to HR development. First, the study introduced a conceptual framework of co-creation and co-production for HR, combining the current knowledge of human-centred approaches and HR development. Second, participatory research through gamification workshops was described. Third, this led to a refined concept of the HR Bowtie model, a holistic and preventive approach to HR development. In the end, the quality of this study was elaborated.

7 CONCLUSIONS

The current state of co-creation and co-production in HR was explored in the conceptual framework of this study. The relationship between the human-centred approach and prevention in HR has been the focus of interest throughout the work of this study. Therefore, human-centred approaches, HR development, and preventive approaches were reviewed to understand the knowledge gap and set up the scene for this study. An exploratory empirical study in the case study organisation amplified the understanding of co-creation and co-production. Until recently, the relationship between HR and human-centred approaches has been quite distant even though, e.g., service design has been used for user and customer experience. Further, this work has indicated that research viewing service design from an employee experience and preventive perspective is needed.

The Voice of the Customer concept was created as part of the study to explore the usage of service design in employee experience. In addition, the HR Bowtie was developed and validated based on this study's conceptual framework and findings. Those two concepts enable a broader understanding of co-creation, co-production, and preventive approaches in HR and can be further evaluated in other organisations.

Co-creation and co-production help HR emphasise and understand real experiences, business challenges, and needs. It might also support HR professionals in guiding people through transformation more successfully as employees are in the change with HR, testing and validating the outcomes. In this study, the researcher mainly focused on listening and understanding the employees and managers, what is working and what is not, and how the issues could be solved together. That is a starting point and provides valuable feedback for continuous improvement of HR services. It enabled the creation of concepts that can be used regularly to strengthen the relationship between HR and employees and find creative solutions to the pain points together. It also helps to set up priorities and bring prevention to HR service by focusing on the improvement areas that can be seen as barriers to unwanted events (tickets).

If we think about co-production on a bigger scale, this research did not give answers. How do we solve the challenges if an employee or manager does not complete his/her/their role in the process or service? This concept did not force managers or employees to think about their

role in the process in detail but brought up areas where roles and responsibilities needed to be clarified. Items were self-service, and process efficiency could be improved. Therefore, the researcher proposes to test this concept in individual processes to see its impact on experience, effectiveness, and satisfaction and to continue collaborating on co-produced services.

The study offered an extensive learning opportunity for participatory methods with gamifications. The key was the courage to jump into piloting and prototyping and learn through iteration cycles. That brought a wide range of facilitation experience, adaptation, and new perspectives, and the researcher would also recommend using this kind of method in future studies.

As a result of this study, there are several different possibilities for further research. A broad data set would allow continued research and analysis with this data. Doing deeper content analysis and understanding the differences and similarities between the locations could be possible. The concept could be proved in other shared services like finance or IT. It would also be possible to see how it works in different organisations. Data could also be further analysed to find a balance between multiple stakeholders' needs if they are conflicting.

As four generations work in the organisations simultaneously, it would be interesting to learn how different generations see the criticality of certain items and how they impact employee understanding and results. Based on this study, it was already possible to see some indications of the differences, e.g., younger managers found solutions and ideas more related to personal items like benefits rather than managerial items like processes and tools, and in a location with a younger average age, the results show a little more concern related to personal benefits and career paths compared to those with a higher average age. Based on this, it is too early to draw any conclusions as the age of the participants was not registered due to the anonymised data collection. More detailed background data on participants' ages would be needed for that. Therefore, other data collection methods would be recommended, e.g., a survey, questionnaire, or background data as part of the consent.

There would also be opportunities to do longitudinal research to see the impact of cultural change on the design level of the organisation. Would using the Voice of the Customer concept change the design level from individual projects to a cultural shift? The longitudinal

study would also help to understand how co-production and preventive approaches in HR evolve. It would allow us to see the impact on ticket volumes and transactional work.

As a summary of this study, the co-production should be seen as a preventive learning opportunity to create value with appreciation, shared understanding, and target. Where clear roles and responsibilities, participation, sharing feedback, and creative improvement ideas are safely involved. All of these are interlinked together.

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APPENDIX 1. Observation form

Observations

1. What do I hear, what do I see? What participants do or say, what they don't say - reactions, gestures, hesitations	2. Situation, circumstances- What is working well in workshop set up, what is not?	3. My own reflections, feelings How did I impact the discussion / situation?

APPENDIX 2. Consent form

Voice of the Customer Workshop

Consent form

In this study, all data will be collected, stored, analyzed, and reported anonymously. The study session can be documented with photos and/or audio/video recording, which can be used for research purposes to present the setting and findings of the research. Upon this, the images, and other materials, are anonymized. You (as the participant of the study) can withdraw from this study at any time.

By signing the Consent Form, you agree to the terms presented in this document.

Participant _____

Date _____

Researcher Riikka Kaunisto

Date _____

APPENDIX 3. Agenda of the workshop

Phase time	Activity
Introduction Approx. 10 mins	1. The workshop facilitator, i.e., the researcher, introduces the workshop's objective.
	2. The workshop facilitator explained the content of the consent form (Appendix 1) and requested participants to sign it.
	3. The workshop facilitator invites participants to the open and honest learning session.
Icebreaker exercise 10 mins	The workshop facilitator asks to write down on the card the first word that comes to mind when participants think about Human Resources / HR.
Gamification 3 mins 10 mins 7 mins	The workshop facilitator asks to write down on the cards what is working well in HR Services, tools, or processes. <ul style="list-style-type: none"> • Each of the participants gets three cards. • There will be three minutes for your thoughts before the cards and thoughts are shared with a table group. • The group categorises the cards based on whether they have similar ones. • They also have the freedom to add new cards if needed. • After 10 minutes of sharing, the group selects someone to share the main topics with the broader group.
Gamification 3 mins 10 mins 7 mins	The workshop facilitator asks to write down the challenges or pain points in HR Services, tools, or processes on the cards. <ul style="list-style-type: none"> • Each of the participants gets three cards. • There will be three minutes for your thoughts before the cards and thoughts are shared with a table group. • The group categorises the cards based on whether they have similar ones. • They also have the freedom to add new cards if needed. <p>After 10 minutes of sharing, the group selects someone to share the main topics with the broader group.</p>
Gamification 3 mins 10 mins 7 mins	The workshop facilitator asks to write down on the card's goals, dreams, ideas, and solutions for pain points and challenges. <ul style="list-style-type: none"> • Each of the participants gets three cards. • There will be three minutes for your thoughts before the cards and thoughts are shared with a table group. • The group categorises the cards based on whether they have similar ones. • They also have the freedom to add new cards if needed. <p>After 10 minutes of sharing, the group selects someone to share the main topics with the broader group.</p>
Prioritisation and	The facilitator explains what happens next on a global level.

closing	
	<p>The facilitator and co-facilitators share three dot stickers for voting. The facilitator asks everyone to think about the most essential things before voting together for 1-2 minutes. The topic can be selected from all categories: what works well, pain points, and dreams. The participants are free to vote on one item if willing.</p>