Interreg CENTRAL EUROPE

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Digi-B-Well

D1.1.2

Catalogue of digitalisation best practices and existing project outcomes for valorisation

Version 1

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PROJECT

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CATALOGUE OF DIGITALISATION BEST PRACTICES AND EXISTING PROJECT OUTCOMES FOR VALORISATION

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EXECUTIVE SUMMARY

This report is part of Work Package 1 of the Digi-B-Well project. It intends to capitalise on the existing state-of-art knowledge and to serve as a comprehensive guide to supporting the DIGI-B-WELL project in its mission to develop a digital transformation strategy respectful of well-being within organisations.

Structure and Content: The report is organised into two main sessions. The first session is dedicated to analysing 17 best practices collected by project partners and associate partners. The second session presents a review of 11 recent psychosocial literature focusing on digital well-being interventions. In the appendix, there are reported the text of written interviews used to collect best practices among the partners, and the forms to analyse each article reviewed.

Methodology: Data collection related to the first line of action was conducted via a written interview distributed by email to the project partners. The literature review was conducted on Web of Science and Scopus databases. The collected information was critically analysed qualitatively to identify the common principles underlying successful practices.

Results: Both analyses, grounded in the expertise of partners and scientific literature, acknowledge the importance of integrating technology with human-centred strategies. This involves promoting tailored interventions based on needs assessments and a participatory approach that engages multiple stakeholders.

Recommendations: Although many initiatives recognise the potential risks of technostress and social exclusion, few have established comprehensive frameworks for preventing, monitoring, and addressing these challenges. The absence of a systematic focus on digital well-being emphasises the urgent need for organisations to incorporate well-being considerations into their digital transformation strategies, especially within workplace environments.

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ACRONYMS & ABBREVIATIONS

TERM	DESCRIPTION
AI	Artificial Intelligence
DT	Digital Transformation
HR	Human Resources
IT	Information Technology
SMEs	Small and Medium Enterprises

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CATALOGUE OF DIGITALISATION BEST PRACTICES AND EXISTING PROJECT OUTCOMES FOR VALORISATION

1. INTRODUCTION

The analysis of best practices was conducted through two main approaches. The first involved partners in the collection of best practices, while the second focused on reviewing psychosocial scientific literature on interventions aimed at enhancing digital well-being at work. These two approaches are presented in two key sections of this report.

Section I: Collection of Best Practices from Partners

The first section presents an analysis of digital transformation best practices, drawn from the collective expertise of DIGI-B-WELL project partners and associates, who have shared their insights through structured interviews. The aim is to map a diverse range of interventions, such as the implementation of digital tools, organisational restructuring, and employee training programs. By leveraging these real-world experiences, the project seeks to build a robust digitalisation methodology and develop tailored digital-fit models. This approach ensures that the project is grounded in proven strategies, minimising redundancy and enhancing its practical relevance.

Section II: Literature Review of Best Practice

The second section provides a review of recent peer-reviewed psychosocial literature on digital transformation and well-being. This review synthesises findings from high-quality studies to identify key trends, methodologies, and outcomes. It explores how digital technologies can improve organisational productivity, support employee well-being, and address challenges such as digital stress and burnout. The insights gained from this review will complement the analysis of best practices, offering a theoretical foundation for the project's subsequent phases.

2. SECTION I: COLLECTION OF BEST PRACTICES FROM PARTNERS

2.1. OBJECTIVE

The objective of this session is to map digitalisation best practices, valuing the Digi b well project Partners' expertise.

Digital transformation is a complex process that demands the full integration of reliable digital technology into all areas of business, fundamentally changing or replacing existing processes and

creating a new company culture. Digital technology offers numerous benefits to organisations, including the development of new business models, enhanced productivity, improved efficiency, greater flexibility, and increased diversity. It also facilitates the automation of processes and activities. Additionally, digital advancements foster innovative ways of working and collaborating among employees, promote mobility, and support better decision-making.

Transformation is not a one-off activity because the effect of changes on all operations and the whole organisation is unpredictable. **Digital best practices** are interventions (changes, actions) to support an organisation's digital transformation, address its digital transformation needs, or mitigate challenges and improve employee well-being. They can be a wide range of actions, for example, implementing a new project management tool, conducting training, changing organisational structure, introducing new HR processes, altering responsibility distribution, and so on.

Described below are projects or actions in which the Digi-b-well project partners have participated or are aware of. The ultimate goal is to base the digitalisation methodology and the digital-fit-models that the current project will develop in the next steps, on prior knowledge and expertise, in order to avoid "reinventing the wheel".

2.2. METHODOLOGY

2.2.1. Data Collection

A written interview format was created and distributed among the Digi-B-Well project partners, and associate partners, asking for describing the best practices to support digital transformation in organisations they were aware of or had participated in.

The format in which respondents were asked to report best practices is presented in Table 1.

Table 1. Template for reporting Best Practices in digital transformation

TITLE/TOPIC OF THE BEST PRACTICE	
TYPE OF ORGANIZATION	SME (Small and Medium Enterprises), PA (Public Authorities), Academic Institutions
COUNTRY	
TARGETED AUDIENCE	Direct beneficiaries (e.g. employees above 50; top managers; entire organization)
APPROXIMATE NUMBER OF WORKERS INVOLVED	The estimated number of workers involved in the intervention
ORGANIZATIONAL BACKGROUND	The main contextual characteristics
AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED)	How the problem has been identified and how the decision to intervene has made
SOLUTION/INTERVENTION/MEASURES TAKEN	A short summary of the intervention (what,when,and how the intervention has been implemented)

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS	The outcomes achieved and a general assessment of the effectiveness of the measures taken, also in terms of effects on the employees wellbeing, if known
SUCCESS FACTORS	What may have contributed to the successful outcome of the intervention
CHALLENGES/OBSTACLES	The difficulties encountered during this type of intervention

The data collection lasted approximately a month to ensure a comprehensive set of best practices.

Each partner reported at least one action, resulting in a total of 17 best practices collected from SMEs, public authorities, and academic institutions across 11 different countries in Central Europe.

The practices were distinguished into four categories:

- Actions of Public Authority to support for the digital transformation at the local community level.
- Public policies to support digital transformation in productive sectors.
- Interventions to manage digital transformation in workplaces.
- Networking initiatives

The first two categories refer to practices and policies promoted by public authorities in favour of the manufacturing sector or the general population. The other two categories include both private and public initiatives aimed at supporting organisations in addressing the opportunities and challenges of digital transformation.

The description of the categories is summarised below, while the whole text of the interviews is reported in the Appendix.

2.3. RESULTS

2.3.1. Actions of Public Authority to support digital transformation at the local community level

Table 2. List of Best Practices by Public Authorities supporting DT at the community level

	Title	Country
BP1	*Computer Guide for Seniors program*	Slovakia
BP2	*Digital Bridge - Project for Bridging the Digital Divide project*	Slovenia
BP3	*Let's Move Together Along the Amber Road of Digitalization*	Hungary
BP4	*Introduction of the online voting method for the participatory budgeting projects*	Poland
BP5	*TERA project*	Slovenia

Digital resources represent an important gateway to both public and private services and can thus improve quality of life. They can promote social changes and encourage active citizenship and participation. Public Authority (PA) can facilitate access to digital resources, and prevent new forms of social exclusion due to digital divide. Facilitating access to resources means both offering free digital tools, particularly to segments of the population that lack adequate digital equipment, and promoting informational and educational events to develop IT skills that enable the use of devices and digital resources in daily life. The main challenge for these actions lies in motivating participation. Training initiatives can motivate direct beneficiaries to become active participants in the digital transformation process within their communities by informally transmitting the skills they have learned to their social networks of indirect beneficiaries.

These primary prevention actions are especially relevant when targeted at older segments of the population, who are typically less digitally equipped and thus at potential risk of exclusion, as demonstrated by the *Computer Guide for Seniors program* promoted by the Municipality of Lucenec (BP1), aimed to train digital skills of the older citizens. The program included short thematic lectures and further discussion, practical demonstrations, training and rehearsal.

In a similar vein, the *Digital Bridge - Project for Bridging the Digital Divide project* (BP2) aimed at reducing the digital divide in Slovenia by providing digital skills training and access to technology for marginalised groups, such as older people, people with disabilities and citizens of rural areas in Slovenia. The intervention included digital skills workshops, the distribution of digital devices, a mentoring program and community engagement.

The intervention *Let's Move Together Along the Amber Road of Digitalization* (BP3) aimed to improve digital skills across different age groups in Szombathely (Hungary). It included a series of educational programs tailored to specific age groups: children (4-17 years), young adults (18-40 years), and seniors (41+ years). The intervention focused on fostering digital literacy and the creative use of advanced digital technologies through interactive and experience-based learning.

The *Introduction of the online voting method for the participatory budgeting projects* in the city of Bielsko-Biała (PL) (BP4) has enlarged the participation of the annual social consultation that allows the citizens to submit their ideas on how to use the funding within certain limits on for their initiatives, which serve the public interest.

Furthermore, digital technologies can offer effective tools for education and awareness-raising programmes such as TERA. *TERA project* (BP5) aims to empower men and women in rural areas of Slovenia to effectively address work-life balance challenges and establish greater autonomy and quality of life. The programme is delivered by using an online platform.

2.3.2. Public policies to support digital transformation in productive sectors

Table 3. List of Best Practices in public policies supporting DT in productive sectors

	Title	Country
BP6	*Voucher for Raising Digital Competencies*	Slovenia
BP7	*DigiBEST-Digital Business EcoSystem Transformation project*	Latvia

BP8	*AlpSatellites project*	Slovenia, Italy, Austria

Public policies can promote economic development by supporting the digitalisation transformation of the manufacturing sector. For such policies to be effective, it is crucial that they address diverse needs and are well-known to their target audiences. The ultimate goals are to create policies that can support the management of challenges and increase the ability to seize development and economic growth opportunities offered by digital transformation.

The *Voucher for Raising Digital Competencies* (BP6) is an initiative led by DIH Slovenia and the Slovenian Enterprise Fund, aimed at improving the digital skills of employees in small and medium-sized enterprises (SMEs), offering accredited training providers and funds for supporting training initiatives. The straightforward application process and flexible use of funds make it easy for SMEs to participate. Futhermore, ensuring that accredited providers deliver training guarantees quality and relevance.

Interreg project *DigiBEST-Digital Business EcoSystem Transformation* (BP7) was significant for developing policies that address the real needs related to the digital transformation of productive contexts, particularly SMEs. Transregional comparisons between the country's partners (Latvia, Norway, Italy, Spain, Austria and Portugal) were implemented through a comprehensive series of analytical and collaborative activities designed to understand, assess, and improve digital transformation policies across regions. The core component involved conducting six regional studies accompanied by six peer reviews and Business Digital Transformation Assessment Surveys, providing a robust foundation for understanding the current state of digital transformation and identifying areas for improvement.

Consistently, the *AlpSatellites project* (BP8) developed policy guidelines enabling a remote-working ecosystem for raising attractiveness and boosting the socio-economic development of rural areas in the Alpine Space areas. Through participatory workshops involving local stakeholders, the project identified the needs and preferences of remote workers and digital nomads necessary for the optimisation of the proposed coworking spaces. Strategic guidelines were developed to promote remote work as a driver for sustainable development, emphasising the importance of factors such as internet connectivity, accessibility, quality work environments, and cultural integration in attracting remote workers.

2.3.3. Interventions to manage digital transformation effects in workplaces

Table 4. List of Best Practices for managing DT effects in workplaces

	Title	Country
BP9	*Qulector Leap project*	Slovenia
BP10	*FACTS4WORKERS project*	Austria
BP11	*PAITool project*	Slovakia
BP12	*"I Resist"* project	Italy

BP13	Gesund arbeiten an der TU Ilmenau	Germany
BP14	Corporate restructuring	Germany

Practices aimed at supporting digital transformation in work contexts involve the digitization of production processes alongside the effective management of human resources throughout these transitions. This approach addresses inefficiencies in production workflows, facilitates employee adaptation to new digital environments, and maximizes the potential benefits of digital advancements. The benefits extend to both production efficiency, innovativeness of organisations, and employee well-being.

The *Qulector Leap project* (BP9) was designed to optimise production processes through real-time monitoring and predictive analytics. It aimed to increase operational efficiency and reduce downtime using data-driven decision-making tools. The implementation took place in a medium-sized Slovenian manufacturing company facing challenges with production scheduling and machine maintenance. It required installing new technological devices, adapting the systems training the employees, and producing an increment in production efficiency.

The FACTS4WORKERS project (BP10) implemented a comprehensive digitalisation initiative transforming traditional manufacturing processes into worker-centric smart factory environments in Austria. The project focused on digitising paper-based processes, implementing digital shift logging systems, creating knowledge management platforms, developing automated quality control systems, and establishing digital workflow control for maintenance work. The implementation emphasised user experience and technology acceptance, successfully balancing digital advancement with worker-centric needs to enhance both capabilities and productivity through improved digital information access and knowledge sharing. The intervention produced tangible benefits for worker wellbeing. Workers reported reduced stress levels due to better planning capabilities, improved access to information, and enhanced communication with colleagues.

PAITool project (BP 11) was directed to help Slovakian SMEs adopt artificial intelligence technologies. Specific challenges were identified through direct engagement with SMEs, revealing significant knowledge gaps and limitations in AI adoption. An 8-module training course was developed, and "train-the-trainers" workshops were organised.

The *"I Resist"* project (BP 12) consisted of a training intervention dedicated to the employees of an agency under the Ministry of Economy and Finance in Italy. The project aimed to monitor employees' levels of adaptation and technostress during the rapid and massive shift to remote work that occurred during the pandemic. Significant attention was given to the initial needs analysis, starting from the relevant literature and collecting information through interviews and surveys. This approach identified moderate levels of techno-stress, workload, and social isolation, along with increased anxiety and stress, reflecting the difficulty in adapting to new working conditions. In response, seven webinars were conducted, focusing on work stress, the impact of technology, and managing techno-stress. The acceleration driven by the pandemic continues today with the dematerialisation of services and widespread use of various forms of hybrid or remote working among public employees.

Another example of initiatives developed during the pandemic to prevent the negative effects of remote work on the university population (faculty, technical-administrative staff, and students) was carried out by the structural unit Gleichstellung, Diversität & Gesundheit (GDG) at TU Ilmenau (DE) is dedicated to *promoting equality, diversity, and health among employees and students* (BP13). This initiative included sessions of physical exercises digitally guided by trained instructors, and workshops on health and mental well-being.

The restructuring guided by bwcon (BP14) involved team, leadership, development, and training processes, resulting in a positive impact on collaboration, responsibility, and continuous learning among employees. Key factors for the success of this intervention were participative Implementation, agile structures, continuous adaptation and learning, training and support, and strengthening the feedback culture. These factors contributed to greater employee engagement and a dynamic, learning-oriented organisation

2.3.4. Networking initiatives

Table 5. List of Best Practices in networking initiatives for digitalisation and sustainability

	Title	Country
BP15	*Lower Austria House of Digitalisation*	Austria
BP16	*CNA Hub 4.0*	Italy
BP17	*Digital ACE project*	Italy

These practices consist in networks and access points to services and tools for the development of Small and Medium Enterprises (SMEs) in the areas of digitalisation and sustainability. They are based on the collaborative partnership between public and private stakeholders and offer tailored solutions and pathways to promote innovation and competitiveness in SMEs.

Lower Austria House of Digitalisation (BP15) represents a unique virtual/"brick-and-mortar" digitalisation space with personalised services and an automatic proposal system to network Lower Austrian companies with research and educational institutions, as well as being a meeting point for interested citizens in the field of digitalisation. It offers networking zones, regular exhibitions (currently Smart Data + You exhibition) and digitalisation events and services.

CNA Hub 4.0 (BP16) is a Digital Innovation Hub promoted by an Italian business association that guides associated companies in their digital and sustainable transition. It provides digitalisation check-ups, training and tailored improvement plans. Thanks to a targeted and personalised approach, CNA HUB 4.0 helps businesses identify and implement innovative solutions, fostering a culture of innovation and sustainability that becomes essential for their long-term growth. A significant contribution to the results of CNA HUB 4.0 also comes from the network of strategic partnerships consisting of universities, research centres, technology partners, Competence Centers, Innovation Poles and European Digital Innovation Hubs (DIH). This network provides an important talent pipeline, crucial for supporting future entrepreneurship.

The Digital ACE project (BP17) aims to provide concrete support to artisanal and cooperative businesses, enhancing their competitiveness and capacity for innovation. It intends to establish an

organisational structure composed of a central Hub and 34 Spokes distributed across the territory, ensuring extensive support for SMEs. The project, currently underway, offers assessment, orientation, and post-assessment services aimed at providing concrete and strategic support. These services are customised and specialised, with the goal of assisting businesses in implementing identified solutions, thereby facilitating their digital transformation journey. Furthermore, the project includes promotional and communication activities at the national and local levels and the scouting activity, which informs SMEs about available services and facilitates access to support and resources.

2.4. DISCUSSION AND IMPLICATIONS FOR THE DIGI-B-WELL PROJECT

The best practices gathered through the partners' expertise suggest that the 'formula for success' in supporting digital transformation should be based on an approach

- **Multi-centric**: Digital transformation originates from and involves various stakeholders, including individuals, organisations, manufacturing sectors, and the community. This means that practices are most successful when they are based on the synergistic efforts of multiple actors and are oriented toward multiple beneficiaries, The partnership between public and private organisations promotes the optimisation of resource use and amplifies the positive effects of digital transformation, likewise, the multi-level approach to interventions fosters the progress of all parties involved
- **Tailored**: the starting point of any policy and practice should be an accurate analysis of the needs of the individuals, organisations and communities involved. Tailored interventions help reduce participants' resistance to change, as they perceive the transformation as addressing their real needs. Furthermore, these interventions allow efforts to be concentrated on aspects that are crucial for success in a specific context.
- **Participatory**: A key factor for success in the digital transformation process is the motivation of participants. Early engagement, participatory design, continuous communication, and dissemination of initiatives are essential for achieving real and long-term change. The involvement of entire territorial communities can promote cultural change and prevent the risk of some minorities being excluded from the benefits of digital transformation

Figure 1. The "formula of success" for supporting the digital transformation process

A point of attention should be considered for future interventions. All the mentioned projects recognise the growth opportunities that digitalisation can offer to individuals, organisations, and communities. At the same time, they caution against the risks of technostress and the social exclusion of certain segments of the population. However, most of the reported experiences failed to assess the effects of digital transformation on individuals' well-being. There is a lack of a systematic approach to preventing, monitoring, and managing stress risks associated with digital transformation. On a positive note, more could be done to promote digital well-being, especially in work environments.

3. SECTION II: LITERATURE REVIEW OF BEST PRACTICE

3.1. OBJECTIVES

The primary objective of this review is to synthesise findings from recent peer-reviewed literature, with a specific focus on interventions that align with DIGI-B-WELL's goals. These include improving mental and physical health, enhancing workplace productivity, supporting sustainable practices, and mitigating digital stress. By analysing diverse organisational contexts and geographical regions, the review aims to uncover actionable insights that organisations can adopt to foster a resilient and engaged workforce in the digital era.

Central to this effort is the identification of key factors that contribute to the successful implementation of digital well-being strategies. These include leadership engagement, user-centric design, age-sensitive approaches, and cross-sectoral collaboration—principles that are foundational to DIGI-B-WELL. Using a rigorous methodology, this review examined recent studies indexed in major academic databases. Following expert evaluation, a curated selection of articles was analysed to ensure alignment with the project's objectives.

By integrating cutting-edge technological solutions with human-centred strategies, this review provides a comprehensive framework for organisations participating in DIGI-B-WELL. It highlights the potential for digital tools to enhance well-being, optimise performance, and facilitate sustainable digital transformation across various organisational settings.

3.2. METHODOLOGY

3.2.1. Procedure

The methodology for identifying relevant articles in indexed journals followed a systematic and rigorous approach. The initial search was conducted in two major academic databases, Web of Science (WoS) and Scopus, using the query:

(digitaliz OR tech) AND wellbeing AND (work OR organizat*) AND "best practic*"**.

This query targeted articles exploring the intersection of digitalization, technology, well-being, work, organisational contexts, and best practices. The search initially retrieved 49 articles.

Refinement Process

1. Temporal Filter:
   The search results were limited to articles published within the last five years to focus on recent developments, reducing the pool to 34 articles.
2. Topic Exclusion:
   Studies unrelated to the core focus, particularly those on Polycystic Ovary Syndrome, were excluded, resulting in 32 articles.
3. Peer-Reviewed Literature:
   Only peer-reviewed articles were retained to ensure academic rigor, narrowing the selection to 20 articles.

4. Relevance to Professional Contexts:
   Articles exclusively addressing student populations were excluded, leaving a final set of 18 articles relevant to workplace and organizational settings.

The final set of 18 articles was then independently reviewed by two expert judges. This evaluation process aimed to ensure that each article met the study's inclusion criteria and was directly relevant to the research objectives. Following this detailed review, 11 papers were selected for the final analysis.

The selected papers are:

01. Arensman, E., Leduc, M., O'Brien, C., Corcoran, P., Griffin, E., Leduc, C., Coppens, E., Tsantila, F., Ross, V., Abdulla, K., Hauck, P., Amann, B. L., Aust, B., Pashoja, A. C., Cresswell-Smith, J., D'Alessandro, L., Fanaj, N., Greiner, B. A., Luyten, J., Mathieu, S., Maxwell, M., Qirjako, G., Reich, H., Sanches, S., Tóth, M. D., Kilroy, J., Michell, K., Reavley, N., McDaid, D., & Van Audenhove, C. (2023). Implementation and evaluation of a multi-level mental health promotion intervention for the workplace (MENTUPP): Study protocol for a cluster randomised controlled trial. *Trials, 24*(1), 621. https://doi.org/10.1186/s13063-023-07537-0

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population: Associations with cognitive functioning, sleep quality, and technostress. *Frontiers in Public Health, 12*, 1303907. https://doi.org/10.3389/fpubh.2024.1303907

08. Hameed, A., & Khwaja, M. G. (2023). The role of benevolent human resource attributions in reducing occupational stress: Empirical findings from the emerging market. *International Journal of Work Organisation and Emotion, 14*(3), 209–224. https://doi.org/10.1504/IJWOE.2023.132862

09_Hepburn, S.-J., Carroll, A., & McCuaig-Holcroft, L. (2021). A complementary intervention to promote wellbeing and stress management for early career teachers. *International Journal of Environmental Research and Public Health, 18*(12), 6320. https://doi.org/10.3390/ijerph18126320

10_Margariti, E. K., Ali, R., Benthem de Grave, R., Verweij, D., Smeddinck, J., & Kirk, D. (2021). Understanding the experiences of remote workers: Opportunities for ambient workspaces at home. *Frontiers in Computer Science, 3*, 673585. https://doi.org/10.3389/fcomp.2021.673585

11. Prem, B., Boerner-Zobel, F., Bias, H., & Voelter-Mahlknecht, S. (2021). Start moving – benefits of an onsite workplace health program in the age of digitalization. *Journal of Occupational Medicine and Toxicology, 16*(1), 46. https://doi.org/10.1186/s12995-021-00338-8

This methodology ensured a robust and transparent selection process, combining database search precision, thematic relevance, and expert judgment to identify high-quality, peer-reviewed studies.

3.3. RESULTS

3.3.1. Countries where the projects were conducted

The projects analysed in the review were conducted across multiple regions, reflecting a broad geographical scope. In Europe, countries such as Albania, Ireland, the Netherlands, Hungary, Kosovo, Germany, Finland, Spain, the United Kingdom, and Italy were involved. Beyond Europe, projects extended to Asia, specifically Pakistan, and Oceania, including Australia. Additionally, Indonesia featured prominently, with interventions implemented in several cities, including Jakarta, Semarang, Yogyakarta, and Magelang.

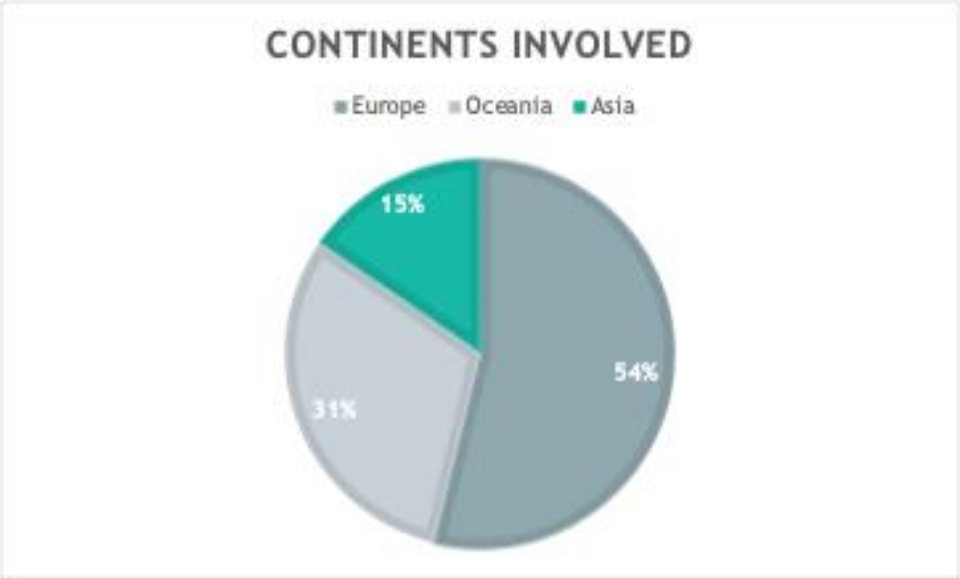

Figure 2. Geographical distribution of studies analysed in the review

3.3.2. Types of organisations involved

The types of organisations involved varied widely across sectors. The private sector was well-represented, with initiatives in construction, ICT, banking and finance, telecommunications, and the gig economy. The public sector included particularly public administration, education, and healthcare. Other types of organisations included SMEs, educational institutions, waste management systems, and work settings designed for remote employees, highlighting the versatility and adaptability of the interventions.

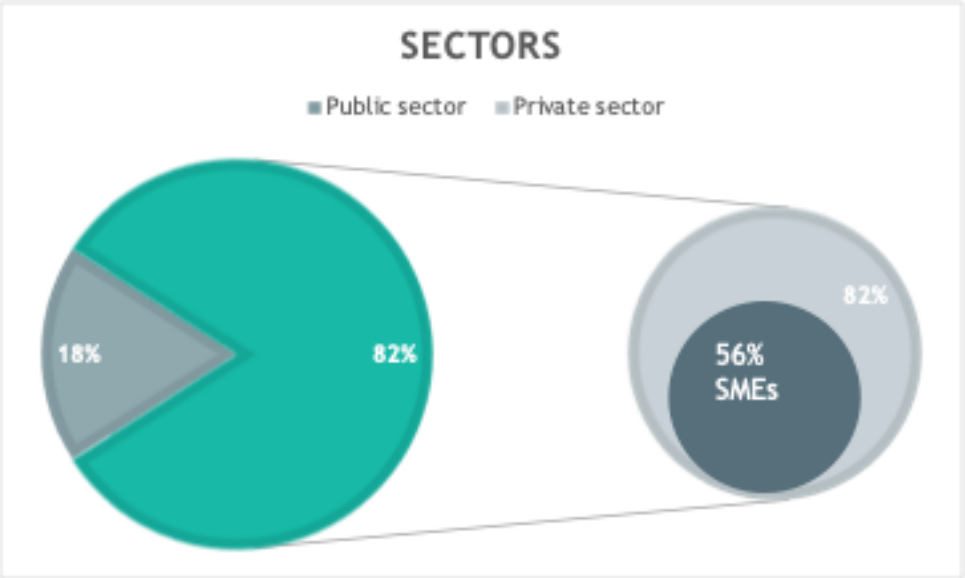

Figure 3. Type of organisations involved in the studies analysed in the review

3.3.3. Participants

The participants in these studies included a diverse range of employees. These ranged from white-collar workers in office settings to blue-collar manual labourers, as well as educators and remote workers. The number of participants varied significantly depending on the project, with some studies involving small groups of 13 to 24 participants, while others engaged larger samples exceeding 468 individuals. Specific populations of interest included older workers aged 50 and above, salesforce employees, early career teachers, and workers with active compensation claims.

3.3.4. Methodologies used

A variety of methodologies were employed across the projects to ensure robust data collection and analysis. Study designs included observational studies, randomised controlled trials (RCTs), retrospective cohort studies, conceptual frameworks, cross-sectional analyses, and mixed methods approaches. Data collection methods were equally diverse, encompassing structured questionnaires (often using Likert scales), focus groups, semi-structured interviews, sensor-based monitoring, cognitive assessments, physical activity diaries, and biological measures such as cortisol levels. Participants also provided feedback to enhance the depth of the findings. The studies frequently incorporated advanced technologies, such as digital platforms, AI-powered chatbots, IoT devices, environmental sensors, and accelerometers, to collect and analyse data effectively.

3.3.5. Intervention Goals Across Projects

The intervention goals across the projects were diverse, yet they shared a common thread: leveraging technology to drive improvements in both individual and organisational outcomes.

Figure 4 reports the type of interventions reviewed.

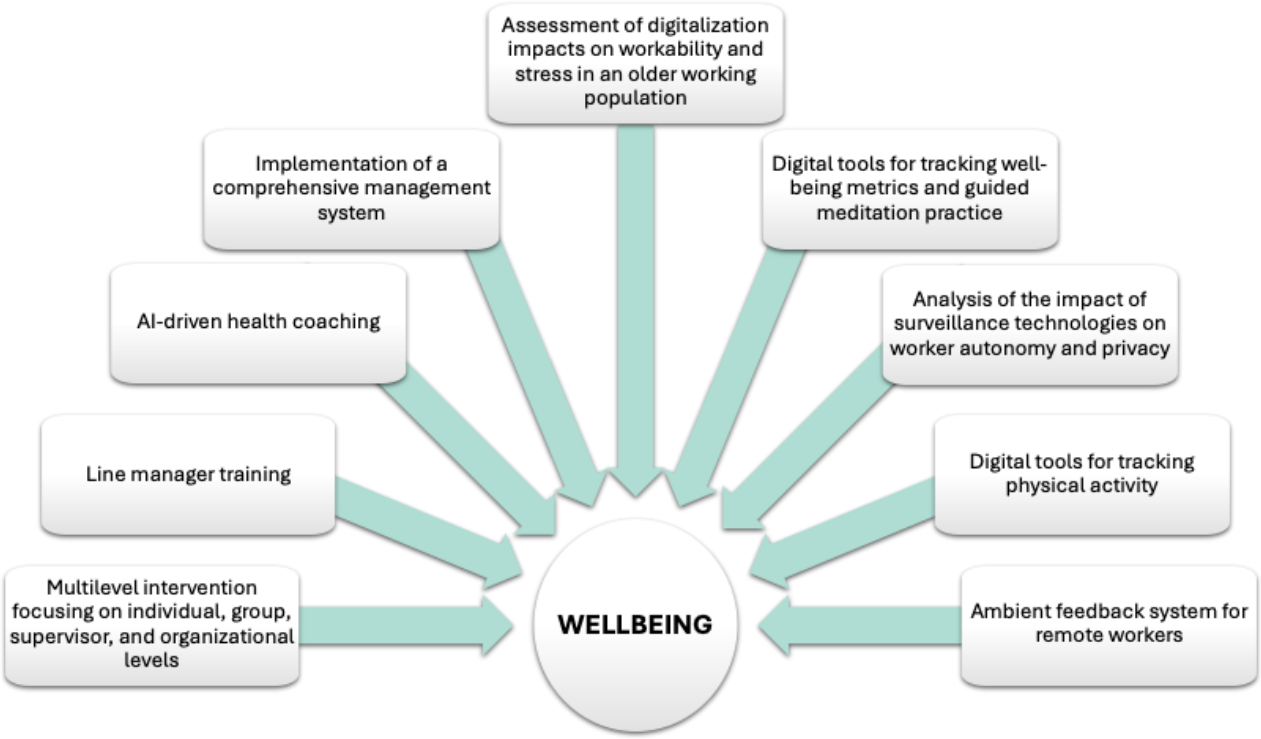

Figure 4. Type of interventions included in the review

A key focus was on mental health improvement, where digital platforms and AI-driven tools were used to reduce depression, anxiety, and burnout while fostering overall mental well-being. These technological solutions provided accessible, scalable support, enabling employees to manage psychological stress effectively.

Physical well-being was another critical objective. Interventions utilised wearable devices and digital tracking systems to monitor physical activity and promote healthier lifestyles. These technologies not only facilitated the reduction of musculoskeletal issues but also encouraged active behaviours, helping participants maintain long-term physical health.

In the realm of workplace productivity, technology plays a pivotal role in enhancing digital skills and improving job satisfaction. Interactive training programs, AI-based coaching, and real-time feedback systems created supportive environments that empowered employees and fostered collaboration. By integrating these tools, organisations could cultivate more engaged and productive workforces.

Digital transformation was a central goal aimed at equipping organisations and employees to navigate the challenges of technological change. Advanced technologies such as IoT systems, digital audits, and algorithmic management tools were employed to streamline operations, reduce digital stress, and enhance readiness for innovation. These interventions were crucial in bridging the digital divide and ensuring that both public and private entities could fully capitalise on the benefits of digitalisation.

Sustainability was also a prominent focus, particularly through the implementation of smart systems. IoT-enabled waste management solutions and real-time monitoring frameworks optimised resource usage and reduced environmental impact. These technological advancements aligned with sustainable development goals, demonstrating how digital innovation could support broader societal and ecological objectives.

The strategic use of technology across these interventions was instrumental in enhancing digital well-being, promoting sustainable practices, and improving workplace health and productivity. By integrating cutting-edge tools and platforms, the projects addressed immediate organisational challenges and laid the foundation for long-term resilience and growth.

3.3.6. Key Observations for Digital Transformation Strategies

The synthesis of key observations for digital transformation strategies across the reviewed articles reveals several overarching themes. The word cloud (Figure 5) summarises the keywords mentioned by the articles.

Figure 5. Keywords mentioned in the articles

Tailored interventions emerge as crucial for addressing specific organisational and sectoral challenges. For instance, the MENTUPP project highlights the need for sector-specific approaches to enhance digital and mental health capabilities within SMEs across diverse industries such as construction, healthcare, and ICT (Arensman et al., 2023; 2022). Similarly, the LeapForward program demonstrates the effectiveness of AI-driven health coaching tailored to individual needs (Brinsley et al., 2023).

Leadership and organisational culture play pivotal roles in facilitating digital transformation. Programs like Managing Minds at Work emphasise the necessity of engaging line managers to foster psychological safety and improve digital literacy (Blake et al., 2022). This aligns with findings from studies on digital surveillance, which stress the importance of ethical frameworks and regulatory measures to protect worker autonomy and ensure balanced technological implementation (Duke, 2022).

Technological adaptability and user-centric design are repeatedly emphasised. Projects utilising ambient technologies for remote workers showcase how adaptive systems can improve well-being and productivity in home offices (Margariti et al., 2021). Similarly, multimodal and hybrid interventions that integrate digital tools with traditional methods have proven effective in increasing physical activity and reducing sedentary behaviour (Borle et al., 2021).

Sustainability and environmental considerations are integral to many strategies. The smart waste management system implemented in Indonesia demonstrates how IoT and real-time monitoring can optimise resource use and align with sustainable development goals (Fatimah et al., 2020). Such advancements highlight the broader societal impacts of digital transformation beyond immediate organisational benefits.

The role of advanced analytics and AI is particularly transformative. AI-based interventions, such as the LeapForward program, offer scalable solutions for workplace health promotion, while benevolent HRM strategies show promise in reducing occupational stress and improving employee engagement through digital data analysis (Hameed & Khwaja, 2023).

Lastly, cross-sectoral collaboration and comprehensive strategies are essential for addressing regional disparities in digital transformation. Multi-country implementations, as seen in MENTUPP, are vital for bridging gaps in digital capacity and enhancing well-being across diverse cultural and economic contexts (Arensman et al., 2023).

This comprehensive analysis underscores the necessity of integrating technology with human-centred strategies to ensure sustainable and impactful digital transformation across various organisational settings.

While this review highlights critical insights for promoting well-being through digital transformation, certain limitations must be acknowledged. These include variability in organisational contexts, differences in technological adoption levels, and potential biases in self-reported data. Future research should aim to address these gaps to provide a more comprehensive understanding.

3.4. IMPLICATIONS FOR THE DIGI-B-WELL PROJECT

The recommendations derived from the literature can be summarised into five key points that the Digi-b-Well Project should consider when developing its methodology. These points are as follows:

1. **Tailored Interventions**: Successful strategies must be adapted to the specific needs of different sectors and organisational contexts, as evidenced by projects like MENTUPP and LeapForward.
2. **Leadership and Culture:** Engaging leadership and fostering a supportive organisational culture is essential for implementing digital transformation initiatives effectively.
3. **Technological Adaptability**: User-centric design and adaptable technologies, such as ambient feedback systems and AI-driven tools, are crucial for enhancing well-being and productivity.
4. **Sustainability Integration:** Digital solutions should align with sustainable development goals, optimising resource use and reducing environmental impact, as demonstrated by the smart waste management project in Indonesia.

5. **Cross-Sectoral Collaboration:** Addressing regional disparities requires coordinated efforts across public, private, and academic sectors to ensure inclusive and equitable digital transformation.

4. GENERAL CONCLUSION

The **DIGI-B-WELL** project represents a crucial step toward addressing the multifaceted challenges of digital transformation while promoting well-being in organisational contexts. This document integrates insights from two complementary sources: an analysis of best practices shared by project partners and a review of the psychosocial scientific literature. The synergy of these two lines of action provides a robust foundation for developing effective, evidence-based strategies that align with the project's overarching goals.

The analysis of best practices highlights three key principles for successful digital transformation: **multi-centric, tailored, and participatory approaches**. A multi-centric approach underscores the importance of involving diverse stakeholders—individuals, organisations, sectors, and communities—in collaborative efforts that amplify the benefits of digitalisation. Tailored interventions, grounded in an accurate assessment of specific needs, ensure that digital transformation initiatives are relevant and context-sensitive, reducing resistance to change. Participatory strategies, which emphasise early engagement, open communication, and inclusive decision-making, foster motivation and long-term commitment among all stakeholders.

However, the best practices also reveal a critical gap: the lack of a systematic focus on **digital well-being**. While many initiatives acknowledge the potential risks of technostress and social exclusion, few have implemented robust frameworks for preventing, monitoring, and managing these challenges. This gap underscores the urgent need for organisations to integrate well-being considerations into their digital transformation strategies, particularly in workplace settings.

The literature review complements these findings by providing a broader theoretical framework. It reaffirms the importance of **tailored interventions** and highlights the pivotal roles of **leadership engagement** and **organisational culture** in facilitating digital transformation. Technological adaptability, through user-centric designs and scalable tools such as AI-driven systems, emerges as another crucial element for enhancing both productivity and well-being. Moreover, the integration of sustainability into digital strategies demonstrates the potential for broader societal and environmental benefits.

Several projects, such as the **MENTUPP** initiative, illustrate the power of **cross-sectoral collaboration** in addressing regional disparities and fostering inclusive digital growth. These insights are particularly relevant for DIGI-B-WELL's goal of promoting equitable digital transformation across diverse contexts.

In conclusion, combining empirical best practices with theoretical insights provides a well-rounded roadmap for achieving sustainable and impactful digital transformation. This integration can be translated into methodological recommendations for intervention.

1. **Multi-centric and Multi-Stakeholder Approaches**: Digital transformation efforts should engage multiple stakeholders, leveraging public-private partnerships and fostering synergies across sectors.

2. **Prioritisation of Digital Well-being**: Organizations must adopt proactive measures to prevent and manage technostress, ensuring that technological advancements enhance rather than compromise employee health.
3. **Tailored and Context-Specific Strategies**: Interventions must be designed to address the unique needs of various organisational contexts and sectors, enhancing their relevance and effectiveness.
4. **Leadership and Cultural Transformation**: Effective digital transformation requires strong leadership and a supportive organisational culture that values innovation, inclusivity, and employee well-being.
5. **Sustainability and Innovation**: Aligning digital initiatives with sustainability goals can optimise resource use, reduce environmental impact, and deliver long-term societal benefits.

5. Appendix Session 1. Best Practices collected from Partners

BP1

Title/topic of the best practice	"WI-FI for you" and "Computer guide for seniors",
Type of organization	□ SME (Small and Medium Enterprises) ⊟ PA (Public Authorities) □ Academic Institutions
Country	Lučenec, Slovakia
Targeted audience	"Wi-fi for You": all generations (Children and youth (4-17 years), Adults (18-40 years), Active age group (41-65 years) and seniors (over 65 years) and separately a group of seniors
Approximate number of workers involved	min. 200 participants

ORGANIZATIONAL BACKGROUND:

The town of Lučenec is situated in the southern part of the Banská Bystrica Region. The town has an important geographical location at the crossroads of the east-west and north-south roads and has also the status of a border town. It is the natural geographical center of the southern part of central Slovakia. The City Municipality of Lučenec is a self-governing and administrative unit of the Slovak Republic; which independently manages its property and with its revenues. The district town in the Banská Bystrica self-governing region belongs to the medium-sized towns . The Lučenec Municipal Authority, as the executive body of the town through its departments has long been striving to improve the conditions of the inhabitants and visitors of the city in all areas.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

At present, Lučenec has 25 000 inhabitants and 6515 of them are of post-working age. The Municipality, as a self-governing as a municipal authority, provides social assistance to citizens in the field of social care in 1 retirement home with year-round and 1 retirement home for the elderly. Nursing services for the elderly and the severely disabled citizens in the district are provided by 70 care service volunteers and 9 professional carers. Caring service is provided for 190 citizens. There is a lack of assistance for the elderly in developing legal awareness and other skills, which are necessary for their integration into modern society. There is a lack of access to knowledge that would make new communication technologies that will enable them to avoid fraudulent salesmen, etc.

The Senior Citizens' Club has been operating in Lučenec since 1975, organising activities for this target group. After consultations, it was several areas where seniors need to be educated and receive new information were identified.

The Pensioners' Club is established and financed by the Municipality of Lučenec, has a 'Work Plan of the Club' and a membership base of membership is 280 persons.

SOLUTION/INTERVENTION/MEASURES TAKEN:

One innovative senior citizen education program, "Computer Guide for Seniors", was created after the project was completed, At the same time, the target group gained new information and insight in other areas of life. These activities enabled seniors to gain higher degree of self-esteem and enabled them to reintegrate into society, where they are equal partners with younger age groups also in the field of IT work. Through the project, the process of active ageing has been launched, which is further applied to new target groups of seniors within the Lučenec district. The seniors have gained experience and skills within the individual activities, which can be actively used and further disseminated among their peers as they meet in senior clubs and inform each other. In another connected project WI-FI for You, it was possible to provide free public internet access at designated locations in the town of Lučenec.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The project was implemented through a combination of in-house and external experts for both the training and the implementation areas. During the project, academic methods of the creative process were used and through the right composition of the working team, an innovative and unique educational programme in the field of information technology was created.

The courses to be conducted under the project were oriented towards interactive learning in the form of a short thematic lecture and further discussion, practical demonstrations, training and rehearsal. All training activities, were focused, practical and effective with the aim of sustainable knowledge and its application in everyday life.

SUCCESS FACTORS:

Seniors who live in the city and participated in the IT activities used their outputs, whether for communication with loved ones via the internet, or to actively use digital technologies, or to communicate in a foreign language when they go on holiday or further education. At the same time, those who have received this education are a motivator for other interested seniors' clubs in the area who will be eager to broaden their horizons and learn something useful.

The great importance of increasing the technological facilities for senior education in this area bore its fruits most notably during the COVID-19 pandemic, when many of these seniors and the organizations involved were able to use these technologies and their knowledge to stay "connected to the world".

CHALLENGES/OBSTACLES:

Considering the significant increase in the number of people of retirement age in the town of Lučenec, their low activity and few opportunities to participate in life also through IT technologies, the town implemented a project to motivate seniors to actively live their old age and

to show them that at any age a person is useful and necessary for himself and society.

The city knows the target group of seniors, knows their needs and knows that it is essential to support this target group and to provide them with new incentives, and information and open up opportunities for active living. The project therefore focuses on technological areas that are otherwise difficult for them.

- higher time required to complete tasks for seniors

- the ability of tutors to explain and train adequately

- weaker technological equipment available to seniors

BP2

Title/topic of the best practice	Digital Bridge - Project for Bridging the Digital Divide
Type of organization	□ SME (Small and Medium Enterprises) □ **PA (Public Authorities)** □ Academic Institutions
Country	Slovenia
Targeted audience	employees, including older adults, individuals at risk of digital exclusion, people with disabilities, and residents of rural areas.
Approximate number of workers involved	Approximately 500 participants and volunteers, including trainers, mentors, and support staff

ORGANIZATIONAL BACKGROUND:

The Digital Bridge project is an initiative aimed at reducing the digital divide in Slovenia by providing digital skills training and access to technology for marginalized groups. It is supported by the Slovenian government, with execution carried out in collaboration with local communities, libraries, and NGOs. The project is part of a national effort to promote digital inclusion, ensuring that everyone has the skills and access necessary to participate in a digital society.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The project seeks to address the lack of digital skills and accessibility among older adults, people with disabilities, and those living in rural areas. It aims to empower these groups to use digital tools effectively, enhancing their access to online services, reducing social isolation, and fostering economic participation.

SOLUTION/INTERVENTION/MEASURES TAKEN:

1. Digital skills workshops:
The project offers a variety of digital skills training programs, including:

- **Basic digital literacy:** Courses on using the internet, sending emails, and accessing e-services.
- **Advanced skills:** More focused training on topics like digital photography, online shopping, and e-government services.
- **Safety and cybersecurity:** Instructions on safe internet practices, recognizing online scams, and protecting personal information. These training sessions are conducted in community centers and libraries across Slovenia, making them accessible to those in remote areas.

2. Distribution of digital devices:
To ensure participants can practice their new skills, the project provides tablets or laptops for training purposes and for use at home.

3. Mentorship program:
Trained volunteers are paired with participants to provide ongoing support and assistance in applying digital skills in their daily lives.

4. Community engagement:
The project works closely with local organizations to host workshops, making training accessible and integrating it into the community fabric.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

Describe the outcomes achieved and provide a general assessment of the effectiveness of the measures taken. Please, report the effects on employees wellbeing, if known.

The Digital Bridge project is significantly improving digital literacy among target groups, helping participants gain the skills necessary for daily digital tasks. The project is still running. Many have reported increased confidence in using technology, while older adults particularly appreciated the ability to communicate more easily with family members through digital platforms. The project also enabled better access to e-services, such as online banking and government portals.

SUCCESS FACTORS:

1. Localized training approach - offering training in familiar community settings increased participation and accessibility.

2. Comprehensive support system - the combination of skills training, device distribution, and mentorship provided a holistic approach to digital inclusion.

CHALLENGES/OBSTACLES:

1. Diverse skill levels - participants started with varying levels of digital literacy, necessitating flexible teaching methods.

2. Internet connectivity in rural areas - some regions still faced challenges with internet access, limiting the project's reach.

ADDITIONAL INFORMATION: https://www.digi-most.si/

Resistance to adopting new technology among some staff and the initial costs of system integration posed significant challenges.

BP3

Title/topic of the best practice	***"Hello Szombathely"***
Type of organization	X SME (Small and Medium Enterprises) □ PA (Public Authorities) □ Academic Institutions
Country	Hungary
Targeted audience	all generations (Children and youth (4-17 years), Adults (18-40 years), Active age group (41-65 years) and older age group (over 65 years)
Approximate number of workers involved	almost 500 participants

ORGANIZATIONAL BACKGROUND:

Pannon Business Network (PBN) is a leading organization in Hungary, focusing on fostering economic development and innovation, particularly in the West Transdanubian region. Established with the goal of supporting regional businesses, PBN offers a wide range of services in innovation management, digitalization, and international collaboration. The organization specializes in promoting Industry 4.0 solutions, cross-border cooperation, and fostering technological advancements through projects like the Digital Innovation Hub. With strong connections to local enterprises, academic institutions, and international partners, PBN plays a pivotal role in enhancing regional competitiveness and supporting sustainable development.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The problem addressed by the project was identified through the Local Community Development Strategy (HKFS) of Szombathely, which highlighted the need for digital skills development within the community. Workshops and consultations conducted during the development of the strategy revealed a gap in digital literacy across various age groups, particularly among older adults and disadvantaged youth. Additionally, the COVID-19 pandemic further emphasized the necessity of enhancing digital skills as society increasingly relies on technology for daily activities.

The decision to intervene was driven by these findings and the goal to reduce digital illiteracy and promote equal access to technology. The project aims to equip the community with the knowledge and skills required to effectively use advanced digital tools, thereby improving the region's technological adaptability and fostering social inclusion. The consortium, consisting of the Pannon Business Network Association and Szombathely Municipality, based its intervention on years of experience in managing both national and EU-funded projects, ensuring the strategic relevance of this initiative.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The intervention, titled "Let's Move Together Along the Amber Road of Digitalization," aimed to improve digital skills across different age groups in Szombathely. The project was implemented through a series of educational programs tailored to specific age groups: children (4-17 years), young adults (18-40 years), and seniors (41+ years). The intervention focused on fostering digital literacy and the creative use of advanced digital technologies through interactive and experience-based learning.

The project, running from October 2020 to December 2021, included two rounds of educational sessions for each target group. Each series consisted of five sessions, covering topics such as 3D modeling, 3D printing, robotics, augmented reality, and basic computer skills for older adults. The sessions, lasting three hours each, were conducted in a hands-on, interactive format, encouraging participants to explore and apply digital technologies in practical scenarios.

The Pannon Business Network Association's am-LAB, specializing in digital technologies, provided the necessary tools and demonstration environments for the sessions. The project also included digital content creation related to local heritage (e.g., augmented reality-based adventures along the historical Amber Road), as well as a digital competition for high school students focused on environmental issues and digital solutions.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The "Let's Move Together Along the Amber Road of Digitalization" project successfully achieved its key objectives, notably improving digital literacy across all target age groups. Over the course of the project, 30 educational sessions were conducted, engaging almost 500 participants. These sessions enhanced participants' understanding of advanced digital technologies such as 3D printing, robotics, augmented reality, and basic computing skills for seniors. The interactive and hands-on nature of the sessions allowed participants to gain practical experience, which increased their confidence in using these technologies in everyday life.

One of the standout achievements was the development of augmented reality-based digital content showcasing the historical significance of the Amber Road. This innovative approach not only promoted digital skills but also strengthened local cultural identity, particularly among young adults and visitors to Szombathely.

The project also held a digital competition for high school students, focusing on environmental sustainability and digital solutions. This initiative not only boosted digital skills but also fostered environmental awareness and problem-solving abilities among the younger generation.

In terms of employee wellbeing, the project indirectly contributed to a positive impact on participants' mental well-being by reducing digital exclusion, especially among older adults. The seniors, in particular, reported increased confidence in using digital tools to stay connected with family and access services, which helped mitigate feelings of isolation, a common issue in older age groups.

Overall, the project was highly effective in bridging the digital skills gap and fostering a culture of digital innovation within the community, leading to long-term benefits in both personal development and regional technological adaptability.

SUCCESS FACTORS:

Several key factors contributed to the successful outcome of the "Let's Move Together Along the Amber Road of Digitalization" project:

1. Tailored Approach for Target Groups: The project's design, which tailored digital skills training to different age groups (children, young adults, and seniors), ensured that the content was relevant and accessible to each audience. This customized approach increased engagement and learning effectiveness.
2. Hands-On, Interactive Learning: The practical, experience-based format of the sessions allowed participants to actively engage with the technologies. This method of learning fostered a deeper understanding and retention of skills, making the training more impactful.
3. Strong Local Partnerships: The collaboration between the Pannon Business Network Association and Szombathely Municipality brought together key stakeholders with extensive experience in managing similar projects. Their expertise ensured smooth project implementation and effective resource utilization.
4. State-of-the-Art Facilities and Tools: The involvement of am-LAB, a leading facility in digital technologies, provided participants with access to cutting-edge equipment, such as 3D printers and augmented reality tools. This exposure to advanced technologies enhanced the overall learning experience.
5. Community Engagement and Inclusion: The project actively involved local residents, from students to seniors, promoting community engagement and social inclusion. By addressing the digital divide, especially for older adults and disadvantaged youth, the project made technology accessible to all, contributing to its broad success.
6. Cultural Relevance: Incorporating local heritage into the digital content, such as the augmented reality-based Amber Road adventure, helped connect participants to their cultural identity, making the project not only educational but also meaningful on a personal level.

These factors, combined with the timely response to growing digital needs due to the COVID-19 pandemic, created a strong foundation for the project's success.

CHALLENGES/OBSTACLES:

Several challenges were encountered during the implementation of the "Let's Move Together Along the Amber Road of Digitalization" project:

1. Digital Divide Among Seniors: One of the primary challenges was the significant digital literacy gap among the older generation (41+ years), especially seniors over 65. Many participants in this group had little to no prior experience with digital devices, making it difficult to engage them at the same level as younger participants. Additional support and time were required to ensure they could grasp the basics.
2. COVID-19 Restrictions: The ongoing pandemic posed logistical challenges, particularly with organizing in-person sessions. Social distancing measures, fluctuating restrictions, and concerns for participants' health required the project team to adapt, including shifting some activities online. However, transitioning seniors to online learning was particularly difficult due to their lack of familiarity with digital platforms.
3. Limited Resources and Time: With only two rounds of five-session series for each age group, the time available for each participant was limited. Some participants, particularly those less familiar with digital technologies, needed more time to fully absorb the material. The project had to balance providing comprehensive training while working within the constraints of the schedule and available resources.
4. Technical Issues: Introducing advanced technologies such as augmented reality, 3D printing, and robotics to participants with varying levels of digital skills led to occasional technical difficulties. Ensuring that all participants, particularly the less tech-savvy, were able to effectively use the tools required extra hands-on support from facilitators.
5. Ensuring Long-Term Impact: A recurring challenge was ensuring that the skills learned during the sessions would be retained and applied after the program ended. Some participants, especially older adults, may have struggled to continue practicing the skills without regular support, raising concerns about the long-term sustainability of the intervention's impact.

Despite these challenges, the project team was able to adapt and successfully deliver the sessions, contributing to overall positive outcomes for the community.

ADDITIONAL INFORMATION:

website: PBN to increase added value - Hello Szombathely program

Facebook page: Hello Szombathely | Szombathely | Facebook

BP4

Title/topic of the best practice	Introduction of the online voting method for the participatory budgeting projects in the city of Bielsko-Biała
Type of organization	□ SME (Small and Medium Enterprises) x PA (Public Authorities) □ Academic Institutions
Country	Poland
Targeted audience	Engaged community – the voters for the projects funded from the participatory budget of the city of Bielsko-Biała; employees of the departments of the City Council involved in the participatory budgeting and the voting – the Office of the City Board, the Departmernt of the citizen Affairs and the Enrtepreneurship, IT Department
Approximate number of workers involved	The number of employees participating in the process is difficult to determine and changes depending on the stage, the nature of the projects, changes from one year to another depending on the current organization of the work of the City Council and the City Board (the period described was subject to dynamic political and administrational changes in Poland)

ORGANIZATIONAL BACKGROUND:

The participatory budget is a form of the social consultation and, in Poland, it is regulated by the national and local acts. Through the participatory budget projects, the citizens can solve the urging local problems or improve the life quality in the area of the entire city or they can focus on the chosen estate.

The participatory budget is the form where a certain amount of funding of the City Mayor or President is destined for funding the projects suggested by the local community. The citizens – individuals or their groups – submit their ideas how to use the funding within certain limits for their initiatives, which serve the public interest. The scope of the nature of the projects can be very wide – from a one-off social action through investments in the local infrastructure while the most popular projects include usually improvement or development of the unused or neglected area as the playgrounds for children.

In 2013 the City of Bielsko-Biała established its first participatory budget for 2014, which is still continued on a yearly basis.

The projects to be funded are consulted with the relevant departments of the City Hall and these, which pass all formal criteria are subject to the community voting. The voting lasts about a week and takes place in the late autumn before the planned budget of the city for the next year is closed.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The sensitive data are provided while voting for the yearly participatory budgeting processes. Moreover, a submission of the vote would require the physical presence in the voting point.

By introducing the digitised form of voting, the City Council intended to:

Increase the popularity of the budget and to facilitate the convenient methods of voting

to increase the security of the sensitive data of voters

to secure the interest of employees involved in the vote collection through the decrease of the workload related to voting

SOLUTION/INTERVENTION/MEASURES TAKEN:

From the first edition of the participatory budget of Bielsko-Biała, elements of the process were digitised, including the website with all the projects descriptions. The voting was partly digitised – along wth the traditional form of the paper form filled and signed delivered by the deadline to the City Council.

However, the electronic voting attempted to be introduced from the second edition in 2015, ocurred more problematic. In the second edition (budget for 2015), votes could be submitted by a special online module and the citizens were to verify their vote through a link sent to the provided email address. Multiple technical and organisational problems were encountered including invalid links or post being blocked as a spam messages by the servers. In 2016 the module was replaced with an interactive e-form and email verification. This system was also imperfect so in the budget for 2017 the validation by emails were replaced by the validation via texts.

In 2018 the encription algorythm was further improved and promoted as the safest methood of voting thanks to the protocols ensuring the maximum privacy and the safety of the sensitive data.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

In the first budget – in 2013 –there were 107 citizens' projects and ab. 28,5 thousand of votes. 63% of votes were submitted online.

The highest number of voters (ca. 33 000) could be observed in 2018.

It fell rapidly to ab. 14 000 in 2018.

In 2019, the total number of votes was i13 895 n 2020, of which 13 738 were submitted by internet.

In 2020, the total number of votes was 14 627. While the voters were strongly encouraged to stay at home and use the digital method for voting, there were 2 points to submit the votes in the paper form.

In 2023 the number of voters falls below 7500.

In 2024 the popularity of the participatory budgeting sees a further decrease of interest of voters – however, 5998 votes were submitted digitally and only 11 on the paper.

The votes counting and the analysis is much easier now saving a lot of effort related to registering the votes by employees.

SUCCESS FACTORS:

The factors supporting the implementation of the safe voting system were doubtlessly the progressing digitisation and – paradoxally – the pandemic COVID- and social distancing and isolation.

CHALLENGES/OBSTACLES:

For the budget for 2020 the President of the City of Bielsko-Biała introduced only electronic voting, resigning from the paper forms and established 22 points for the electronic voting.

However, the decision in the form of the local act was revised by the supervisory body for the local authorities. It was claimed that the resignation of the paper forms stayed in conflict with the equal accessibility for all, particularly it would limit the voting rights of persons experiencing problems with the digital literacy and that e-voting points do not assure the easy access to the system.

BP5

Title/topic of the best practice	Training Development of the TERA educational-awareness program was prepared on challenges related to the work-life balance aspects contains 6 modules (each module is implemented in the form of a lecture and an accompanying workshop), such as Work-life balance and gender equality and Challenges and obstacles in finding a balance between professional and private life in rural areas.
Type of organization	□ SME (Small and Medium Enterprises) X PA (Public Authorities) □ Academic Institutions
Country	Slovenia
Targeted audience	Local and regional public authorities, SMEs, NGOs
Approximate number of workers involved	324

ORGANIZATIONAL BACKGROUND:

The Development Centre Murska Sobota, SI is a regional institution whose purpose is to promote harmonious economic, social, and cultural development in the Pomurje region and its administrative center, the Municipality of Murska Sobota. Through their professional work, knowledge, and experience in various fields, they strive to make the greatest possible contribution to the promotion and implementation of development projects in the region.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The TERA project funded by the Norwegian Financial Mechanism, was initiated by the Development Centre Murska Sobota in response to the counteract very eminent challenges of balancing professional and private life in rural areas, which requires a comprehensive approach to its addressing. The project brought together representatives from public services, organizations, and other interested parties gather there to discuss possible measures for facilitating the work-life balance of individuals in rural areas.

SOLUTION/INTERVENTION/MEASURES TAKEN:

As part of the TERA project, two local committees were established to facilitate dialogue and coordination between various stakeholders in the regions of Pomurje and Posavje. These committees served as platforms for discussing the challenges and opportunities associated with balancing professional and private life. They represented a novel service in the regions, providing knowledge and space for stakeholders to identify issues and work together to find practical solutions.

The committees consisted of a diverse group of local stakeholders, including representatives from local authorities, employers, public services, economic interest associations, youth centres, cultural institutes, non-governmental organizations, and others. Through collaborative dialogue within the committees, these stakeholders aimed to develop and implement a set of tailored measures helping individuals better manage the demands of their professional and private lives.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

Describe the outcomes achieved and provide a general assessment of the effectiveness of the measures taken. Please, report the effects on employees wellbeing, if known.

The mentoring scheme provided an enviable support environment to all 40 mentors as well as to the workshop participants themselves (324 in total).

The project has demonstrated that through such participatory processes and the provision of processes similar to the mentoring scheme, it is possible to offer society the opportunity to co-create the conditions in which they live. The project also confirmed that it is necessary to ensure the existence of such systems so that more actively challenges can be identified and possible solutions found.

In this area, we have seen that such approaches to work are largely unrecognized and underutilized. It is therefore essential to support organisations and institutions that recognise their importance to create a safe space to express their views and to find solutions.

SUCCESS FACTORS:

The involvement of mentors (20 pairs) led to the successful implementation of the workshops, the creation of a constructive and friendly atmosphere among the participants and their readiness to think about the topics discussed and subsequently implement them. It should also be noted that the mentor pairs operate in 20 different local settings, scattered in all regions of Slovenia, in order to ensure the dissemination and sustainability of the project.

The committee meetings have played a key role in the adoption and implementation of these measures to facilitate work-life coordination.

CHALLENGES/OBSTACLES:

The main challenge for the mentors was to gain the trust of the participants while taking into account the different socio-economic backgrounds of the participants. In this context, it was also necessary to manage group dynamics and cope with the different communication styles of the participants.

BP6

Title/topic of the best practice	Voucher for Raising Digital Competencies
Type of organization	□ SME (Small and Medium Enterprises) □ **PA (Public Authorities)** □ Academic Institutions
Country	Slovenia
Targeted audience	SMEs aiming to enhance their employees' digital skills.
Approximate number of workers involved	Varies by company; typically between 5 and 50 employees per SME benefiting from the voucher.

ORGANIZATIONAL BACKGROUND:

The Voucher for Raising Digital Competencies is an initiative led by DIH Slovenia and the Slovenian Enterprise Fund, aimed at improving the digital skills of employees in small and medium-sized enterprises (SMEs). The voucher is part of Slovenia's broader digital transformation strategy to enhance the competitiveness of businesses and prepare them for the challenges of the digital economy.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The voucher program addresses the digital skills gap among the workforce in SMEs. It aims to support companies in providing digital skills training to employees, covering various areas such as digital marketing, data analytics, cybersecurity, and the use of digital tools.

SOLUTION/INTERVENTION/MEASURES TAKEN:

- Funding support for training programs: the voucher provides financial support for SMEs to access digital skills training, covering up to €9,999 per company.
- Accredited training providers: The program includes a list of accredited training providers that offer high-quality, certified courses to ensure standardization in digital skills training.
- Flexible use of funds: companies can use the voucher to upskill employees across different areas of digital competence, tailored to their specific needs.
- Guidance and application support: DIH Slovenia provides guidance to companies on how to apply for the voucher and choose appropriate training programs.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The voucher program has successfully increased the digital skills of many employees within participating SMEs, enhancing their ability to adopt digital tools and processes. Companies have reported improved productivity and a greater readiness to integrate digital technologies into their operations.

SUCCESS FACTORS:

Ease of access - the straightforward application process and flexible use of funds make it easy for SMEs to participate.

Accredited training providers - ensuring that training is delivered by accredited providers guarantees quality and relevance.

CHALLENGES/OBSTACLES:

Limited awareness - some SMEs are still not aware of the availability of the voucher, requiring more outreach efforts.

Varying digital skills levels - different levels of digital literacy among employees can make it challenging to choose suitable training programs.

BP7

Title/topic of the best practice	DigiBEST, Digital Business EcoSystem Transformation ERDF Programme "Growth and Employment" – Operational Programme for the use of ERDF funds,2014-2020, Interreg Europe, Priority axes 3, Priority "To improve competitiveness of SMEs"
Type of organization	□ SME (Small and Medium Enterprises) X PA (Public Authorities) □ Academic Institutions
Country	Latvia
Targeted audience	While the primary target audience was SME staff across different organizational levels, the intervention specifically focused on employees responsible for digital transformation and AI implementation within European SMEs, aiming to enhance their capacity to leverage advanced technologies for improved competitiveness and sustainable growth.
Approximate number of workers involved	Approximately 9,360+ individuals and organizations directly impacted through various programs and initiatives. Direct Participants: • 66 stakeholders in general activities • 600+ entrepreneurs benefiting from Digital Business Points • 350+ attendees at courses and information events • 280 companies completing digital maturity assessment • 50 entrepreneurs receiving in-depth assessment • 80+ companies accessing vouchers • 6,000 officials, NGO and media representatives trained • 2,000 digital leaders (target by 2022)

ORGANIZATIONAL BACKGROUND:

Ministry of Environmental Protection and Regional Development of the Republic of Latvia is responsible for implementing policy in three areas - environment protection, regional development as well as information and communication technologies. In the area of environmental protection, the Ministry deals with the establishment of prerequisites and conditions for nature conservation, clean environment and ensures that natural resources are used effectively and in sustainable manner. In the area of regional development the Ministry implements and evaluates regional policy at state level, provides methodological guidelines and supervises the territorial development planning process, as well as ensures the development and supervision of local governments with overall goal to achieve well-balanced and sustainable development of the country. Implementation and coordination of the e-Governance is another broad policy area of the Ministry. It includes establishment of one-stop principle for provision of state and local government services and implementation of modern and effective information and communication technologies in the public sector. The Ministry's role in modernizing public service delivery through the one-stop principle and implementing advanced ICT solutions across the public sector demonstrates their commitment to digital transformation and improved public service delivery.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The core problem was identified through recognition of varying digitalization levels across European regions and sectors, with particularly notable disparities between large companies and SMEs. The digital transformation, while offering unprecedented opportunities for business development and economic growth, presents significant challenges that many businesses, especially SMEs, struggle to address effectively.

The decision to intervene was driven by several key factors:
1. The recognition that digital transformation will become a crucial driver for future economic growth and employment
2. The understanding that European businesses need support to effectively leverage advanced digital technologies (such as IoT, big data, robotics, 3D printing, blockchain, and AI)
3. The observation of significant gaps in digital adoption between different regions and business sizes
4. The need to help businesses maintain competitiveness in the context of the fourth industrial revolution

The intervention aims to support European regions in developing more effective policies for business support, focusing particularly on:
- Helping businesses navigate digital transformation challenges
- Supporting SMEs in recognizing and exploiting digital opportunities
- Improving overall business competitiveness
- Contributing to broader economic development and employment growth

The approach was developed through a comprehensive understanding of both the challenges and opportunities presented by digital transformation, with a specific focus on addressing the needs of SMEs who typically lag behind larger enterprises in digital adoption and capabilities.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The intervention was implemented through a comprehensive series of analytical and collaborative activities designed to understand, assess, and improve digital transformation policies across regions. The core component involved conducting six regional studies accompanied by six peer reviews and Business Digital Transformation Assessment Surveys, providing a robust foundation for understanding the current state of digital transformation and identifying areas for improvement.

The implementation process was heavily focused on stakeholder engagement and knowledge sharing, by the organization of policy learning events, stakeholder meetings, and committee meetings. This extensive consultation and collaboration phase was complemented by six study visits, allowing for direct observation and exchange of experiences between regions. The intervention also placed significant emphasis on communication and dissemination, producing informative videos and promoting good practices to ensure wide reach and impact.

The final phase of the intervention focused on translating insights into actionable policies and building capacity. This resulted in the development of six action plans and the successful improvement of four regional development policies. Notably, the project achieved significant human capital development. The identification and documentation of 19 good practices served as a valuable resource for future policy development and implementation across regions.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The intervention demonstrates significant quantitative achievements in policy development and capacity building. Key measurable results include the successful improvement of four regional development policies, the creation of six comprehensive action plans, and the enhanced capacity of 81 individuals in digital transformation competencies. These outcomes suggest effective policy-level impact and human resource development.

The project's reach and engagement metrics are particularly noteworthy, with 44 policy learning events successfully organized and 19 good practices identified and documented. The extensive stakeholder engagement, evidenced by 30 stakeholder meetings and 14 committee meetings, indicates strong collaborative success in bringing together relevant parties. The promotion of 52 good practices and production of 6 informative videos suggests effective knowledge dissemination and awareness-raising among target groups.

However, it's important to note that while the immediate outputs and organizational impacts are well-documented, the information available doesn't provide specific data on employee wellbeing impacts or longer-term effects on workforce satisfaction and adaptation to digital transformation.

SUCCESS FACTORS:

The project demonstrated strong commitment to inclusive participation, evidenced by extensive stakeholder involvement through stakeholder meetings, committee meetings, and policy learning events. This broad engagement ensured diverse perspectives were considered and helped build consensus around digital transformation initiatives.

The intervention's success was supported by a thorough analytical foundation, including six regional studies and peer reviews, as well as Business Digital Transformation Assessment Surveys. This systematic approach to data collection and analysis enabled well-informed decision-making and targeted policy improvements.

Knowledge Exchange and Learning The project effectively facilitated learning and knowledge transfer through multiple channels i.e., study visits, good practices, informative videos produced for wider dissemination and Capacity building.

These success factors collectively contributed to the achievement of concrete outcomes, including the improvement of four regional development policies and the creation of six action plans. The multi-faceted approach combining analysis, engagement, and knowledge sharing appears to have been instrumental in ensuring the intervention's effectiveness.

CHALLENGES/OBSTACLES:

The digital transformation intervention faced several significant challenges across multiple dimensions. The coordination of diverse stakeholders across regions and organizational levels proved demanding, as evidenced by numerous meetings required to manage varying needs and priorities, particularly between SMEs and larger companies. Technical challenges included harmonizing different levels of digital maturity and ensuring adequate resources for comprehensive assessments across multiple parallel activities. Change management presented additional obstacles, including overcoming resistance to digital transformation, maintaining sustained stakeholder commitment, and effectively translating theoretical knowledge into practical implementation. The task of maintaining momentum while converting good practices into actual policy changes was particularly challenging, made more complex by varying levels of digital readiness among participating organizations and the need to develop solutions applicable across different business contexts and sizes.

ADDITIONAL INFORMATION:

Website: https://projects2014-2020.interregeurope.eu/digibest/

https://www.lu.lv/en/cets/research/euproject/digibest/

https://keep.eu/projects/21526/Digital-Business-EcoSystem--EN/

Facebook: https://www.facebook.com/interregdigibest/

Youtube: https://www.youtube.com/@digibestinterregeurope8899/videos

BP8

Title/topic of the best practice	Development of policy guidelines enabling a remote-working eccosystem for raising attractiveness and boosting socio-economic development of rural areas in the Alpine Space areas (AlpSatellites project: https://www.alpine-space.eu/project/alpsatellites//).
Type of organization	□ SME (Small and Medium Enterprises) X PA (Public Authorities) □ Academic Institutions
Country	Slovenia, but also Italy, Austria
Targeted audience	Local and regional public authorities, SMEs, NGOs
Approximate number of workers involved	300

ORGANIZATIONAL BACKGROUND:

While of recent foundation, the University of Aosta Valley has sprouted up vigorously from roots firm in the local surroundings to survey a European panorama.

Extensive networking with other centres of higher education and international organizations permits every student a viable chance to undertake a period of study or work abroad.

Academic collaboration and international research projects enhance these strategic assets, while in turn enriching instruction and other student services, this being a course along which the university intends to continue to thrive.

The dimensions of the University facilitate student education, favouring face-to-face interaction with faculty and staff alongside that with fellow students. Together with higher learning for students growing up in Aosta Valley and professional qualifications for practitioners in the Region, the University attracts, and aims at attracting, a growing number of students from every Italian region. An exceptional environment assists in achieving this goal: Aosta is a small city which offers a high quality of life in daily contact with an alpine landscape.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The Interreg AlpSatellites project aims to promote hybrid work models and establish satellite offices in remote Alpine and rural areas (AlpSatellites hubs), with the goal of revitalising these regions by attracting professionals, seasonal workers, and digital nomads and creation of a sustainable environment for development of the addressed communities.

Through participatory workshops involving local stakeholders, the project identified the needs and preferences of remote workers and digital nomads necessary for optimisation of the proposed coworking spaces. *Strategic guidelines* have been developed to promote remote work as a driver for sustainable development, emphasising the importance of factors such as internet connectivity, accessibility, quality work environments, and cultural integration in attracting remote workers.

The ultimate project goal is to attract diverse demographic groups into these regions, including young professionals, seasonal workers, and digital nomads.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The developed guidelines specifically target decision and policy makers.

The document is divided into 3 chapters:

1. Taking into account legal consequences of remote working solutions in the Alpine Space
2. Playing a catalyst role: how to enable the remote working ecosystem
3. Policy Takeaways: preparing the Alps regions for the "new normal".

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The project's final recommendations / guidelines include measures for creating a favourable context and local support policies, enhancement of the access to public services, investing in technological infrastructure, actively involving the local community, and encouraging companies to support remote work.

AlpSatellites partners suggest the implementation of such recommendations through the prototype experimentation in the Alpine regions and interregional sharing of experiences and best practices.

SUCCESS FACTORS:

The successful implementation has been achieved through:

- rigorous monitoring and evaluation processes that ensured the effectiveness and optimisation of the proposed initiatives and
- early engagement of the policy and decision makers from the addressed regions.

The process was led by the University of Valle d'Aosta and supported by the AlpSatellites partners - the Unité des Communes valdôtaines Evançon, the Municipality of Doren, the University of Applied Sciences of Vorarlberg, the Cultural, Social and Sports Association of Queyras, and the University of Aix-Marseille.

CHALLENGES/OBSTACLES:

It is to be noted that the initial resistance to remote work, stemming from a traditional managerial culture, has shifted due to the Covid-19 pandemic. Italy, like other countries, witnessed an unprecedented experiment with remote working during the pandemic, prompting a reevaluation of its role post-emergency.

Still, the challenges persist. Protective measures, like the right to disconnect, are imperative when addressing the distinctive needs of remote workers, which are not always respected. The AlpSatellites project therefore emphasizes the importance of fair treatment, non-discrimination, and tailored protections to ensure remote work's sustainable and equitable integration into the work culture.

Ultimately, the challenges related to diverse regulatory contexts had to be duly consired during preparation of the guidelines for decision-makers to start up remote working and coworking activities in mountainous areas. This challenge could be overcome by the thorough analysis of the legal environment in the partner countries.

BP9

Title/topic of the best practice	Implementation of Qulector Leap for Digital Process Optimization in Manufacturing
Type of organization	□ **SME (Small and Medium Enterprises)** □ PA (Public Authorities) □ Academic Institutions
Country	Slovenia
Targeted audience	Manufacturing sector employees, including production managers and operators
Approximate number of workers involved	Around 150 workers across various production lines

ORGANIZATIONAL BACKGROUND:

The Qulector Leap project is designed to facilitate digital transformation in manufacturing by optimizing production processes through real-time monitoring and predictive analytics. It aims to increase operational efficiency and reduce downtime using data-driven decision-making tools. The implementation took place in a medium-sized Slovenian manufacturing company facing challenges with production scheduling and machine maintenance.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The intervention aimed to tackle inefficiencies in production processes, including high machine downtime, suboptimal scheduling, and delayed responses to equipment failures. The need for a more streamlined approach to data collection and decision-making was identified to improve production output and reduce costs.

SOLUTION/INTERVENTION/MEASURES TAKEN:

Qulector Leap was introduced as a comprehensive digital solution for process optimization. The intervention involved:

1. Real-time data monitoring: Sensors and IoT devices were installed on machines to gather data on equipment status and production metrics in real time.
2. Predictive maintenance: The system used collected data to predict potential equipment failures, allowing for proactive maintenance scheduling.
3. Digital twin technology: A digital replica of the production line was created to simulate and optimize different scheduling scenarios, resulting in better planning and reduced idle time.
4. Operator training: Employees were trained to use the Qulector Leap interface and interpret the data insights, enabling them to make informed decisions quickly.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The implementation of Qulector Leap led to a 25% reduction in machine downtime and a 15% increase in production efficiency. Predictive maintenance significantly reduced unexpected equipment failures, and the use of digital twins improved scheduling accuracy. Employee engagement improved as workers became more proactive in addressing production issues with data-driven insights.

SUCCESS FACTORS:

1. Integration of real-time data: the ability to monitor equipment and processes in real time allowed for rapid adjustments and more effective maintenance strategies.

2. Comprehensive training: ensuring that employees were comfortable using the digital tools was crucial for maximizing the system's benefits.

CHALLENGES/OBSTACLES:

1. Initial resistance to change: some employees were hesitant to rely on digital tools for decision-making, which required ongoing training and support.

2. Data integration: integrating data from various legacy systems posed technical challenges initially, which were gradually overcome.

ADDITIONAL INFORMATION: https://qlector.com/

Resistance to adopting new technology among some staff and the initial costs of system integration posed significant challenges.

BP10

Title/topic of the best practice	FACTS4WORKERS, Worker-Centric Workplaces in Smart Factories Horizon 2020 Framework Programme (H2020 - 2014-2020), H2020-EU.2.1.5.1. - Technologies for Factories of the Future, FoF-04-2014 - Developing smart factories that are attractive to workers
Type of organization	X SME (Small and Medium Enterprises) □ PA (Public Authorities) □ Academic Institutions
Country	Austria
Targeted audience	The primary target audience is manufacturing shop floor workers, while secondary stakeholders include manufacturing industry decision-makers, technology developers, researchers, and EU policy makers who are interested in implementing and overseeing smart factory solutions that enhance worker satisfaction and productivity.
Approximate number of workers involved	The project involved approximately 78 workers directly using F4W solutions, 54 workers in control groups across 6 industrial partners/companies and implementing 8 different use cases.

ORGANIZATIONAL BACKGROUND:

VIRTUAL VEHICLE is a prominent Austrian research center specializing in software-based systems for the railway and automotive industries. The organization focuses on developing innovative methods and services for virtual development, validation, and operation across various technological maturity levels. Their core expertise lies in sustainable mobility, particularly in credible simulation of complex systems and digital twins, with a strong emphasis on human-centered aspects and software-defined system solutions. As an innovation partner, they excel in vertical integration by connecting software-based systems with electronic-based systems at the chip level. The center is distinguished by its application-oriented expertise, strong project management capabilities, and successful track record of knowledge transfer between automotive and rail sectors. They serve as a crucial hub for Austrian SMEs and maintain close partnerships with industry stakeholders, demonstrating their significant role in Austria's research, development, and innovation landscape.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The intervention was driven by the need to create worker-centric workplaces in smart factories, identified through the increasing digitalization challenges in manufacturing environments. The project recognized that while smart factory technologies were advancing, there was a critical gap in making these technologies truly worker-friendly and beneficial for shop floor employees. FACTS4WORKERS (FACTories for WORKERS) aimed to address this by developing and implementing workplace solutions that would integrate available IT enablers into a seamless smart factory infrastructure, with a clear focus on workers' needs, usability, and technology acceptance.

The decision to intervene was based on four key industrial challenges identified in manufacturing: the need for personalized augmented operator support (IC1), worker-centric knowledge sharing (IC2), self-learning manufacturing workplaces (IC3), and in-situ mobile learning (IC4). The project set specific measurable objectives, including increasing workers' problem-solving and innovation skills, enhancing cognitive job satisfaction, and improving productivity by 10%.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The FACTS4WORKERS project (2014-2018) implemented a comprehensive digitalization initiative transforming traditional manufacturing processes into worker-centric smart factory environments. The project focused on digitizing paper-based processes, implementing digital shift logging systems, creating knowledge management platforms, developing automated quality control systems, and establishing digital workflow control for maintenance work.

The implementation followed an agile development approach, deploying solutions through cloud-based technologies (Docker containers and micro-services) across 8 use cases at 6 industrial partners. Key technological interventions included digital augmented operator support, knowledge sharing platforms, data-driven self-learning workplaces, and digital mobile learning solutions, all integrated with existing IT infrastructure.

The digital transformation was validated through multiple evaluation rounds involving approximately 78 workers using F4W solutions and 54 workers in control groups. Various digital devices including tablets, smart glasses, and computers were tested based on specific workplace needs. The implementation emphasized user experience and technology acceptance, successfully balancing digital advancement with worker-centric needs to enhance both capabilities and productivity through improved digital information access and knowledge sharing.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The FACTS4WORKERS project demonstrated significant positive outcomes across multiple dimensions of workplace enhancement. The FACTS4WORKERS project evaluation was based on comprehensive survey responses from 132 workers across six industrial partners, providing concrete data on the effectiveness of digital workplace transformations and their impact on worker wellbeing. The evaluations showed improvements in workers' autonomy, competence, variety, relatedness, and protection, while also positively impacting organizational efficiency and quality. Workers reported increased job satisfaction and demonstrated enhanced problem-solving capabilities through better access to digital information and knowledge-sharing tools.

The implementation of digital solutions produced tangible benefits for worker wellbeing. Workers reported reduced stress levels due to better planning capabilities, improved access to information, and enhanced communication with colleagues. The solutions particularly improved workplace satisfaction by providing real-time access to relevant information, reducing unnecessary movement around the shop floor, and enabling better decision-making through contextualized data access. The evaluation framework showed that most workers found the solutions easy to use and aligned with their requirements, though some resistance to certain technologies (like smart glasses) was noted.

Long-term effectiveness was evidenced by several industrial partners continuing to expand the implemented solutions beyond the project scope. While the project's ambitious goal of impacting 800,000 European workers by 2025 remains to be realized, the immediate results showed approximately 10% improvement in worker productivity where solutions were fully implemented. Most significantly, the worker-centric approach proved successful in engaging workers in the digital transformation process, leading to better acceptance of new technologies and improved workplace satisfaction. The project also established valuable frameworks for future Industry 4.0 initiatives, emphasizing the importance of balancing technological advancement with worker needs and wellbeing.

SUCCESS FACTORS:

To the successful implementation of FACTS4WORKERS project contributed multiple elements:

The worker-centric development philosophy proved crucial, with workers actively involved in design and testing phases. The appointment of "super-users" - workers who were most interested in the solutions and trained to then train other colleagues - was particularly effective in driving acceptance and adoption of new technologies. The iterative development approach, which allowed for continuous feedback and improvements, helped ensure solutions truly met worker needs.

The flexibility in technology deployment was another success factor. Rather than enforcing a one-size-fits-all approach, the project allowed for different devices (tablets, computers, smart glasses) based on specific workplace requirements and worker preferences. Additionally, the decision to use Docker technology and micro-services architecture enabled smooth integration with existing factory systems.

The comprehensive evaluation framework, involving both solution users and control groups, provided clear metrics for measuring success and identifying areas for improvement. The involvement of local facilitators who understood both the technology and worker needs helped bridge communication gaps, particularly in cases where language barriers existed. Furthermore, the strong focus on practical usability rather than just technological sophistication ensured that solutions remained accessible and valuable to workers in their daily tasks.

CHALLENGES/OBSTACLES:

During the FACTS4WORKERS implementation several significant challenges were identified, such as: infrastructure challenges included loss of connectivity in some factory areas ("dead spots"), concerns about system performance when extended to all workers, and limited availability of devices. The hardware and interface issues presented notable obstacles, with smart glasses showing compatibility problems with prescription glasses, tablets being perceived as too fragile for shop floor use, and screen size limitations affecting document viewing. Workers encountered difficulties with keyboard interfaces hiding text and limited typing capabilities on mobile devices. Further complications arose from the high cost and skill requirements for creating content, particularly for mixed reality applications, along with the need for preloading sufficient information before deployment. Some processes required double data entry, while language barriers necessitated local facilitator support. Additionally, workers expressed the need for more time and training to properly evaluate the solutions.

ADDITIONAL INFORMATION:

Website: https://cordis.europa.eu/project/id/636778

https://portal.effra.eu/project/1426

Facebook: https://www.facebook.com/profile.php?id=100067534549696

LinkedIn: https://www.linkedin.com/in/facts4workers-project-a645bab9/

BP11

Title/topic of the best practice	**PAITool project** Developing and testing new flexible opportunities for VET on Artificial Intelligence (AI), that will support SME staff in adapting to and enacting digital transformation. Erasmus + KA210-VET - Small-scale partnerships in vocational education and training, 2022-1-SK01-KA210-VET-000082507
Type of organization	X SME (Small and Medium Enterprises) □ PA (Public Authorities) □ Academic Institutions
Country	Slovakia
Targeted audience	1. Professionals working in SMEs who need to improve their knowledge and skills especially in reference to digital tools and AI training 2. Training organisations and/or educators working in on-the-job training environments 3. Unemployed and/or low-qualified people in employment with limited IT or AI training or knowledge who need to upskill to meet the challenge brought on by Industry 4.0 and the digital transformation
Approximate number of workers involved	Conversion rate was achieved with the following: - 46 people participated in webinars, - 112 people participated in upskilling workshops - 100 companies/people participated in the SME needs survey.

ORGANIZATIONAL BACKGROUND:

Slovak Center for Digital Innovation (SCDI) is a nonprofit association applying for the status of European Digital Innovation Hub in the Slovak republic.

They want to advance the digital transformation in Slovakia and will show the SMEs how modern and available digital tools can be used to successfully transform their business.

Their main goal is networking between members and providers of digital business solutions. Thanks to SCDI, SMEs will be able to start all the processes that are necessary to successfully meet the challenges of digitization.

They support and stimulate the development of industry in the field of digital technologies, automation and robotics. SCDI raise awareness of successful digital projects and digital transformation. As a networking & communication platform, SCDI connect companies to support their advancement towards digital innovation. Tehy form joint projects with international initiatives to help Slovak companies innovate faster & more efficiently, coordinate the preparation of scientific, research and innovation projects. SCDI help with the

workforce adaptation to digital transformation and connect stakeholders from the academic and industrial sectors.

AcrossLimits is a dynamic Maltese technology research and consulting SME with its roots firmly derived from the innovation and ICT sectors. Throughout these past 22 years, the company has acquired a wealth of knowledge and experience in various European Union programmes, by participating in over 80 EU funded projects.

As strong networkers, they have built a vast network over years of presence on the European stage. Over the years, they have built up a vast skill set within the Education, Health, Entrepreneurship Digital Platforms and Dissemination work packages.

AcrossLimits is a multicultural, multilingual company with employees from several countries.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

Based on the evaluation report and additional context, the problem identification and decision to intervene can be summarized as follows:

The project emerged from recognition of AI's massive economic potential, with the global AI market expected to exceed 15 trillion Euros by 2030. Despite the EU's strategic initiatives around AI (including the 2018 European Strategy for AI and 2019 Guidelines for Trustworthy AI), European markets were lagging behind the USA and China in AI adoption, particularly among SMEs. This gap was creating a competitive disadvantage for European businesses.

The Digital Economy and Society Index (DESI) 2020 highlighted concerning trends, showing only 58% of EU citizens possessed basic digital skills. The situation varied significantly between countries - Slovakia ranked 22nd out of 28 EU countries in digital integration, while Malta ranked 5th with above-average enterprise digitization. These disparities in digital readiness, particularly among SMEs, were identified as a critical challenge for European economic competitiveness.

Specific challenges were identified through direct engagement with SMEs, revealing significant knowledge gaps and limitations in AI adoption. The project partners conducted initial surveys and interviews with approximately 8 experts from Slovakia and Malta to validate these challenges and identify specific barriers to employment and digital transformation within SMEs.

The decision to create the PAITool intervention was based on this comprehensive problem analysis and aligned with both EU and national digitization strategies. The project partners determined that a structured, practical training program specifically designed for SMEs could help address these challenges while supporting broader European goals for workforce upskilling and digital transformation. The intervention's timing and importance were further validated by the accelerated adoption of AI technologies following ChatGPT's release in late 2022, though this also created new challenges through increased competition from other training programs.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The PAITool (Practical AI Training Tool) project was implemented between October 2022 and May 2024 as an EU-funded initiative to help SMEs adopt artificial intelligence technologies. The project was carried out by two main partners - SCDI in Slovakia and AcrossLimits in Malta.

The intervention consisted of several key components:

First, the project team conducted needs analysis through surveys and interviews with over 400 SMEs to identify knowledge gaps and barriers related to AI adoption. This informed the development of an 8-module training course covering topics like AI in industrial production, quality control, predictive maintenance, energy management, marketing and sales support, online sales, and customer support. The course was created in both English and Slovak languages and deployed on an e-learning platform.

The team then organized Train-the-Trainers workshops (3 in Slovakia, 1 in Malta) to prepare experts who could deliver the training content. This was followed by multiple Upskilling workshops reaching over 110 participants - including a major conference in Slovakia in December 2023 with 83 attendees, and smaller workshops in Malta targeting different groups like students, migrants and youth organizations.

Throughout the project, extensive dissemination activities were carried out through social media, newsletters, webinars and the project website. The e-learning platform received nearly 2,000 views during the project period. Supporting materials for teachers and trainers were also developed to help with course implementation in different educational contexts.

The intervention successfully achieved most of its key performance indicators, including reaching over 400 SMEs, training over 60 staff members, and receiving predominantly positive feedback (around 85%) from participants. The main challenge was adapting to the rapid developments in AI during the project period, particularly after the emergence of ChatGPT in late 2022. Plans were made to continue promoting and updating the course materials after the project end, including partnerships with vocational education institutions in both countries.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The PAITool project was structured around four main objectives: first, identifying SMEs' needs, limitations, and knowledge gaps regarding AI implementation; second, developing a comprehensive AI training course available in both English and Slovak; third, deploying the course and delivering training to SME staff (targeting over 60 employees); and finally, gathering feedback and evaluating the intervention's success.

The PAITool intervention achieved or exceeded most of its quantitative targets, including: 1,944 website visits (target: 1,500), reaching 845 SMEs (target: 400), 110 needs analysis survey responses (target: 40), 110 workshop participants (target: 60), and 85% positive feedback (target: 70%). The project was less successful in social media engagement and physical distribution of materials.

Qualitative assessment shows that the intervention successfully addressed key employment barriers identified through research, particularly: lack of practical experience with AI/IT projects, skills mismatches with labor market needs, and the need for both technical and soft skills. The project was particularly valuable in the context of a shortage of 500,000 IT professionals in the EU labor market.

Effects on employee wellbeing were not systematically measured, which represents a gap in the evaluation framework. However, feedback indicates positive effects through:

- Reduced anxiety about AI-driven workplace changes
- Increased confidence in using new technologies
- Better understanding of career opportunities in AI/digital roles
- Support for career transitions and upskilling
- Access to free, flexible learning resources

SUCCESS FACTORS:

Briefly indicate what may have contributed to the successful outcome of the intervention.

Several key factors contributed to the successful outcome of the PAITool intervention:

1. Thorough Needs Assessment

The project began with comprehensive initial research through surveys and interviews, engaging with over 845 SMEs to understand their specific needs. This was complemented by a qualitative assessment involving experts from both countries, which enabled clear identification of skills gaps and employment barriers. The depth of this preliminary research ensured the intervention was well-targeted to actual market needs.

2. Well-designed Implementation Strategy

The intervention's success was supported by its flexible, modular course structure that allowed for self-paced learning. The bilingual approach (English and Slovak) increased accessibility, while the mix of online and face-to-face delivery methods accommodated different learning preferences. The creation of supporting materials for teachers and trainers, along with the practical focus on real-world AI implementation scenarios, enhanced the course's effectiveness.

3. Strong Partnerships and Stakeholder Engagement

The project benefited significantly from collaboration with vocational education institutions, industry experts, and trainers. Partnerships with employment agencies and public institutions, along with support from government ministries, provided crucial institutional backing and helped reach target audiences effectively.

4. Timing and Relevance

The project's timing proved particularly advantageous, coinciding with increased AI adoption, especially following the release of ChatGPT. The intervention directly addressed the documented shortage of IT professionals in the EU, while its focus on practical skills aligned well with employer needs and both EU and national digitization strategies.

5. Adaptability and Responsiveness

The project demonstrated strong adaptability by adjusting to feedback during implementation and creating additional supporting materials when needs were identified. The ability to modify workshop formats to accommodate different target groups and respond to rapid changes in the AI landscape ensured the intervention remained relevant and effective, as evidenced by the high satisfaction rates (85%) among participants.

CHALLENGES/OBSTACLES:

Briefly indicate the difficulties encountered during this type of intervention.

During the PAITool intervention several significant difficulties were encountered:

Training coordination proved challenging due to the busy schedules of potential trainers, who were primarily industry professionals. This necessitated scheduling adjustments and splitting training sessions across multiple dates. SMEs often had limited staff who could dedicate time to training, with sometimes only one person responsible for innovation and AI implementation per company.

Despite high registration numbers, actual attendance at workshops was sometimes lower than expected. In Malta, for instance, while 21 participants registered for the Train-the-Trainers workshop, only 10 attended. The project also faced difficulties in engaging certain stakeholders, particularly vocational education institutions in the early stages.

The rapid acceleration of AI adoption after November 2022, particularly following ChatGPT's release, created unexpected challenges. The sudden proliferation of AI training programs from large corporations and government institutions increased competition for participant attention. This development, while validating the project's importance, made it harder to maintain visibility and engagement.

Some planned dissemination activities proved difficult to implement within budget constraints. For example, the target of distributing 1,000 printed brochures was not achievable due to high printing costs. Additionally, developing high-quality digital content with professional graphics and natural-sounding voice-overs faced resource constraints.

The project struggled to achieve its social media engagement targets, reaching only 204 followers against a target of 500. Despite regular posting and content creation, converting reach into active engagement proved challenging across different platforms.

These difficulties highlight the importance of flexible planning and resource allocation in similar interventions, as well as the need to anticipate and adapt to rapid changes in the technological landscape.

ADDITIONAL INFORMATION:

website: https://paitool.eu/about-the-project/, **reports:** https://paitool.eu/reports/

Facebook page: https://www.facebook.com/PAIToolProject

LinkedIn:https://www.linkedin.com/pulse/paitool-project-ai-training-course-smes-acrosslimits-7zoff/

BP12

Title/topic of the best practice	I Resist: webinar on occupational wellbeing
Type of organization	□ SME (Small and Medium Enterprises) X PA (Public Authorities) □ Academic Institutions
Country	Italy
Targeted audience	All employees.
Approximate number of workers involved	N=2098

ORGANIZATIONAL BACKGROUND:

The Agenzia delle Entrate is a non-economic public body established in 1999 under the Ministry of Economy and Finance. It manages key taxes like income tax and VAT, ensuring tax compliance through taxpayer assistance, real estate services, and combating tax evasion. In 2023, it recovered €24.7 billion in tax evasion and employed 29,503 people. The Agency uses modern digital solutions to promote transparency and improve accessibility for taxpayers, fostering public trust and contributing to Italy's fiscal stability.

The Emilia-Romagna Regional Directorate oversees nine provincial offices, employing 2,098 staff, and ensures uniform tax administration and efficient service delivery. The University of Bologna's Department of Psychology has been conducting research on related topics for years, publishing studies in major international journals, focusing on both work and clinical psychology.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

During the COVID-19 pandemic, the Emilia-Romagna Regional Directorate faced challenges as employees transitioned to remote work, leading to potential techno-stress from constant digital connectivity and insufficient training. This shift blurred the boundaries between professional and personal life, increasing stress levels. Additionally, the lack of in-person collaboration and reduced social interactions contributed to feelings of isolation.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The Department of Psychology "Enzo Canestrari" at the University of Bologna assembled a team of experts in occupational psychology to analyze the effects of remote work on employees. Using an evidence-based approach, the team conducted a review of scientific literature, collected data through 11 interviews and 554 questionnaires, and analyzed the experiences of employees in a digitalized work environment. Key findings included moderate levels of techno-stress, workload, and social isolation, with isolation being a significant concern due to the lack of in-person interactions.

Despite these challenges, employees reported strong social support from colleagues, which helped maintain job satisfaction. However, the transition to remote work still led to increased anxiety and stress, reflecting the difficulty in adapting to new work conditions.

In response, seven webinars were conducted, focusing on work stress, the impact of technology, and managing techno-stress. The Job Demands-Resources Model was used to explore how balancing job demands with resources like collaboration and support can improve employee well-being. The webinars provided strategies to manage workload, reduce isolation, and enhance task adaptability. Following the sessions, data was gathered through a short questionnaire to assess participants' reactions and their overall well-being, demonstrating positive outcomes from these interventions.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The comparison of questionnaires before and after the intervention showed positive work-related outcomes. Employees reported a balanced workload and adequate resources, with manageable techno-stress levels. High adaptability to new technologies and remote work procedures was noted, along with job satisfaction, especially regarding control over work and decision-making. The webinars were effective in helping employees manage work-life interference and social isolation, with a focus on psychological flexibility contributing to balance. Social support from colleagues played a crucial role in reducing isolation and enhancing satisfaction. Overall, the measures led to improvements in mental health and work performance, providing strategies to manage anxiety and stress. Feedback indicated high satisfaction, demonstrating the intervention's success in fostering individual and organizational well-being.

SUCCESS FACTORS:

The project's success was largely due to its evidence-based approach, using validated scientific sources and reliable data from surveys and interviews. The combination of work psychology perspectives allowed for a comprehensive understanding of workplace dynamics, focusing on job demands, task adaptability, and workload management. The webinars were tailored to address key issues like remote work, techno-stress, and work-life balance, making the interventions highly relevant. Techniques promoting psychological flexibility helped employees manage stress, while social support from colleagues reduced feelings of isolation and created a collaborative environment. High levels of job satisfaction were reported, with employees appreciating autonomy and decision-making opportunities. Overall, the project's reliance on scientific research and validated methods led to significant improvements in employee well-being and organizational performance.

CHALLENGES/OBSTACLES:

Several challenges were encountered during the intervention. The large group format limited personalized interaction and in-depth discussions, and the time constraints restricted the depth of topic coverage. Additionally, the lack of practical exercises hindered the immediate application of strategies for stress prevention and well-being. The engagement was difficult to maintain, especially in large webinars, and some participants struggled to balance work and personal demands. These factors reduced the overall depth and impact of the intervention, highlighting the need for more interactive, smaller group sessions in the future.

BP13

Title/topic of the best practice	Gesund arbeiten an der TU Ilmenau
Type of organization	□ SME (Small and Medium Enterprises) □ PA (Public Authorities) X Academic Institutions
Country	Germany
Targeted audience	Employees of Technische Universitat Ilmenau. Around 1000+
Approximate number of workers involved	6 employees and project-based volunteer and student assistants.

ORGANIZATIONAL BACKGROUND:

The structural unit *Gleichstellung, Diversität & Gesundheit* (GDG) at TU Ilmenau is dedicated to promoting equality, diversity, and health among employees and students. University Health Management (UGM) is the department under GDG at TU Ilmenau offers both personalized preventive measures and the establishment of health-promoting conditions. Key initiatives include ergonomic workplace design, health courses, and psychosocial counseling, among other supports provided by UGM.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

Prior to the COVID-19 pandemic, most UGM activities were conducted in person. In response to new needs and circumstances, UGM has since transitioned almost all its offerings to digital formats as well. UGM activities are guided by systematic surveys and health reports that help identify the needs of both staff and students.

At TU Ilmenau, the majority of employees work at computer-based workstations. Although these work environments are generally safer than many others, they still present specific health risks, especially for muscles and vision. Common issues include muscle strain, eye fatigue, and discomfort due to overuse, limited movement, poor posture, or suboptimal workstation setups. Mental health had already become a vital focus even before the COVID era. Addressing mental well-being during the pandemic became even more crucial, as employees and students connecting digitally faced a wide range of challenges.

SOLUTION/INTERVENTION/MEASURES TAKEN:

Pausenexpress- The Pausenexpress is a 15-minute active break offered once a week by the University Sports Center at TU Ilmenau during the lecture period. Research indicates that regular exercise and movement not only help prevent tension and poor posture but also enhance concentration and support more effective work. Under the guidance of trained instructors, participants engage in a variety of mobilization, strengthening, stretching, and relaxation exercises, both with and without small equipment. After Covid, this service was also digitally transformed for the participants who were doing remote office.

Healthy and creative Advent calendar- During the Christmas season, UGM offers inspiration for a relaxing and reflective Advent period with a digital Advent calendar. Each day reveals a new door with resources on health and wellness, featuring healthy recipe ideas, exercises to benefit both body and mind, insights on various health topics, and engaging puzzles to enjoy.

Online workshops on climate-neutral nutrition- As part of the Sustainability Theme Year, Health Management offered online workshops focused on climate-neutral nutrition and regional superfoods. All presentations and featured recipes from these sessions are available in the media library for convenient access.

Virtual Workshop: "Mental Well-being in Higher Education"- The virtual workshop "Mental Well-being in Higher Education," organized by Irrsinnig Menschlich e.V., offered students from Bauhaus-Universität Weimar, HS Nordhausen, and TU Ilmenau a forum to address key aspects of mental health in academic settings. The session focused on identifying early warning signs of mental health crises, overcoming stigma and prejudice associated with psychological challenges, and accessing resources to strengthen resilience. Practical advice covered managing stress, handling test anxiety, and fostering a university culture where mental health is openly discussed. Participants also heard from individuals who have successfully navigated psychological challenges, providing insights into creating a fulfilling and balanced life. The workshop highlighted the importance of collective support and available prevention services, empowering students to approach mental health proactively.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

Participation in online workshops and courses began to rise significantly following UGM's communication through internal emails. Additionally, UGM conducted evaluation surveys after each event or program, yielding positive and impactful outcomes. This feedback mechanism not only helped identify areas for improvement but also reinforced the value of these initiatives in enhancing employee engagement and well-being. The combination of effective communication and continuous evaluation has contributed to a more informed and motivated community, ultimately leading to a richer learning experience for all participants.

SUCCESS FACTORS:

The communication strategy of Gesund Arbeiten, along with targeted awareness initiatives, has greatly improved its effectiveness in driving meaningful change. By open dialogue and increasing engagement among employees, the prgramms has been able to identify key areas for improvement. These initiatives not only raise awareness of health and well-being issues but also empower individuals to take an active role in their workplace environment. As a result, the UGM has seen positive shifts in both employee satisfaction and overall productivity. This holistic approach underscores the importance of communication in cultivating a culture of well-being and continuous improvement.

CHALLENGES/OBSTACLES:

Among the various challenges faced by UGM, a primary obstacle is the shortage of human resources. The contact point revealed that relying on voluntary and temporary workers is not a feasible solution for managing larger projects.

ADDITIONAL INFORMATION: The website is https://www.tu-ilmenau.de/universitaet/quicklinks/referat-gdg/gesundheit/gesund-arbeiten **However, the courses and workshops are mostly archived in intranet.**

BP14

Title/topic of the best practice	Transformation of an entire corporate structure, flattening of hierarchies, and elimination of fixed departments.
Type of organization	X SME (Small and Medium Enterprises) □ PA (Public Authorities) □ Academic Institutions
Country	Germany
Targeted audience	Entire organization and management.
Approximate number of workers involved	40

ORGANIZATIONAL BACKGROUND:

The company is a consulting organization with a strong network in innovation, change management, startups, and digital transformation.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The goal of bwcon in the described transformation was to develop an organizational structure that promotes and requires better collaboration. Specifically, they aimed to:

1. **Enhance cross-team collaboration**: By dismantling rigid team structures and introducing flexible, project-based working methods (called "Homebases"), the aim was to strengthen collaboration across departmental boundaries.
2. **Leverage synergies among employees and topics**: The organization recognized that employees worked in traditional silos and often lacked sufficient knowledge about one another's work, preventing them from maximizing the potential of their collaboration. The objective was to foster these synergies through increased transparency and exchange.
3. **Strengthen agility and self-responsibility**: By creating agile teams without fixed team leaders, they aimed to encourage employees to take on more responsibility. Each individual would actively participate in projects according to their interests and skills.
4. **Promote development and personal growth**: Instead of maintaining traditional leadership structures, a system of personal leadership coaches was to be established to support employees individually in their development.
5. **Boost innovative capacity**: As an innovation network, bwcon aimed to design its internal operations to not only apply its expertise in (digital) transformation to its clients but also to live it internally.

In summary, through this transformation, bwcon aimed to create a more flexible, collaborative, and innovation-driven organization to work more efficiently internally and serve as a role model and advisor for other companies undergoing transformation processes.

SOLUTION/INTERVENTION/MEASURES TAKEN:

bwcon implemented a series of measures to achieve its goals of improving collaboration, leveraging synergies, and enhancing innovation capacity. The key actions are summarized as follows:

1. **Introduction of Agile Competency Teams ("Homebases")**: Traditional, rigid team structures were replaced with flexible, project-based, cross-functional teams called Homebases. Every employee, including executive management, works across several of these teams. This structure was designed to foster collaboration and strengthen networking among employees.
2. **Decentralized Coordination and Coaching**: Instead of traditional supervisory roles, bwcon introduced the concept of personal coaches. These individuals act as mentors, supporting employees in their development without taking on typical supervisory tasks. The Homebases are self-organized, with coordinators chosen by the teams, but without conventional leadership roles.
3. **Core Team for Change Implementation**: A core team was established to drive the change process across the organization. One representative from each team collaborated with others to make decisions about implementing the new model. This approach ensured that all teams were involved in the process, allowing employees to actively contribute to organizational development.
4. **Creation of Transparency and Synergies**: An essential part of the transformation was creating transparency around employees' skills and responsibilities. Profiles were created for each employee, detailing their competencies and tasks. This facilitated better use of available talents and helped identify synergies between teams.
5. **Encouraging a New Feedback Culture**: A central element of the new organizational structure was an open feedback culture. Feedback was no longer only provided by supervisors but was shared freely among all employees, regardless of role. This encouraged employee growth and improved collaboration.
6. **Training for New Roles**: Since many new coordinators in the Homebases had no previous experience in leadership roles, bwcon offered regular internal training in moderation and coordination. This helped teams adjust to their new roles and meet new expectations.
7. **Weekly Knowledge Transfer Meetings**: Existing formats, like the weekly knowledge transfer meeting, were enhanced. In these meetings, one person presents a current topic, and there is a growing exchange and search for synergies between teams. The quality of presentations also improved due to increased interest in colleagues' activities.
8. **Continuous Iterative Process**: bwcon adopted an iterative approach. Teams began with a foundational model, which was then continuously adapted and developed. The organization did not pressure itself to create a perfect concept from the start, instead learning collectively through practical implementation and regular feedback.

These measures helped bwcon transition from a classic hierarchical structure to a flexible, agile organization that emphasizes collaboration, self-responsibility, and continuous learning.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The results of bwcon's transformation and the effectiveness of the implemented measures are discussed in the magazine across various aspects. Overall, it's clear that the restructuring has had positive effects on collaboration, innovation potential, and company culture, although the process is ongoing and challenges remain. Here are the key results and insights into effectiveness:

1. **Improved Collaboration and Synergy Utilization**
   - The introduction of Homebases (agile teams) led to better interdisciplinary collaboration. Employees from different areas who previously had limited interaction now work closely together, recognizing synergies in their work.
   - Understanding colleagues' roles became necessary for one's own work, leading to stronger connections and a better grasp of internal processes.
   - An example of effectiveness was the knowledge transfer meeting, which previously had limited engagement. Now, discussions and exchanges following presentations have increased significantly, indicating greater interest and more active collaboration.
2. **Development of a Feedback Culture**
   - The new feedback culture, where feedback was shared among all employees on an equal level, showed positive effects. It helped identify improvement opportunities more quickly and supported employee development.
   - Introducing an organizational bonus distributed through Homebases, rather than by supervisors, further strengthened the importance of peer feedback.
3. **Growing Self-Management and Responsibility**
   - Employees had to adopt more self-management and responsibility within the new organizational structure, which was challenging, especially for those who previously worked in more traditional roles.
   - Training and workshops helped employees meet new demands, particularly Homebase coordinators, who took on moderation and leadership tasks for the first time.
4. **Increasing Skills and Personal Growth**
   - Through regular exchanges and interdisciplinary collaboration, employees encountered new topics, leading to the development of new skills and interests.
   - The quality of presentations and discussions in knowledge transfer meetings improved, seen as an indicator of the value of exchange and ongoing learning within the organization.
5. **Challenges and Adjustments**
   - Despite positive developments, the transformation process presented challenges. Some employees initially took on too many roles and had to learn to focus their resources and specialize to make a meaningful contribution.
   - The introduction of new roles and responsibilities, especially dual roles in both their original departments and Homebases, was initially overwhelming for some, requiring a period of learning and frequent adjustments.
6. **Long-Term Perspective and Continuous Development**
   - Management describes the transformation process as a long-term effort that is still ongoing. The analogy to a marathon underscores that persistence and ongoing adjustments are necessary to complete the transition.
   - The organization recognized that self-management and mutual trust are critical to success in the new structure, and that ongoing training and feedback are needed to strengthen these skills.

Effectiveness Summary: The shift to an agile, matrix-oriented organization at bwcon is already showing noticeable improvements in collaboration, synergy utilization, and company culture. Increased networking, greater transparency, and an intensified feedback culture are highlighted as positive effects. At the same time, some employees were initially overwhelmed, which was addressed through training and an iterative process of refinement. Overall, the transformation is on a promising path, though not yet fully complete.

SUCCESS FACTORS:

The success of the intervention at bwcon was likely driven by the following key factors:

1. **Participative Implementation**: Employees were actively involved in the transformation process, particularly through the core team that further developed the concept. This ensured that everyone felt heard and could share their own ideas and concerns.
2. **Agile Structures**: The introduction of agile Homebases promoted more flexible, project-based collaboration, allowing employees to network more effectively and leverage synergies.
3. **Continuous Adaptation and Learning**: The iterative approach, in which the organization regularly collected feedback and made adjustments, enabled the ongoing development of the new structures without needing a perfect initial concept.
4. **Training and Support**: Regular training, especially in moderation and team leadership, prepared employees for their new roles, making the transition smoother.
5. **Strengthening the Feedback Culture**: Developing an open feedback culture, where all employees could give and receive feedback, encouraged personal growth and collaboration within the company.

These factors contributed to greater employee engagement and a dynamic, learning-oriented organization, which likely supported the success of the intervention.

CHALLENGES/OBSTACLES:

During the transition to the new organizational structure at bwcon, several challenges emerged:

1. **Employee Overload**: Many employees initially took on too many roles and responsibilities across various Homebases, leading to burnout. They had to learn to focus on specific tasks to work effectively.
2. **Challenges in Self-Management**: The shift to greater autonomy and self-management was unfamiliar and challenging for some employees, particularly regarding the coordination and facilitation within Homebases.
3. **Prolonged Transformation Process**: The transformation process was lengthy and required significant time to build a shared understanding among employees and to effectively implement the new structures.
4. **Dual Roles and New Responsibilities**: Some employees had to take on new roles within the Homebases alongside their original duties, which led to uncertainty and additional workload.
5. **Fear of the Unknown**: At the outset, there were uncertainties and anxieties about the new structures and their impact on individual work, as not all aspects of the transformation were predictable.

These challenges highlighted the need for comprehensive support, training, and adjustments to ensure a successful transition.

BP15

Title/topic of the best practice	Establishing of the House of Digitalisation as the central platform for acceleration of the digital transformation of companies and stakeholders from Lower Austria.
Type of organization	□ SME (Small and Medium Enterprises) X PA (Public Authorities) □ Academic Institutions
Country	Austria
Targeted audience	SMEs, NGOs, R&D representatives

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The province of Lower Austria is implementing a whole bundle of measures to accelerate the digital transformation of the domestic economy and to support companies along the way. To this end the digitalization strategy of Lower Austria was designed to support companies, qualify employees, and raise awareness among a broader section of the population.

However, regional representatives perceived the absence of a central contact point in the field of digitisation. Due to this reason the “House of Digitalization” concept was initiated and soon become the beacon of Lower Austria's digitalization strategy. It represents an important interface for the digital transformation, the interactive platform with personalized services and automated suggestion system for networking Lower Austrian companies with research and educational institutions was first established and now a meeting place for the interested stakeholders.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The establishing of the House of Digitalisation took place in three steps. In a first step, which was completed in 2018, digital nodes were set up in St. Pölten, Krems, Tulln, Wieselburg, Klosterneuburg, and Wiener Neustadt, where specific competencies already existing in the state are bundled and networked with each other.

The second step was to build a “virtual house” with ten levels. It represents an intelligent digital network that was established in 2018. This living network is the common engine of the project. It uses existing expertise and relies on cross-border networking and international cooperation in order to identify relevant developments in the field of digitalization in good time.

As a third step, a real house of digitalization was built in Tulln in 2022 as the central Lower Austrian contact point for companies and experts in the field of digitalization.

On a total area of 4,200 m2, there is a showroom and event area, lecture halls of the Wiener Neustadt University of Applied Sciences, a indoor and outdoor Networking Zone, office units and a "FabLab" science laboratory of the state of Lower Austria. Its focus is always on supporting local small and medium-sized enterprises on their way into the digital future and on communicating the topic of digitalization to young and old.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The Digitalisation House represents a unique virtual/”brick-and-mortar” digitalization space that offers networking zones, regular exhibitions (currently Smart Data + You exhibition) and digitalization events and services to SMEs from Lower Austria.

SUCCESS FACTORS:

A great moment of success for the project was its nomination as one of the five best projects at European level in the 2020 Regio Star Awards in the category “Industrial Change for a Smart Europe”.

CHALLENGES/OBSTACLES:

- gaining political support for the idea of a digitalisation house and allocating sufficient financial resources.
- minisation of the costs for maintenance and servicing and thus the overall burden for the user (life cycle costs) during the design of the House of Digitalisation.

BP16

Title/topic of the best practice	**CNA HUB 4.0**
Type of organization	□ **business association**
Country	ITALY
Targeted audience	SMEs
Approximate number of workers involved	CNA HUB 4.0 coordinates 10 Digital Innovation Hubs (DIHs), employing approximately 25 professionals, include CNA Bologna, CNA Modena, CNA Parma, CNA Reggio Emilia, CNA Piacenza, CNA Imola, CNA Ferrara, CNA Ravenna, CNA Forlì-Cesena, and CNA Rimini. The territorial reach of these DIHs ensures comprehensive coverage across the entire region, enabling micro and small to medium-sized enterprises (SMEs) to easily access support services for digital transformation, sustainability, and artificial intelligence. This strategic distribution enhances the capacity of local businesses to embrace innovation and improve their competitive edge in the market.

ORGANIZATIONAL BACKGROUND:

CNA Hub 4.0, as the Digital Innovation Hub of CNA Emilia-Romagna, is the access point for services and tools for the development of Small and Medium Enterprises (SMEs) in the areas of digitalization and sustainability. It serves as a convergence point for the competencies offered by CNA Emilia-Romagna and CNA Innovazione, enhancing the opportunities provided by the regional and international networks of which they are partners.

In line with the Transizione 5.0 Plan, the National Recovery and Resilience Plan, and the Smart Specialization Strategy of Emilia-Romagna, CNA Hub 4.0 aims to create and maintain a strong connection with key stakeholders (research laboratories, businesses, institutions, Innovation Centers, Clust-ERs, etc.) to foster knowledge generation, technological and organizational innovation, and to enhance skills and relationships.

To assist companies in their growth and transformation processes, CNA Hub 4.0 offers a service catalog that, starting from a bottom-up approach, provides tailored and precise responses to expressed needs:

- Innovation and Research
- Financial Consulting and Credit
- Training and Skills
- Internationalization
- Sustainability

CNA Hub 4.0 provides companies with actual intervention plans, based on tools and assessments, to address their needs. Among these, there are custom-built indicators of

technological and sustainability maturity levels for SMEs, designed to support them in their transformation processes.

CNA has also developed a specific check-up focused on artificial intelligence, aimed at guiding companies in managing change and adopting the necessary innovations to face future challenges

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The intervention of CNA HUB 4.0 aims to support companies in their growth and transformation processes, embracing the areas of digitalization, sustainability, and artificial intelligence. The need to assist SMEs in their digital transition arises from the necessity to adapt to a rapidly evolving technological market, where advanced skills and emerging technologies are essential for effectively competing in international markets.

CNA Emilia-Romagna, in line with the Transizione 5.0 Plan, the National Recovery and Resilience Plan, and the Smart Specialization Strategy of Emilia-Romagna, has contributed to the creation of a national network, CNA HUB 4.0, to guide companies in transitioning to the Industry 4.0 production model, through qualified consulting and services.

In accordance with the Smart Specialization Strategy (RIS3) of Emilia-Romagna, which aims to create a more dynamic and competitive region, CNA HUB 4.0 works to maintain a strong connection with key local stakeholders—research laboratories, businesses, the Emilia-Romagna Region, innovation centers, Clust-ERs, and others. Through these collaborations, CNA HUB 4.0 facilitates the development of technological and organizational transformation projects on Industry 4.0 themes for SMEs across all sectors.

CNA HUB 4.0 thus positions itself as a strategic and operational partner capable of offering tailored solutions and pathways to promote innovation and competitiveness for micro and small enterprises in the region.

SOLUTION/INTERVENTION/MEASURES TAKEN:

The intervention program of CNA HUB 4.0 is a structured pathway designed to support companies at every stage of their digital and sustainable growth and transformation, systematically addressing their needs. The process is divided into five phases:

1. **In-depth Company Visit:** During the visit, the consultants from the Digital Innovation Hub (DIH) of CNA Emilia-Romagna collaborate with management to gather key information about the organization and assess the company's strengths and weaknesses.
2. **Assessments on Digitalization (with a possible specific focus on AI) and Sustainability:** Assessments are conducted to companies to obtain a detailed view of the business processes, strategies, and challenges related to digitalization and sustainability. These tools are crucial for understanding the company's starting point.
3. **Results Analysis and Opportunity Identification:** The collected data is analyzed by a team of consultants and researchers, who prepare a customized report outlining the company's commitment to sustainability and digitalization, identifying future development opportunities.
4. **Feedback Meeting:** The report is presented in a feedback meeting with the management, during which the areas for improvement are discussed, and tailored solutions are proposed, along with an action plan.
5. **Seminars and Improvement Actions:** Companies participate in initiatives, workshops, and labs focused on innovation, digitalization, and sustainability. These pathways are led by industry experts and designed to facilitate the transfer of advanced skills and innovative methodologies. The goal is to support companies in building growth and transformation strategies, equipping them with concrete tools to effectively and sustainably tackle the challenges of digitalization and sustainability.

The support from CNA HUB 4.0 represents a strategic resource for companies looking to embark on paths of innovation and sustainability. This structured and comprehensive process allows companies to receive a tailored improvement plan. The practical and personalized approach is enhanced by strategic collaborations with local and regional stakeholders, including Clust-ER, research centers, and technopoles, enabling companies to access advanced resources and expertise. Through these synergies, CNA HUB 4.0 not only facilitates access to technologies, but also guides companies in implementing innovative projects, ranging from the adoption of advanced digital technologies to internal reorganization, promoting sustainable and competitive growth.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

CNA HUB 4.0 has achieved significant results in supporting companies in their digital and sustainable transition. Below are the details of the main activities carried out:

- **Digitalization Check-up:** This was administered to 1,301 companies, allowing for a detailed assessment of their level of digitalization and identification of areas for improvement.
- **Sustainability Check-up:** 200 companies participated in this assessment, which provided an overview of their current sustainability status.
- **Artificial Intelligence Check-up:** Approximately 130 companies will receive an evaluation on the adoption and integration of artificial intelligence solutions.
- **Seminars, Workshops, and Improvement Plans:** since the establishment of the Hub (2017) about 600 training initiatives, including seminars and workshops, have been organized, involving a large number of companies, digital coaches, and sustainable coaches. These events enabled companies to acquire practical and strategic skills, contributing to greater awareness of innovation and sustainability issues.

The activities carried out by CNA HUB 4.0 have proven highly effective in supporting companies on their growth journey. The combination of check-ups, training meetings, and improvement plans has played a crucial role in assisting businesses in this complex process of digital and sustainable transition. These initiatives have provided companies with the necessary tools to tackle the challenges related to Transition 5.0, enhancing their competitiveness and resilience. Thanks to a targeted and personalized approach, CNA HUB 4.0 has helped businesses identify and implement innovative solutions, fostering a culture of innovation and sustainability that has become essential for their long-term growth.

SUCCESS FACTORS:

The strategic collaborations with qualified partners from the research community and the innovation ecosystem, such as RE:LAB (a Research Center accredited by the High Technology Network) and Boosha (an Artificial Intelligence Automation Agency) have represented a fundamental added value for CNA HUB 4.0, contributing to the creation of advanced assessments for digitalization, sustainability, and artificial intelligence. Thanks to RE:LAB, CNA HUB 4.0 has been able to conduct an in-depth evaluation of the situation of SMEs regarding their digital and sustainable transition, while with Boosha, it has been possible to develop specific tools for artificial intelligence assessments. These partnerships are essential pillars for providing concrete and comprehensive support to businesses, integrating advanced know-how and practical tools to effectively address the challenges of digital and sustainable transformation.

A significant contribution to the results of CNA HUB 4.0 also comes from the network of strategic partnerships consisting of universities, research centers, technology partners, Competence Centers, Innovation Poles and European Digital Innovation Hubs (DIH). This network provides an important talent pipeline, crucial for supporting future entrepreneurship. The value of these collaborations is also evident through the Academy organized by CNA for training digital coaches and sustainable coaches, key figures for guiding businesses through these transition processes. Additionally, CNA HUB 4.0 enriches the companies' journey with seminars and customized improvement plans, offering concrete support to accelerate the digital and sustainable transformation of enterprises.

CNA HUB 4.0 is featured in the European Digital Innovation Hubs Network, in the EDIH Catalogue

It is also featured on Atlante 4.0, the first portal promoted by Unioncamere and the Ministry of Economic Development, aimed at showcasing national structures that support companies in technology transfer and digital transformation processes.

Since 2022, the regional CNA HUB 4.0 and local HUBs have been accredited within the Digital Transition Network of the Emilia-Romagna Region.

CNA's innovative services are also included in the it-ER Service Guide by ART-ER, as an organization providing direct or indirect support to international talents in Emilia-Romagna.

CHALLENGES/OBSTACLES:

Financial limitations represent one of the main obstacles for SMEs on the path to innovation and sustainability, as implementing new solutions can entail considerable investments in technology, skills, and infrastructure. CNA HUB 4.0 has addressed this challenge by supporting businesses in accessing specific funding sources, such as the call for proposals to support the digital transition of businesses in Emilia-Romagna, promoted by the Emilia-Romagna Region in 2022, aimed at facilitating the adoption of advanced technologies and the digitalization of business processes.

CNA's intervention has been essential not only in raising awareness among businesses about the opportunities offered by the call, but also in assisting them in the application process. This type of support has helped accelerate access to funds for over **300 SMEs**, allowing them to initiate innovation projects in a shorter timeframe, and with simplified administrative burdens. Furthermore, CNA HUB 4.0 has facilitated the integration of these funds with other local, regional, and national support tools, creating synergy among different sources and thereby increasing the long-term success prospects for businesses.

BP17

Title/topic of the best practice	DIGITAL ACE
Type of organization	BUSINESS ASSOCIATION
Country	Italy
Targeted audience	SMEs
Approximate number of workers involved	220 directly involved in the project activities

ORGANIZATIONAL BACKGROUND:

The **DIGITAL ACE** project, funded by MIMIT, is a collaboration between CNA Nazionale, Fondazione PICO, and Legacoop, with the goal of supporting businesses in accessing advanced technological solutions and integrating these solutions into their production processes. CNA contributes 17 spokes distributed across the national territory, integrated with those of Legacoop, for a total of 34 spokes, thereby creating an extensive network to support the digitalization of businesses.

The proposal for the DIGITAL ACE Innovation Hub is set within a context where Italian artisanal and cooperative businesses face significant challenges related to digital transformation. These businesses struggle to access advanced technological solutions and to integrate them effectively within their production processes.

Digitalization represents a crucial opportunity for SMEs to enhance their competitiveness, but it requires adequate support and a clear strategy. Additionally, regional disparities in access to technologies and skills, especially in southern Italy and the islands, exacerbate the situation and call for a targeted and structured response.

AIM OF INTERVENTION (PROBLEM OR ISSUES ADDRESSED):

The objectives of the DIGITAL ACE project over the next 24 months are the following:

1. **Provide concrete support to artisanal and cooperative businesses** to embark on a digital transformation journey, enhancing their competitiveness and capacity for innovation.
2. **Engage 7,500 businesses across Italy**, with a particular focus on southern regions and the islands.
3. **Offer Digital, Sustainability, and Human Resources Assessments and Orientation services to at least 1,000 SMEs** across various sectors, utilizing the tools developed by CNA and PICO.
4. **Develop Competencies within SMEs**, fostering an innovative and sustainable culture through responsible business models.
5. **Establish a network consisting of a central Hub and 34 regional Spokes** to ensure effective service distribution and a joint strategy.
6. **Provide five types of services**, including assessment activities (technology readiness level assessment, digital checkup, sustainability assessment, mindset checkup) and three post-assessment services (Digital-Innovation Roadmap - a strategic action plan to identify and achieve innovation and digital transformation goals; Specialized Orientation - personalized expert consulting on a specific aspect of the proposed digital strategy; Next Steps and Digital Transformation - connecting businesses to European Digital Innovation Hubs (EDIH), Seal of Excellence, Competence Centers, or tech companies within the Fondazione PICO or CNA network to kickstart the digital transformation process and implement the necessary technologies).
7. **Organize national and local events, webinars, and scouting activities** to increase awareness and encourage business participation in the services offered by the Hub.
8. **Promote the development of sustainable and responsible business models**, thereby contributing to the growth of SMEs and their ability to adapt to market changes.

SOLUTION/INTERVENTION/MEASURES TAKEN:

In the context of the DIGITAL ACE project, the solutions, interventions, and measures adopted include establishing an organizational structure composed of a central Hub and 34 Spokes distributed across the territory, ensuring extensive support for SMEs. The project, currently underway, offers assessment, orientation, and post-assessment services aimed at providing concrete and strategic support. These services are designed to be customized and specialized, with the goal of assisting businesses in implementing identified solutions, thereby facilitating their digital transformation journey.

Promotional and communication activities, including national and local events and thematic webinars on various aspects of digitalization, will play a crucial role in raising awareness among businesses about digital transition issues. These initiatives aim to foster greater awareness and encourage the adoption of digital technologies, thereby advancing the innovation pathways of SMEs.

An additional aspect is the scouting activity, which involves direct outreach to SMEs to inform them about available services and facilitate access to support and resources. Moreover, the involvement of digital innovation experts is planned, who will provide consultations and guide SMEs in implementing digital technologies.

Finally, an information dissemination strategy is in place to promote the Hub and its activities, leveraging various communication channels of the project partners. These measures are designed to offer a holistic and integrated approach to the digital transformation of SMEs, addressing specific challenges and creating opportunities for sustainable growth and innovation.

RESULTS ACHIEVED AND GENERAL ASSESSMENT OF THE EFFECTIVENESS:

The **DIGITAL ACE** project is currently in its implementation phase and has already achieved significant results. The organizational network, consisting of a central Hub and 34 Spokes, has been established to support SMEs across the entire country. Currently, the partners are participating in meetings to define the activities to be implemented. At this stage, positive feedback is emerging, along with a growing interest from partners in providing businesses with new tools and resources to address the challenges of digital transition. It is essential to continue gathering input from both partners and businesses to ensure increasingly impactful outcomes in the future.

SUCCESS FACTORS:

The involvement of the Spokes in **DIGITAL ACE** represents a key element of the project, as, for the first time, they will work together in a single network to provide digitalization services to businesses. This synergy will enable the combination of diverse skills and resources, creating an integrated offering. The innovative organizational structure, consisting of a central Hub and 34 Spokes distributed across the national territory, represents a unique model in Italy, that facilitates a coordinated and comprehensive approach, enabling broad reach and support for numerous SMEs in their digital transition processes.

A particular focus on entrepreneurial entities in the South and on the islands will ensure that their specific needs are understood and addressed, providing an unprecedented opportunity to foster their growth and digital development. Awareness-raising activities and seminars dedicated to SMEs will be essential to inform and engage businesses on digitalization opportunities, encouraging a growing interest and active participation. Continuous gathering of feedback from partners and businesses will enable the services offered to be adapted and optimized, ensuring they effectively meet the real needs of SMEs. This proactive approach will enhance the innovation and effectiveness of the project.

Promoting sustainable business models will be a critical factor for the project's success. These success factors, combined with the uniqueness of the project, position DIGITAL ACE as a pioneering initiative to support Italian businesses in their digital transformation journey.

CHALLENGES/OBSTACLES:

SMEs, particularly in Southern Italy, often face significant resource constraints that limit their capacity for digital transformation. These challenges may include:

1. **Financial Limitations**: Many SMEs operate within tight budgets, making it difficult to invest in the necessary initial outlay for advanced technologies or the implementation of new business practices.
2. **Skills Shortages**: SMEs frequently lack personnel with the requisite digital skills to implement and manage new technologies. This knowledge gap can stem from insufficient training, hindering the companies' ability to fully leverage the opportunities offered by digitalization.
3. **Limited Access to Technologies**: Small and medium-sized enterprises may struggle to access innovative technologies and digital tools, due to high costs or a lack of awareness about available solutions in the market.
4. **Lack of Support Networks**: SMEs often operate without an adequate support network to facilitate the exchange of information, resources, and best practices in the digital realm. This absence of connections can further restrict opportunities for growth and innovation.

The DIGITAL ACE project aims to bridge these gaps by providing a range of new opportunities and resources for both "spoke" structures and enterprises:

1. **Access to Funding and Incentives**: Raising awareness among local authorities to activate funding calls specifically designed for digitalization support, thereby making it more feasible for businesses to invest in new technologies.
2. **Assessment Services**: SMEs will have access to tailored assessment services aimed at identifying their specific digital needs, utilizing bespoke tools to analyze their current digitalization status. This approach will provide a clear evaluation of areas for improvement and growth opportunities.
3. **Seminars and Improvement Initiatives**: The project includes networking activities, workshops, and targeted initiatives for SMEs, designed to deliver content and methodologies that support businesses in innovation processes and managerial strategies.
4. **Specialized Support**: Through the Spoke network and the central Hub, SMEs will gain access to digital innovation experts who will provide specialized support and personalized consulting to address the challenges of digital transformation.
5. **Innovative Tools**: The project will offer access to new digital tools and resources, enabling businesses to implement advanced solutions and remain competitive in the marketplace.

By addressing these challenges and providing targeted resources, the DIGITAL ACE project aspires to empower SMEs in their journey toward digitalization, fostering growth and innovation in the region.

6. Appendix Section II: Selected Articles analysis

PAPER 1

1. Article Information

Author(s): Ella Arensman et al.

Title: Implementation and evaluation of a multi-level mental health promotion intervention for the workplace (MENTUPP): study protocol for a cluster randomised controlled trial

Journal: Trials

Year: 2023

DOI/Link: https://doi.org/10.1186/s13063-023-07537-0

01. Arensman, E., Leduc, M., O'Brien, C., Corcoran, P., Griffin, E., Leduc, C., Coppens, E., Tsantila, F., Ross, V., Abdulla, K., Hauck, P., Amann, B. L., Aust, B., Pashoja, A. C., Cresswell-Smith, J., D'Alessandro, L., Fanaj, N., Greiner, B. A., Luyten, J., Mathieu, S., Maxwell, M., Qirjako, G., Reich, H., Sanches, S., Tóth, M. D., Kilroy, J., Michell, K., Reavley, N., McDaid, D., & Van Audenhove, C. (2023). Implementation and evaluation of a multi-level mental health promotion intervention for the workplace (MENTUPP): Study protocol for a cluster randomised controlled trial. *Trials, 24*(1), 621. https://doi.org/10.1186/s13063-023-07537-0

2. Study Context

Industry/Organization Type: Construction, Healthcare, Information and Communication Technology (ICT)

Geographic Location: European countries (Albania, Ireland, Netherlands, Hungary, Kosovo, Germany, Finland, Spain) and Australia

Workforce Size: SMEs (Small and Medium Enterprises, <250 employees)

3. Intervention Details

Technology Implemented: Online platform (MENTUPP Hub) with tailored psychoeducational materials and practical tools.

Type of Digitalization: Multi-level intervention targeting organizational and individual levels to improve digital transformation readiness.

Intervention Goals: Foster digital well-being, enhance digital skills, and mitigate digital stress, particularly relevant to addressing disparities in digitalisation capacities among SMEs, public authorities, and academia.

4. Methodology

Study Design: Cluster randomised controlled trial (cRCT) with integrated process and economic evaluations.

Data Collection Methods: Surveys, focus groups, monitoring instruments, and MENTUPP Hub analytics.

Sample Size: 54 SMEs across diverse sectors with a minimum of 621 participants to assess the impact of digital transformation and well-being interventions.

5. Outcomes and Results

Main Findings: The study aims to identify effective digital transformation strategies that improve mental health outcomes and organizational performance.

Well-being Indicators: Enhanced job satisfaction, reduced digital stress and burnout, improved work-life balance, and increased employee engagement.

Short/Long-term Effects: Will evaluate the sustained impact of digital well-being strategies in reducing disparities across regions and sectors.

6. Best Practices Identified

Successful Strategies: Integration of digital audits and tailored intervention models to foster a culture of digital well-being.

Lessons Learned: Emphasizing age-sensitive approaches and addressing organizational resistance to digital transformation.

7. Limitations

Study Limitations: High variability in digital maturity levels across sectors and regions may influence outcomes.

8. Relevance to Our Review

Practical Applications: Offers insights for designing policies that support sustainable digital transformation and digital well-being in SMEs, aligning with the objectives of the Digi-B-Well project.

Connections to Other Studies: Highlights critical intervention points for improving digital literacy and reducing regional disparities.

9. Keywords

Digital transformation, SMEs, Mental health, Workplace interventions, Digital well-being, Burnout prevention, Regional disparities, Sustainable careers

10. Key Observations for Digital Transformation Strategies

The MENTUPP protocol is directly relevant to Digi-B-Well's goals, focusing on enhancing digital well-being and addressing disparities in digitalisation capacities. This study emphasizes strategies to manage digital stress and prevent burnout, particularly for employees aged 55 and above, which aligns with Digi-B-Well's target groups. The integration of a digital audit tool (MENTUPP Hub) provides a framework that could be adapted for Digi-B-Well to assess and enhance digital maturity in SMEs, public authorities, and academia. Furthermore, the multi-level approach of the MENTUPP project, combining organizational policies with individual-level interventions, serves as a best practice model for Digi-B-Well in promoting sector-specific digital well-being strategies.

This study's insights on the economic evaluation of digital well-being interventions could guide the cost-effectiveness analysis for Digi-B-Well's pilot projects. The focus on multi-country implementation aligns with Digi-B-Well's aim to address regional disparities, providing scalable solutions adaptable across various cultural and economic contexts.

PAPER 2

1. Article Information

Author(s): Ella Arensman et al.

Title: Mental Health Promotion and Intervention in Occupational Settings: Protocol for a Pilot Study of the MENTUPP Intervention

Journal: International Journal of Environmental Research and Public Health

Year: 2022

DOI/Link: https://doi.org/10.3390/ijerph19020947

02. Arensman, E., O'Connor, C., Leduc, C., Griffin, E., Cully, G., Ní Dhálaigh, D., Holland, C., Van Audenhove, C., Coppens, E., Tsantila, F., Ross, V., Aust, B., Pashoja, A. C., Cresswell-Smith, J., Cox, L., de Winter, L., Fanaj, N., Greiner, B. A., Hegerl, U., Mathieu, S., Moreno-Alcázar, A., Orchard, W., Paterson, C., Purebl, G., Qirjako, G., Reich, H., & Corcoran, P. (2022). Mental health promotion and intervention in occupational settings: Protocol for a pilot study of the MENTUPP intervention. *International Journal of Environmental Research and Public Health, 19*(2), 947. https://doi.org/10.3390/ijerph19020947

2. Study Context

Industry/Organization Type: Construction, Healthcare, Information and Communication Technology (ICT)

Geographic Location: Nine countries across Europe and Australia

Workforce Size: Small and Medium Enterprises (SMEs, 10-250 employees)

3. Intervention Details

Technology Implemented: MENTUPP Hub - an online platform offering psychoeducational tools, interactive modules, and practical exercises.

Type of Digitalization: Multilevel intervention focusing on individual, group, supervisor, and organizational levels.

Intervention Goals: Improve mental well-being, reduce depression, anxiety, and suicide risk, and tackle mental health stigma.

4. Methodology

Study Design: Non-randomized, uncontrolled pre- and post-intervention evaluation.

Data Collection Methods: Surveys, monitoring instruments, log data from the MENTUPP Hub, and focus groups.

Sample Size: SMEs from construction, healthcare, and ICT sectors; a minimum of 23 participants per SME.

5. Outcomes and Results

Main Findings: Protocol-focused; results will evaluate feasibility, acceptability, and engagement.

Well-being Indicators: Depression, anxiety, burnout, job satisfaction, stigma reduction, and productivity.

Short/Long-term Effects: Targeting both immediate well-being improvements and sustainable workplace mental health strategies.

6. Best Practices Identified

Successful Strategies: Sector-specific tailored interventions, leadership engagement, and digital accessibility for diverse SME contexts.

Lessons Learned: Pending pilot results; iterative feedback anticipated to refine implementation strategies.

7. Limitations

Study Limitations: Potential barriers include variability in digital literacy, SME engagement, and COVID-19 impacts on in-person components.

8. Relevance to Our Review

Practical Applications: Direct relevance to Digi-B-Well's goals of enhancing SME digitalization and preventing digital stress through comprehensive mental health strategies.

Connections to Other Studies: Builds on systematic reviews and stakeholder consultations to optimize SME-specific interventions.

9. Keywords

Mental health promotion, SMEs, Workplace interventions, Digital transformation, Stress management, Burnout, Stigma reduction

10. Key Observations for Digital Transformation Strategies

The MENTUPP intervention aligns with Digi-B-Well by addressing digital stress and enhancing mental well-being in SMEs. It offers a scalable digital platform tailored for high-risk sectors, providing a valuable model for Digi-B-Well’s framework to mitigate disparities in digital transformation capacities. By focusing on multilevel implementation, the study underscores the critical role of leadership and organizational culture in fostering digital well-being, emphasizing age-sensitive approaches relevant to older employees. Additionally, its emphasis on reducing stigma complements Digi-B-Well’s objectives to enhance psychological safety and engagement during digital transitions.

PAPER 3

1. Article Information

Author(s): Holly Blake et al.

Title: Managing Minds at Work: Development of a Digital Line Manager Training Program

Journal: International Journal of Environmental Research and Public Health

Year: 2022

DOI/Link: https://doi.org/10.3390/ijerph19138006

03. Blake, H., Vaughan, B., Bartle, C., Yarker, J., Munir, F., Marwaha, S., Daly, G., Russell, S., Meyer, C., Hassard, J., & Thomson, L. (2022). Managing minds at work: Development of a digital line manager training program. *International Journal of Environmental Research and Public Health, 19*(13), 8006. https://doi.org/10.3390/ijerph19138006

2. Study Context

Industry/Organization Type: Applicable across public, private, and third-sector organizations.

Geographic Location: United Kingdom, Midlands region.

Workforce Size: SMEs and large organizations.

3. Intervention Details

Technology Implemented: Managing Minds at Work digital training program.

Type of Digitalization: Online training with interactive elements, focusing on mental health promotion.

Intervention Goals: Equip line managers with skills and knowledge to prevent mental ill-health and promote well-being.

4. Methodology

Study Design: Participatory design with usability and pilot testing using the Technology Acceptance Model (TAM).

Data Collection Methods: Surveys, pilot testing feedback, and stakeholder engagement.

Sample Size: 18 managers across three diverse organizations.

5. Outcomes and Results

Main Findings: High usability and perceived usefulness of the training. Improved managerial behaviors in promoting mental health.

Well-being Indicators: Enhanced knowledge, improved workplace communication, and development of psychological safety.

Short/Long-term Effects: Improved manager attitudes and intentions to support employee mental health.

6. Best Practices Identified

Successful Strategies: Co-designed training modules, iterative stakeholder feedback, and real-world usability testing.

Lessons Learned: Flexibility in training design to accommodate diverse organizational needs and pandemic-related constraints.

7. Limitations

Study Limitations: Limited to pilot testing in specific contexts; broader feasibility testing is planned.

8. Relevance to Our Review

Practical Applications: Provides a scalable model for Digi-B-Well's objectives in digital training and mental health promotion.

Connections to Other Studies: Reinforces evidence on the efficacy of digital training for workplace mental health interventions.

9. Keywords

Digital training, Line managers, Workplace mental health, Stress prevention, Psychological safety, Agile development

10. Key Observations for Digital Transformation Strategies

The Managing Minds at Work program aligns closely with Digi-B-Well's aims by offering an effective, scalable digital solution for workplace mental health. Its co-design methodology ensures relevance across sectors, which can be instrumental in addressing regional disparities in digital training adoption. The emphasis on primary prevention, leadership development, and the creation of psychologically safe environments is vital for enhancing organizational resilience and employee well-being, particularly among SMEs.

PAPER 4

1. Article Information

Author(s): Jacinta Brinsley, Ben Singh, Carol A. Maher

Title: A Digital Lifestyle Program for Psychological Distress, Wellbeing and Return-to-Work: A Proof-of-Concept Study

Journal: Archives of Physical Medicine and Rehabilitation

Year: 2023

DOI/Link: https://doi.org/10.1016/j.apmr.2023.04.023

04. Brinsley, J., Singh, B., & Maher, C. A. (2023). A digital lifestyle program for psychological distress, wellbeing and return-to-work: A proof-of-concept study. *Archives of Physical Medicine and Rehabilitation, 104*(11), 1903–1912. https://doi.org/10.1016/j.apmr.2023.04.023

2. Study Context

Industry/Organization Type: Workers' compensation rehabilitation setting.

Geographic Location: Australia.

Workforce Size: Adult participants (n=78) from various industries with active workers' compensation claims.

3. Intervention Details

Technology Implemented: LeapForward program utilizing an AI chatbot named "Lucy".

Type of Digitalization: AI-driven health coaching for lifestyle and psychoeducation interventions.

Intervention Goals: Reduce psychological distress, improve well-being, and enhance return-to-work confidence.

4. Methodology

Study Design: Retrospective cohort study with pre-post measures.

Data Collection Methods: Surveys (K10, WHO-5), return-to-work metrics, and user engagement data.

Sample Size: 78 participants, of which 72% completed the program.

5. Outcomes and Results

Main Findings: Significant improvements in psychological distress, depression, anxiety, and well-being. Return-to-work confidence increased, with a rise in work participation.

Well-being Indicators: Measured through WHO-5 and K10 scales; notable effect sizes (r=0.47 to 0.62).

Short/Long-term Effects: Evidence for immediate improvements; long-term impacts pending further research.

6. Best Practices Identified

Successful Strategies: Integration of AI and human health coaching, daily interactive content, and behavior change techniques.

Lessons Learned: Importance of combining digital tools with human support for engagement and effectiveness.

7. Limitations

Study Limitations: Lack of control group, reliance on retrospective data, and small sample for satisfaction feedback.

8. Relevance to Our Review

Practical Applications: Directly supports Digi-B-Well's goals of promoting digital well-being and resilience in workplaces.

Connections to Other Studies: Aligns with evidence on the effectiveness of digital health interventions for work reintegration.

9. Keywords

AI health coaching, Psychological distress, Well-being, Return-to-work, Digital health intervention, Workers' compensation.

10. Key Observations for Digital Transformation Strategies

The LeapForward program exemplifies the potential of AI-driven health coaching in workplace health promotion, aligning with Digi-B-Well's objectives. It addresses critical areas such as psychological distress and work reintegration, providing a scalable model for digital well-being interventions. The use of behavior change techniques (e.g., goal-setting, feedback) and high engagement rates highlight its applicability in diverse settings, including public authorities and SMEs facing digital transformation challenges.

PAPER 5

1. Article Information

Author(s): Benjamin Duke

Title: 24/7 Digital Work-Based Spy: The Effects of Technological Panopticism on Workers in the Digital Age

Journal: Journal of Labor and Society

Year: 2022

DOI/Link: https://doi.org/10.1163/24714607-bja10068

05. Duke, B. (2022). 24/7 digital work-based spy: The effects of technological panopticism on workers in the digital age. *Journal of Labor and Society, 25*(4), 520–558. https://doi.org/10.1163/24714607-bja10068

2. Study Context

Industry/Organization Type: Broad analysis encompassing various sectors leveraging digital work platforms.

Geographic Location: International focus, including European Union and global digital economies.

Workforce Size: Digital platform workers of various scales, including gig economy participants and SMEs.

3. Intervention Details

Technology Implemented: Digital surveillance and algorithmic management systems.

Type of Digitalization: Deployment of technological panopticism across digital labor platforms.

Intervention Goals: Examine impacts on worker autonomy, productivity, and well-being.

4. Methodology

Study Design: Conceptual theoretical review of literature and policy analysis.

Data Collection Methods: Analysis of grey literature, policy documents, and theoretical frameworks.

5. Outcomes and Results

Main Findings: Highlights the pervasive impact of surveillance technologies on worker autonomy and privacy.

Well-being Indicators: Identifies increased psychological stress, burnout, and erosion of collective bargaining power.

Short/Long-term Effects: Long-term erosion of labor rights and increased worker exploitation risk.

6. Best Practices Identified

Successful Strategies: Suggests policy interventions for balanced technological implementation.

Lessons Learned: Emphasizes the need for regulatory frameworks to protect worker rights in the digital age.

7. Limitations

Study Limitations: Theoretical analysis with limited empirical validation.

8. Relevance to Our Review

Practical Applications: Relevant for Digi-B-Well in framing policy for digital well-being and ethical technological adoption.

Connections to Other Studies: Reinforces the importance of algorithmic accountability in digital work environments.

9. Keywords

Technological panopticism, Algorithmic management, Digital surveillance, Worker autonomy, Gig economy.

10. Key Observations for Digital Transformation Strategies

This article offers valuable insights into the challenges posed by digital surveillance in the workplace, aligning with Digi-B-Well's aim to mitigate digital stress and protect worker well-being. The discussion on technological panopticism and its psychological impacts provides a foundation for developing regulatory and ethical frameworks, essential for balancing productivity with worker rights.

PAPER 6

1. Article Information

Author(s): Yun Arifatul Fatimah, Kannan Govindan, Rochiyati Murniningsih, Agus Setiawan

Title: Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia

Journal: Journal of Cleaner Production

Year: 2020

DOI/Link: https://doi.org/10.1016/j.jclepro.2020.122263

06. Fatimah, Y. A., Govindan, K., Murniningsih, R., & Setiawan, A. (2020). Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia. *Journal of Cleaner Production, 269*, 122263. https://doi.org/10.1016/j.jclepro.2020.122263

2. Study Context

Industry/Organization Type: Waste management systems across urban areas in Indonesia.

Geographic Location: Indonesia (Jakarta, Semarang, Yogyakarta, Magelang).

Workforce Size: Involves municipal employees, informal workers (scavengers), and various stakeholders in waste management.

3. Intervention Details

Technology Implemented: Internet of Things (IoT), ICT frameworks for smart waste management.

Type of Digitalization: Implementation of a comprehensive waste management system leveraging IoT for real-time monitoring and management.

Intervention Goals: Achieve a sustainable circular economy, optimize waste management processes, and contribute to multiple Sustainable Development Goals (SDGs).

4. Methodology

Study Design: Case study across four urban cities, direct observations, and stakeholder interviews.

Data Collection Methods: Literature review, focus group discussions, semi-structured interviews, and field observations.

Sample Size: Stakeholders from government agencies, waste collection centers, informal sector workers, and community leaders

5. Outcomes and Results

Main Findings: Identified maturity levels of existing waste management systems and proposed a new smart, sustainable framework.

Well-being Indicators: Improved public health, increased resource efficiency, reduced landfill dependence, and lower GHG emissions.

Short/Long-term Effects: Immediate optimization of waste processes; long-term contributions to sustainability and economic growth.

6. Best Practices Identified

Successful Strategies: Integration of IoT and ICT for real-time data collection and decision-making. Emphasis on stakeholder collaboration and community involvement.

Lessons Learned: The critical role of technological adaptability and policy support in enhancing waste management efficiency.

7. Limitations

Study Limitations: Limited to urban contexts within Indonesia; broader applicability needs validation. Relies on self-reported data from stakeholders.

8. Relevance to Our Review

Practical Applications: Provides a robust framework for Digi-B-Well in promoting sustainable, technology-driven solutions for organizational and environmental challenges.

Connections to Other Studies: Reinforces the importance of aligning technological advancements with sustainability goals in diverse contexts.

9. Keywords

Sustainable circular economy, Smart waste management, Industry 4.0, IoT, ICT, SDGs, Indonesia.

10. Key Observations for Digital Transformation Strategies

This article provides a comprehensive framework for integrating Industry 4.0 technologies in waste management, which aligns with Digi-B-Well's emphasis on sustainable practices and technological integration. The study's focus on real-time data management and stakeholder collaboration serves as a model for addressing systemic challenges in digital transformation and environmental sustainability. Furthermore, the alignment with multiple SDGs underscores the potential for broader societal impacts through technological interventions.

PAPER 7

Article Information

Author(s): Alice Fattori et al.

Title: Exploring workability in an older working population: associations with cognitive functioning, sleep quality, and technostress

Journal: Frontiers in Public Health

Year: 2024

DOI/Link: https://doi.org/10.3389/fpubh.2024.1303907

07_Fattori, A., Comotti, A., Barnini, T., Di Tecco, C., Laurino, M., Bufano, P., Ciocan, C., Serra, D., Ferrari, L., & Bonzini, M. (2024). Exploring workability in an older working population: Associations with cognitive functioning, sleep quality, and technostress. *Frontiers in Public Health, 12*, 1303907. https://doi.org/10.3389/fpubh.2024.1303907

Study Context

Industry/Organization Type: Banking/Finance, Chemical, and Metal-mechanic industries

Geographic Location: Italy

Workforce Size: 468 workers (WCWs: 289, BCWs: 179)

Intervention Details

Technology Implemented: Technostress measurement tools, cognitive function and sleep quality assessments

Type of Digitalization: Assessment of digitalization impacts on workability and stress reduction measures

Intervention Goals: Promote well-being of aged workers by improving workability, cognitive functioning, sleep quality, and reducing technostress.

Methodology

Study Design: Observational study

Data Collection Methods: Questionnaires (WAI, PSQI, ISI), cognitive tests (Stroop Color Task, Corsi Blocks), statistical regression analyses.

Sample Size: 468 participants

Outcomes and Results

Main Findings: Higher technostress correlates with lower workability; sleep quality and cognitive functioning significantly impact workability.

Well-being Indicators: Workability index (WAI), sleep quality, cognitive performance, and technostress levels.

Short/Long-term Effects: Highlights the importance of sustaining workability and mental well-being for aging employees in both white- and blue-collar roles.

Best Practices Identified

Successful Strategies: Implementation of tailored technostress interventions, focus on improving sleep quality, and promoting workplace well-being.

Lessons Learned: Age-sensitive approaches are critical, especially in blue-collar environments for mitigating cognitive and sleep-related declines.

Limitations

Study Limitations: Homogeneous age range, reliance on self-reported data for sleep, and limited focus on causality in cognitive assessments.

Relevance to Our Review

Practical Applications: The findings provide actionable insights for Digi-B-Well's initiatives, particularly in designing strategies to prevent burnout and enhance digital well-being.

Connections to Other Studies: Builds on frameworks supporting interventions in mental health, cognitive enhancement, and reduction of digital stress in SMEs.

Keywords

Work ability index, Cognitive functioning, Sleep quality, Technostress, Occupational health, Digital transformation

Notes

The study emphasizes cognitive resilience and sleep as foundational for sustaining productivity and mental health among older workers. These findings align with Digi-B-Well's broader objectives to reduce digital stress and enhance digital competence within an aging workforce.

PAPER 8

1. Article Information

Author(s): Athar Hameed, Muddasar Ghani Khwaja

Title: The Role of Benevolent Human Resource Attributions in Reducing Occupational Stress: Empirical Findings from the Emerging Market

Journal: International Journal of Work Organisation and Emotion

Year: 2024

DOI/Link: https://doi.org/10.1504/IJWOE.2023.132862

08. Hameed, A., & Khwaja, M. G. (2023). The role of benevolent human resource attributions in reducing occupational stress: Empirical findings from the emerging market. *International Journal of Work Organisation and Emotion, 14*(3), 209–224. https://doi.org/10.1504/IJWOE.2023.132862

2. Study Context

Industry/Organization Type: Telecommunications sector.

Geographic Location: Pakistan.

Workforce Size: 294 salesforce employees.

3. Intervention Details

Technology Implemented: Structured questionnaires and structural equation modeling (SEM) techniques.

Type of Digitalization: Digital data collection and analysis to measure stress and well-being.

Intervention Goals: Reduce occupational stress through benevolent HRM attributions and improve mental well-being and engagement.

4. Methodology

Study Design: Cross-sectional study based on a quantitative approach.

Data Collection Methods: Likert-scale questionnaires and data analysis using SPSS and SmartPLS.

Sample Size: 294 participants.

5. Outcomes and Results

Main Findings: Benevolent HRM attributions, such as WHRM and PHRM, significantly reduce stress and improve mental well-being and workplace gratitude.

Well-being Indicators: Mental Well-being (MWB), Employee Stress Management (ESM), and Gratitude (GE).

Short/Long-term Effects: Immediate improvements in well-being; long-term impacts require further longitudinal studies.

6. Best Practices Identified

Successful Strategies: Implementation of HRM practices focused on well-being and performance with an emphasis on gratitude.

Lessons Learned: Importance of gratitude and benevolent HRM attributions in reducing stress and improving workplace well-being.

7. Limitations

Study Limitations: Limited to a specific sector and region; convenience-based sampling.

8. Relevance to Our Review

Practical Applications: Offers a model applicable to Digi-B-Well for promoting HRM practices that reduce stress and enhance digital well-being.

Connections to Other Studies: Supports existing evidence on the importance of HRM attributions for organizational well-being.

9. Keywords

Benevolent HRM, Mental well-being, Stress management, Gratitude, Mutual gains model.

10. Key Observations for Digital Transformation Strategies

This article significantly contributes to workplace well-being literature, providing a framework for integrating benevolent HRM attributions into organizations. The empirical results can be leveraged by Digi-B-Well to design tailored digital well-being strategies, particularly in high-stress sectors. The proposed practices promote sustainable improvements in well-being, crucial for maintaining a balanced and productive work environment.

PAPER 9

1. Article Information

Author(s): Stevie-Jae Hepburn, Annemaree Carroll, Louise McCuaig-Holcroft

Title: A Complementary Intervention to Promote Wellbeing and Stress Management for Early Career Teachers

Journal: International Journal of Environmental Research and Public Health

Year: 2021

DOI/Link: https://doi.org/10.3390/ijerph18126320

09_Hepburn, S.-J., Carroll, A., & McCuaig-Holcroft, L. (2021). A complementary intervention to promote wellbeing and stress management for early career teachers. *International Journal of Environmental Research and Public Health, 18*(12), 6320. https://doi.org/10.3390/ijerph18126320

2. Study Context

Industry/Organization Type: Educational institutions, focusing on early career teachers.

Geographic Location: Australia.

Workforce Size: 24 early career teachers from various schools in Queensland.

3. Intervention Details

Technology Implemented: Multimodal intervention including yoga, guided meditation, and relaxation techniques.

Type of Digitalization: Use of digital tools for tracking well-being metrics and guided meditation practices.

Intervention Goals: Reduce stress, improve attention awareness, subjective well-being, and physiological health indicators such as cortisol levels.

4. Methodology

Study Design: Mixed-methods design including quantitative self-report measures and biological metrics.

Data Collection Methods: Surveys (MAAS, PSS, PWI), biological cortisol sampling, and guided reflection.

Sample Size: 24 participants completed the intervention.

5. Outcomes and Results

Main Findings: Significant reductions in perceived stress and cortisol levels, and improvements in mindfulness and subjective well-being.

Well-being Indicators: Metrics include reduced burnout, enhanced job-related affective well-being, and decreased emotional exhaustion.

Short/Long-term Effects: Immediate improvements observed; sustained effects noted in follow-up assessments.

6. Best Practices Identified

Successful Strategies: Combining cognitive and somatic techniques such as mindfulness and yoga to address both mental and physiological aspects of stress.

Lessons Learned: Importance of accessible and contextually relevant interventions tailored to early career educators.

7. Limitations

Study Limitations: Small sample size and specific geographic focus; qualitative reflections were not included in the current analysis.

8. Relevance to Our Review

Practical Applications: Offers a scalable model for Digi-B-Well's objectives in integrating physical and digital well-being interventions.

Connections to Other Studies: Aligns with research on the efficacy of mindfulness-based and multimodal interventions in occupational settings.

9. Keywords

Mindfulness, Yoga, Teacher well-being, Stress management, Early career teachers, Multimodal intervention.

10. Key Observations for Digital Transformation Strategies

This article provides valuable insights into designing interventions that integrate digital and physical practices to improve occupational well-being. Its focus on early career teachers highlights the need for targeted support in stress management, a critical aspect for Digi-B-Well when addressing well-being across diverse professional groups. The results demonstrate that multimodal interventions, which combine somatic and cognitive techniques, can be highly effective in reducing stress and improving mindfulness, making it a relevant case study for broader applications.

PAPER 10

1. Article Information

Author(s): Eleni Kallopi Margariti, Ridita Ali, Remco Benthem de Grave, David Verweij, Jan Smeddinck, David Kirk

Title: Understanding the Experiences of Remote Workers: Opportunities for Ambient Workspaces at Home

Journal: Frontiers in Computer Science

Year: 2021

DOI/Link: https://doi.org/10.3389/fcomp.2021.673585

10_Margariti, E. K., Ali, R., Benthem de Grave, R., Verweij, D., Smeddinck, J., & Kirk, D. (2021). Understanding the experiences of remote workers: Opportunities for ambient workspaces at home. *Frontiers in Computer Science*, *3*, 673585. https://doi.org/10.3389/fcomp.2021.673585

2. Study Context

Industry/Organization Type: Remote working environments, focusing on home offices.

Geographic Location: United Kingdom.

Workforce Size: 13 participants from research, software, design, and psychology sectors.

3. Intervention Details

Technology Implemented: Passive sensing devices, wearable bands (Mi Band 2), and a custom web application for mood and environment self-reporting.

Type of Digitalization: Integration of ambient feedback systems to improve the physical and affective well-being of remote workers.

Intervention Goals: Explore physical and affective dimensions of remote work to inform ambient technology designs for home offices.

4. Methodology

Study Design: Exploratory study using a mixed-methods approach (quantitative and qualitative analysis).

Data Collection Methods: Sensor data, daily mood/environment self-reports, and semi-structured interviews.

Sample Size: 13 participants over a 4-week period.

5. Outcomes and Results

Main Findings: Identified correlations between mood and environmental factors (e.g., air quality, noise). Proposed three ambient technology concepts for home offices.

Well-being Indicators: Positive mood linked to better air quality and lower noise levels. Highlighted ergonomic and affective challenges in domestic workspaces.

Short/Long-term Effects: Immediate improvements in awareness and workspace adjustments; potential long-term impacts through ambient technology adoption.

6. Best Practices Identified

Successful Strategies: Leveraging ambient feedback (light, air quality indicators) and ergonomic adjustments to enhance productivity and well-being.

Lessons Learned: Importance of adaptive designs and feedback mechanisms to support diverse needs of remote workers.

7. Limitations

Study Limitations: Small sample size; reliance on self-reported environmental data; limited generalizability to different home setups.

8. Relevance to Our Review

Practical Applications: Direct relevance to Digi-B-Well's aim of enhancing well-being in digital and hybrid workplaces through ambient technology.

Connections to Other Studies: Supports the development of personalized, data-driven interventions to optimize home workspaces.

9. Keywords

Remote work, Ambient technology, Well-being, Adaptive workspaces, Wearable feedback, Home office.

10. Key Observations for Digital Transformation Strategies

This article provides a foundational framework for understanding and addressing the challenges of remote work. Its exploration of ambient feedback systems aligns with Digi-B-Well's focus on enhancing digital well-being through technological interventions. The proposed design concepts offer practical insights into creating adaptive and supportive work environments at home, which could mitigate digital stress and improve overall productivity and well-being.

PAPER 11

1. Article Information

Author(s): Prem Borle, Franziska Boerner-Zobel, Harald Bias, Susanne Voelter-Mahlknecht

Title: Start Moving: Benefits of an Onsite Workplace Health Program in the Age of Digitalization

Journal: Journal of Occupational Medicine and Toxicology

Year: 2021

DOI/Link: https://doi.org/10.1186/s12995-021-00338-8

11. Prem, B., Boerner-Zobel, F., Bias, H., & Voelter-Mahlknecht, S. (2021). Start moving – benefits of an onsite workplace health program in the age of digitalization. *Journal of Occupational Medicine and Toxicology, 16*(1), 46. https://doi.org/10.1186/s12995-021-00338-8

2. Study Context

Industry/Organization Type: Office environments within public administration sectors.

Geographic Location: Germany.

Workforce Size: Office workers aged between 18 and 67 years from medium-sized organizations.

3. Intervention Details

Technology Implemented: Live workshop sessions, accelerometer devices for activity tracking, and email-based reminders.

Type of Digitalization: Digital tools for tracking physical activity, coupled with traditional workshop methods.

Intervention Goals: Increase physical activity and reduce sedentary behavior, improving workplace well-being and reducing musculoskeletal disorders (MSD).

4. Methodology

Study Design: Randomized controlled trial with two intervention groups.

Data Collection Methods: Online surveys, physical activity diaries, accelerometers, and structured interviews.

Sample Size: 168 participants.

5. Outcomes and Results

Main Findings: Participants reported increased physical activity and improved well-being. The group receiving email reminders showed sustained behavior change.

Well-being Indicators: Reduced musculoskeletal discomfort, enhanced self-efficacy, and overall improved physical and mental health metrics.

Short/Long-term Effects: Immediate improvements in physical activity; long-term benefits anticipated in reducing MSD and improving health behaviors.

6. Best Practices Identified

Successful Strategies: Combining digital reminders with in-person workshops to reinforce learning and foster long-term engagement.

Lessons Learned: Importance of continuous feedback and adaptive interventions to sustain behavior change.

7. Limitations

Study Limitations: Small sample size relative to population, limited generalizability beyond Germany, and potential biases in self-reported data.

8. Relevance to Our Review

Practical Applications: Aligns with Digi-B-Well's focus on hybrid interventions, combining digital tools with in-person strategies for improved workplace health.

Connections to Other Studies: Builds on existing literature emphasizing the importance of multi-component workplace health interventions.

9. Keywords

Physical activity, Workplace health promotion, Digitalization, Self-efficacy, Musculoskeletal disorders, Behavioral change.

10. Key Observations for Digital Transformation Strategies

This study provides a framework for hybrid workplace health promotion programs, integrating both digital and physical components. The findings highlight the efficacy of combining digital reminders with live workshops, offering a scalable model for Digi-B-Well. By leveraging real-time feedback and adaptive strategies, such interventions can be pivotal in enhancing employee well-being and addressing sedentary behavior in digitalized work environments.