

Working conditions and organizational practices to support well-being of multiage workforce in Germany, USA, Japan, and South Korea

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Abstract

Purpose – The study details the development of the Later Life Workplace Index (LLWI) in Germany and its adaptation for use in the USA, Japan, and South Korea. The objective is to determine how the LLWI can be utilized to improve workplace environments and enhance the productive engagement of ageing employees across diverse organizational settings.

Design/methodology/approach – This paper presents findings from several publications of a multimethod research project aimed at developing the LLWI. Surveys were designed to encompass all relevant dimensions and indicators of workplace practices affecting older workers. The responses were statistically analyzed to generate index values, providing a metric for comprehensive evaluation and benchmarking. The Japanese and Korean versions were developed based on the original German and USA versions.

Findings – The results indicated that organizations using the LLWI effectively identified critical areas for improvement and strengths in managing older employees. The index helped organizations pinpoint discrepancies between existing policies and the actual workplace experiences of older employees, thus offering a basis for strategic enhancements. The cross-cultural adaptability underscores its potential as a globally recognized tool.

Originality/value – This study makes a unique contribution to the field of organizational management by demonstrating the practical application and benefits of the LLWI as a comprehensive diagnostic tool for managing ageing workforce across three continents.

Keywords Ageing workforce, Employment practices, Germany, Japan, Knowledge transfer, Later Life Workplace Index, Leadership, South Korea, Transition to retirement, United States

Paper type Research paper



Introduction

The global population aged 65 and above increased from 6 percent in 1990 to 10.3 percent in 2024. By 2074, it is projected to double to 20.7 percent (United Nations Population Fund, 2024). In the coming years, this demographic shift will significantly impact the workforce in



Asia, Europe, and the USA, driven by ageing baby boomers, higher retirement ages, and an increasing number of working pensioners. Enhanced health and longer life expectancies motivate older individuals to seek fulfilling work (OECD, 2011). This ageing trend necessitates reforms in pension systems and poses challenges in skilled labour shortages, affecting recruitment, succession planning, and knowledge retention.

Organizations and policymakers must focus on maintaining job performance, motivation, and health of ageing workforce to sustain at least the current level of productivity. Effective organizational practices, such as flexible working conditions, occupational healthcare, and training, are crucial. Despite this, many organizations lack a well-founded self-assessment tool for their readiness to support an ageing workforce and derive appropriate courses of action (Henkens *et al.*, 2018; Truxillo *et al.*, 2015). Research on the impact of these individual organizational practices and working conditions on ageing employees' performance and well-being remains limited.

To address this gap, Wöhrmann *et al.* (2018) proposed the Later Life Workplace Index (LLWI; the German version was originally named Silver Work Index, as the index was internationalized, it was re-labelled LLWI), a tool for organizations to assess and improve working conditions for older workers and facilitate benchmarking in various industries, regions, and countries. On the political macro-level, the European Commission and its member states have prioritized promoting healthy and active ageing, leading to policy changes to support longer working lives and adapt working conditions for older workers. The potentials of "active ageing" at the national (macro) level are captured by the Active Ageing Index (AAI) (Zaidi *et al.*, 2013). The AAI measures critical aspects of ageing for policy-making, such as the percentage of older people living independently, their participation in social activities and paid employment, as well as their capacity to age actively. The LLWI, however, focuses on characteristics of paid employment on the organizational (meso) level (Deller *et al.*, 2020).

Demographic shifts towards older workforce age structures due to delayed retirement present challenges in retaining and utilizing the potential of older employees. Late career activity benefits individuals in health and psychological well-being, helps organizations mitigate skilled labour shortages, and alleviates pressures on social security systems (Deller *et al.*, 2009; Deller and Maxin, 2009). Against this backdrop, the LLWI has been developed as an index to evaluate age-friendly employment practices at the organizational level, aiming to identify and compare age-friendly practices for workers nearing or at retirement age (Deller and Pundt, 2014; Finsel *et al.*, 2023; Wilckens *et al.*, 2021). The LLWI aims to serve as a diagnostic tool to assess the effectiveness of current employment practices for older workers and guide organizations in leveraging employees' potential as they transition into retirement.

This manuscript explores the development and implementation of the LLWI across a variety of organizations aimed at assessing and optimizing practices for older employees. Initially, it outlines the creation of German and U.S. versions of the LLWI, followed by a detailed account of the instrument's practical application within organizational settings. Subsequently, the paper delves into the internationalization of the instrument, examining its adaptation and application across different cultural contexts, especially Japan and South Korea. The discussion concludes with exploring potential future research directions and the ongoing need for refining the LLWI to enhance its efficacy and applicability in global settings.

Development of a German Later Life Workplace Index

Developed in collaboration with scientific and practical experts (Wöhrmann *et al.*, 2018), the LLWI conceptual model encompasses a broad spectrum of relevant dimensions uncovered through a sequence of research actions.

First, a qualitative empirical study was conducted using semi-structured expert interviews to explore effective organizational management for employees nearing or beyond retirement age. Twenty-seven experts participated and discussed characteristics of good management practices for older employees. They suggested indicators and methods for measuring these

traits. They also considered additional management aspects identified from the literature, such as age perception, work design, retirement processes, financial considerations, guidance for older workers, health management, and options for post-retirement employment. These discussions aimed at refining operationalization strategies for future assessments. Each interview was audio-recorded and transcribed.

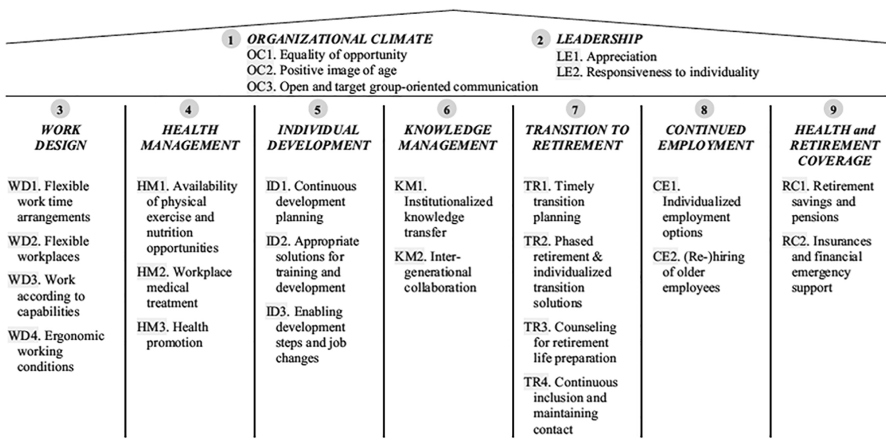
Second, the objective of the interview data analysis was to devise a category system that encapsulated effective organizational management practices for employees approaching or surpassing retirement age. This analysis followed an iterative process based on [Mayring \(2010\)](#), where data-driven dimensions and indicators were inductively extracted. Relevant text passages were paraphrased and categorized, with the category system undergoing multiple revisions. The analysis was facilitated by using the software MAXQDA (www.maxqda.de).

This content analysis led to an expert workshop involving six research and practice representatives, aimed at refining the practicability and adequacy of the category system developed from the analysis. To validate the revised system, interrater reliabilities were assessed using Krippendorff’s alpha ([Krippendorff, 2013](#)).

Third, the iterative analysis process of the initial German version, the Silver Work Index, identified eight critical dimensions of effective organizational management for employees nearing or beyond retirement. Today’s LLWI consists of nine domains – a ninth dimension supplemented by the original eight dimensions as a result of its validation in the USA context. Organizational Climate and Leadership dimensions form the overarching framework that influences all other dimensions. As shown in [Figure 1](#), the taxonomy of the final international conceptual model of LLWI consists of nine dimensions and their respective two to four facets covering a broad range of domains ([Wilckens et al., 2021](#)). [Finsel et al. \(2023\)](#) reported validating an English version of the LLWI. Different forms of validity (convergent, criterion, discriminant, and incremental validities) were supported regarding individual-level attitudinal, health related, and behavioral outcomes.

These are the eight initial domains of the index:

Organizational Climate: This dimension underscores the importance of cultivating a climate that values all age groups equally. Key indicators include equality of opportunity, fostering a positive image of age, and ensuring target group-oriented communication.



Source: First published by Wilckens *et al.* (2020). Published with permission of Max R. Wilckens, Anne M. Wöhrmann, Jürgen Deller (2019).

Figure 1. Domains and underlying facets of the Later Life Workplace Index

Leadership: Leadership involves leveraging the potential of older employees effectively. The dimension is defined by indicators such as perception and appreciation, responsiveness to individuality, and health orientation.

Work Design: This dimension focuses on adapting job roles and work environments to fit employees' individual capabilities and preferences, which enhances job satisfaction and minimizes work-related stress.

Health Management: Central to this dimension is the maintenance and promotion of employee health and work capability. The approach is holistic, combining health-promoting work design and proactive leadership to encourage employees to actively manage their health and wellness.

Individual Development: This dimension supports employees' continuous professional and personal development throughout their working lives. It emphasizes lifelong learning and development through continuous education and training opportunities.

Knowledge Management: Knowledge Management ensures the effective transfer and exchange of knowledge across generations within the organization. This dimension is characterized by targeted knowledge transfer and intergenerational knowledge exchange.

Transition to Retirement: Manages the planning and design of employees' transition into retirement. This dimension focuses on timely planning, offering personalized transition solutions, and preparing employees for retirement.

Continued Employment: This dimension offers a variety of employment opportunities for retirees, underpinned by strategic planning, open communication about employment options, and individualized work arrangements.

Collectively, these domains formed the Silver Work Index, which was applied in Germany. It created a robust framework for managing ageing employees and predicting organizational readiness to work effectively with an ageing workforce.

Internationalization of the LLWI: United States of America, Japan, South Korea

United States of America

The index so far reflected work conditions in German organizations. However, the situation of workers and organizations may differ across countries, cultures, or public policy orientations. Therefore, the LLWI needed additional refinement and should be evaluated in different work settings in order to contribute to the demographic shift happening everywhere.

As described by [Wilckens et al. \(2020\)](#), a first opportunity to explore the LLWI in a global context emerged from data on organizational practices for later life work gathered during the 2014 and 2015 Age Smart Employer Award, part of the Age Friendly New York City (NYC) initiative, recognises NYC businesses that actively engage and retain older workers, enhancing generational diversity in the workforce ([Finkelstein et al., 2013](#)).

By integrating findings from both German and USA studies on organizational practices for later life work, [Wilckens et al. \(2020\)](#) aimed to enrich the LLWI with an intercultural perspective, enhancing its definitions and indicators through an international collaboration. This collaborative effort led to the refinement of definitions concerning dimensions and indicators mentioned in the new LLWI. To validate the revised categories, inter-rater reliabilities were computed ([Krippendorff, 2013](#)).

The revised LLWI differs from the earlier version by [Wöhrmann et al. \(2018\)](#) primarily in two ways. First, a ninth dimension, Health and Retirement Coverage, was added, focusing on organizational support for retirement savings and health-related insurance, especially where public systems are insufficient.

Moreover, existing dimensions and indicators were refined. Notably, the "employment during retirement phase" was renamed "Continued Employment", with updated indicators to accommodate flexible retirement ages prevalent in the USA, such as individualized employment options and re-hiring of older employees.

Additionally, to integrate the perspective of the USA, new examples like apprenticeships for older employees were incorporated into the Individual Development dimension. The revisions ensure the index is relevant in both Germany's regulated and the USA's more market-driven work environments, recognizing the varying significance of practices between the two countries. The additional dimension is briefly described here:

For health and retirement coverage, organizations are encouraged to support their employees with retirement savings and additional insurance coverage beyond what public systems offer. This includes integrating pensions into compensation packages, offering optional personal savings accounts, and providing planning assistance. Employers should also offer health, disability, long-term care, and life insurance to address age-related risks. Financial aid should be available for family emergencies like nursing care or child illness.

Japan and South Korea

Following the initial publications on the validation of the LLWI (Finsel *et al.*, 2023; Wilckens *et al.*, 2021), its authors were approached by scholars interested in developing and validating local versions of the LLWI. Over 30 international research partners are currently collaborating to create additional language versions for use in various countries. Researchers are invited to join the LLWI International Research Group in this endeavor to validate further language versions and cultural appropriateness of the LLWI. Among the first collaborators in Asia were researchers in Japan and South Korea. The following sections report challenges in adapting the LLWI to their local contexts.

LLWI: context and adaptation in Japan. To adapt LLWI in the Japanese context, the first challenge appeared in the very beginning on how to translate the meaning of "older employees" precisely and concisely. As Japan has become a "super-aged" society, with over 29 percent of its population aged 65 years or above in 2022 (Statistics Bureau of Japan, 2022), Japanese people's understanding of "old age" could differ from other countries. Therefore, the Act on Stabilization of Employment of Elderly Persons is referred (MHLW, 2024) to support the definition of "older employees" as those who are aged 55 years or above. Certainly, it could be a bit flexible according to LLWI usage purposes.

Regarding the nine dimensions established in LLWI, various adaptation challenges arose. Reasons included but were not limited to the nuance of different languages, cultures, and social systems. In particular, discussions were held on three dimensions i.e., work design, transition to retirement, and health and retirement coverage. For work design, flexible work time and workplace were not provided in most Japanese companies before 2020. Due to COVID-19, practices like working from home became widely recognized by the Japanese society and employers started introducing more flexible working conditions. In addition, difficulties in understanding 'ergonomic' working conditions for Japanese employees could also exist. The term "ergonomic" may be common sense with European employees, but it is definitely not the case in Japan. Therefore, a broad explanation about "...workplaces are designed according to ergonomic recommendations" was added in the Japanese version as "...ergonomic recommendations (e.g. comfortable work environment to protect employees' health and safety)" according to the Japan Industrial Safety and Health Association (2003).

Discussions also focused on the adaptation of the term "transition to retirement". For instance, the phased retirement option like "work full time (with 50 percent pay), followed by a period of non-working (also with 50 percent pay) over 2-3 years each before retirement" in Germany was almost not applicable in the current Japanese situation. For cross-country comparison, we decided to retain this item in the Japanese version, providing a "not applicable/not relevant" option for those who cannot answer it. A similar situation existed for continuous inclusion after retirement. For instance, the "alumni network" is a network system started in the USA and has been introduced in very few Japanese companies. However, increased attention has been paid to this system in Japan. Thus, these items could have higher values in the near future.

Due to the different healthcare and pension systems, adaptations were also required for the dimension of health and retirement coverage. One example is that the item in the English version, “. . .thoroughly informs employees about the components of a retirement plan (e.g. federal or state retirement systems, retirement plans offered by the employer, private savings and investments, continued employment during retirement)” was revised to be “. . .a retirement plan (e.g. national pension, retirement allowance and employee pension offered by employer, continued employment after retirement)” in the Japanese version.

In conclusion, minor wording changes and additional explanations were made in the Japanese version when necessary. Regarding situations that may not be widely applied in the current Japanese context, the items were kept with the added “not applicable/not relevant” option for their future potential values. All these changes and adaptations did not affect the reliability and validity of the LLWI Japanese version, as our analyses showed.

In the Japanese context, dimensions in LLWI are applicable for so-called regular/permanent employees. However, nearly 40 percent of non-regular employees exist because of Japan’s special employment system (Statistics Bureau of Japan, 2023). Therefore, for the effective usage of LLWI to contribute to the Japanese older adults’ work in their later life, it should be considered how to apply LLWI to the large proportions of non-regular employees in the future.

LLWI: context and adaptation in South Korea. Discussing the adaptation of the LLWI in the context of South Korea, it is essential to understand the Human Resource Management (HRM) culture in the country. In large companies, there is a tendency to hire a significant number of workers annually, primarily targeting individuals in their 20s and early 30s, most of whom are recent graduates (Lee et al., 2023). These employees typically enter into full-time, tenured contracts, meaning that employers cannot easily dismiss them without significant cause (Cheon et al., 2018). This characteristic reflects the rigidity of South Korea’s labour market. After initial employment, the average promotion speed of employees is quite uniform, with only a small number eventually becoming executives. Consequently, the average employee in a large company follows one of two paths: becoming an executive or remaining a regular worker (Oh, 2020). Before 2017, when a legal basis for worker tenure was established, employees who did not ascend to executive roles generally had only one option: voluntary retirement. This was partly due to the traditional Korean culture, where many employees felt embarrassed to be supervised by younger colleagues and thus chose to retire voluntarily (Koo and Jung, 2020). As a result, companies commonly consisted mostly of younger workers.

However, the retirement situation has changed due to the lack of job opportunities for ageing workers and the low economic growth rate in South Korea (Bravo My Life, 2024). This change was further reinforced by the 2016 legislation guaranteeing retirement at the age of 60 while the first pension payment was raised to age 63. Individuals who want to close the three-year income gap prefer to work longer hours. South Korea’s low economic growth rate has reduced new career opportunities for workers over 50, and the low pension security has exacerbated this trend. The new challenge arising from this trend is finding ways to effectively utilize workers aged 50 and over. Unfortunately, ideal organizational setups that effectively utilize the tacit knowledge and expertise of these older workers are rare, and they are often relegated to repetitive tasks or non-strategic departments (The JoongAng, 2024a).

In contrast, small and medium-sized enterprises (SMEs), which employ about 88 percent of Korean workers, present a different scenario. Only 21.9 percent of SMEs have followed the mandatory retirement age of 65, others continue to employ senior workers beyond this age due to labour shortage or economic necessity (The JoongAng, 2024b).

Given this context in South Korea, the overall structure of the LLWI, including its nine dimensions, fits quite well. However, some dimensions closely related to the country’s rigid labour market encountered challenges during translation into Korean, particularly in the domains of working environment, continued employment, and health and retirement coverage.

Firstly, providing flexible working schedules and workplaces, part of the facet of the working environment domain is quite rare in South Korea. Even though the COVID-19

pandemic positively impacted workplace flexibility, there has been a rapid return post-COVID to traditional, rigid working environments. For example, items such as “Employees of our organization can reduce or increase the number of hours specified in their work contract according to their individual needs” and “Employees of our organization can choose their place of work to ensure a good balance between their work and private life (work-life balance)” do not fit the situation of Korean organizations. Another major concern is the suitability of tasks. While job rotation is common in Korean companies, there are distinct barriers between white-collar and blue-collar jobs. If an older employee struggles with physical duties, transitioning to a white-collar job is almost impossible.

Secondly, several items from the personal development domain, which pertain to the training and development of ageing employees, also present cultural issues. Despite equitable training opportunities in the workplace, special considerations for ageing employees are rare. Items like “In our organization, opportunities for career development into management or expert positions are possible for older employees” and “In our organization, employees, regardless of age, know about their potential for development” are uncommon in South Korea. SMEs, which are relatively ageing-friendly, might score low in these areas due to their limited training frameworks and resources.

Lastly, additional explanations and wording changes were predominantly made in the domains of “continued employment” and “health and retirement coverage”. For “continued employment”, items such as “In our organization, older applicants are hired as well” are very limited in the Korean context, but we retained the original wording. For “health and retirement coverage”, we included additional explanations to account for the significant differences in Korea’s pension and insurance systems. For example, the item “Our organization keeps employees well-informed about meaningful private supplemental insurance covering age-related risks (e.g., supplements to health or long-term care insurance, occupational accident insurance)” did not match the Korean context. South Korea has robust public insurance covering health, long-term care, and occupational accidents. Most of these are covered by public insurance, and additional private insurance is usually based on individual decisions, not company-supported ones. Therefore, we modified the item to “Our company continues to inform workers of additional private insurance (other than the national health insurance) that covers age-related risks.”

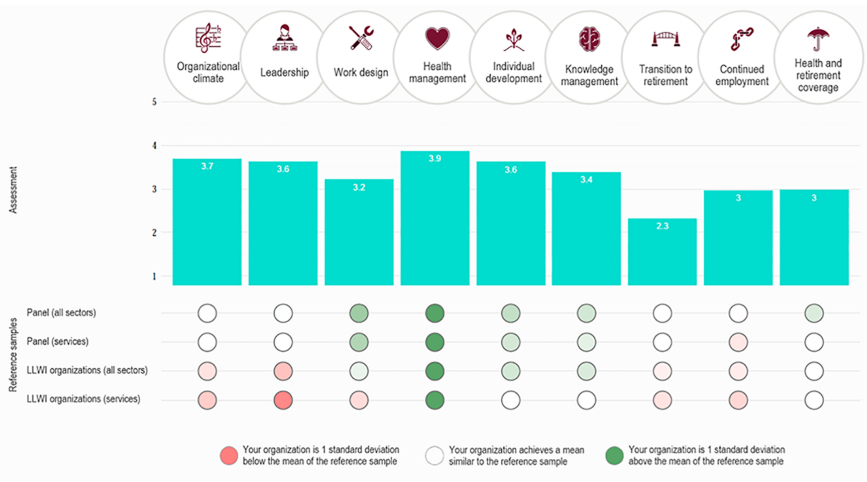
In conclusion, the Korean version has made some minor revisions in the language used in some items. All these changes and adaptations did not affect the reliability and validity of the LLWI Korean version as the analyses showed.

The Later Life Workplace Index as a self-assessment tool in organizations

The Later Life Workplace Index surveys are completed by a small, diverse sample consisting of older employees, managerial staff, and a representative from the human resources department within each organization (Finsel *et al.*, 2020; Wilckens *et al.*, 2019). This methodology ensures that the index not only identifies the dimensions but also captures how these conditions are perceived by the older employees themselves (within the same organizational contexts).

All participating organizations are provided with presentations of results. Feedback is given at the levels of dimensions, indicators, and individual questions, allowing organizations to quickly grasp the overview of the evaluation and subsequently delve deeper into specific areas to derive targeted actions (a sample chart for dimensional feedback at Figure 2). The results are always compared with those from other similar organizations.

Responses from individual participants within the organization are aggregated into an average value. A traffic light system on the bottom of Figure 2 indicates the deviation of the organization’s average from the comparison group’s average, measured relative to the standard deviation of the comparison group. While a red light indicates that the organization’s score is one standard deviation lower than the average of the comparison group, a green light signifies a



Source: Developed by Deller, Finsel, and Wöhrmann in 2025

Figure 2. Sample of LLWI dimension feedback report to organizations

measurement one standard deviation above the average, and a white light is equivalent to an average score.

The data obtained from this project can serve as a benchmark database, allowing organizations to anonymously compare their LLWI results with those of similar organizations and gain insights through transparency over their strengths and weaknesses based on these comparisons. A better understanding and awareness of the prerequisites and opportunities for extended working lives at the organizational level provides opportunities for a well-informed discussion of strengths and improvement potentials and the measures to be derived. To this end, in parallel to the LLWI measurement instrument, a toolkit with dozens of operational measures has been developed as concrete approaches aligned with the LLWI dimensions.

In summary, the LLWI provides a robust framework for assessing the alignment of organizational practices with the needs of older workers. By integrating perceptions from multiple layers of an organization, the LLWI offers a comprehensive view of the workplace environment for ageing employees, fostering a deeper understanding of the dynamics at play and guiding strategic improvements. This methodological approach ensures that the LLWI is both a practical tool for organizations and a valuable instrument for research.

Beneficial approaches to using LLWI results

The practical application of the Later Life Workplace Index in an organization's environment involves a systematic approach to enhancing practices related to the ageing workforce by integrating its results. In a workshop with top management, the implications of the LLWI results can be discussed and integrated into organizational strategies. Key questions can be explored, such as the organization's overarching goals and how various dimensions of the LLWI can facilitate the achievement. For instance, in scenarios where an organization aims to expand its operation or faces a wave of retirements, how effective is the current knowledge management in transferring critical knowledge from experienced to newer employees? Benchmarking against similar organizations will be deployed to compare their own standing.

Specifically, the benefits of such a workshop will include assessing areas such as work design, where tools and processes might be optimized. This will ensure that older employees can continue to contribute effectively. During these discussions, there will be opportunities to learn from the successful strategies employed by other organizations.

As an outcome of the workshop, organizations identify areas for improvement and decide on steps forward. LLWI provides a robust, evidence-based foundation for these discussions, offering the necessary data to support decisions. This approach aligns organizational strategy with workforce management practices and enhances competitive positioning in workforce recruitment by fostering a more inclusive and adaptable work environment.

After completing the assessment, the next critical step involves training and educating human resource personnel, managers, and key decision-makers about the LLWI. Detailed training sessions should be organized to explain the goals of the LLWI, its relevance to current workforce challenges, and practical steps for the implementation of results. Integrating the LLWI into the organization's strategic HR objectives is essential. This integration may require the development of new HR policies or the modification of existing ones to incorporate LLWI criteria, such as flexible working arrangements, and programs to support continued employment. Furthermore, organizations should consider developing a robust system for monitoring and evaluating the impact of these changes. This system should include key performance indicators related to workforce ageing, e.g., age distribution, turnover rate by age group or training effectiveness by age groups and should facilitate regular reporting on these metrics to senior management. A LLWI measurement can again support this.

Externally, organizations can leverage the Later Life Workplace Index framework to bolster their public image and reputation as forward-thinking, age-friendly employers. This can be achieved by actively promoting their commitment to supporting an age-diverse workforce through various channels, such as industry conferences, corporate newsletters, and social media platforms.

To sustain and build on the initial successes of LLWI implementation, it is recommended that organizations establish a dedicated task force or steering committee. This committee would oversee the ongoing adaptation and integration of LLWI practices, ensuring that these efforts align with broader business goals and adapt to evolving demographic trends and workforce needs. Change models like Kotter's Eight-Step Model help address challenges in implementation, such as middle manager resistance and inconsistent management commitment, with some leaders viewing such initiatives as compliance rather than strategy. Limited budgets could also complicate priorities. To overcome these issues, organizations should define metrics to show business value, adopt flexible policies, ensure sustained leadership commitment, communicate progress, and integrate competency considerations—regardless of age—into core business processes rather than treating them as separate initiatives. Proactive governance can help maintain momentum and focus on creating an inclusive, supportive work environment for all ages. To further unpack the design of implementation processes, two authors instigated a research project on key factors in enhancing LLWI implementation.

The future of the Later Life Workplace Index: learnings for further internationalization

If the index is to be adopted globally, crucial learnings must be developed and applied to produce continuous valid versions for different countries. This study advances the LLWI by incorporating an intercultural revision, comparing findings from an initial qualitative study based in Germany with a USA dataset, and adding learnings from the adaptation to Japan and South Korea.

Key findings, including those from Japan and South Korea, highlight that while some aspects of organizational management are universally applicable across age groups and national boundaries, others, such as work design and health, become more critical. Age is particularly sensitive to the national regulatory and legal environment and workplace practices. Appreciative and individualized leadership was emphasized in the countries studied as crucial, especially in creating environments that value ageing employees, facilitating flexible work conditions, and addressing individual needs.

Substantial differences were observed between the German and USA contexts, emphasizing the profound impact of public policy on organizational practices, particularly

regarding the significance of financial benefits linked to variations in social security systems. This finding accentuates the need for developers to meticulously consider these discrepancies when adapting the LLWI construct — encompassing dimensions and items—to measure the management of an ageing workforce across diverse national work environments. The adaptation of this instrument extends well beyond mere linguistic translation; it necessitates a comprehensive contextualization. Thus, the availability of a USA-developed English version of the LLWI does not guarantee its applicability in other English-speaking countries, where different socio-economic and regulatory landscapes may prevail.

This study underscores that despite enhancements in the dimensions and indicators of the index, further refinements may be essential for its wider international application. Once operationalized, the LLWI will enable comprehensive comparisons between workforce demographics and organizational outcomes. It provides a basis for broader international benchmarking of organizational practices for managing older employees who are ageing. Nonetheless, additional validations across diverse national cultures and legal frameworks are necessary to establish a universally applicable framework for later-life workplace practices. The effectiveness of specific practices and the relevance of various index dimensions may vary significantly across different industries, regions, and countries, necessitating tailored approaches to optimize organizational outcomes.

Cultural and social differences influence the concept of ageing and retirement, leading to an expanded scope in the LLWI to more broadly encompass continued employment and practices of re-hiring older employees, irrespective of fixed retirement age. However, significant country-specific differences in legal and regulatory frameworks were identified as barriers to adopting LLWI, highlighting the need for further validation and adaptations in future studies.

Discussion and future perspectives

For researchers, the LLWI serves as an instrumental tool in elucidating the dimensionality and relative impact of organizational practices on older workers. It offers a comprehensive measurement framework that can be applied holistically across organizational practices or through its subscales to focus on specific domains, thereby advancing research in the field of work and ageing. Future research will further validate management and employment indicators across diverse cultural and institutional settings as part of the LLWI's continuous development.

To ensure relevance across diverse global work environments, the LLWI must be tailored to respect and integrate cultural norms, values, and workplace behaviour specific to each country. This involves adjusting the language and text used in the index to reflect local idioms and cultural references and modifying the recommended practices to align with cultural expectations and norms. Additionally, the LLWI must incorporate specific legal frameworks and employment regulations of each country to ensure full compliance.

Engaging stakeholders through workshops, feedback sessions, and training can be key to gaining support and ensuring effective LLWI implementation within work organizations. A professional manager funded by the organization can steer such a process.

Robust feedback mechanisms must be established to continuously gather insights from international users of the LLWI, allowing for ongoing improvements and adaptations without compromising its core objectives. This ensures that organizations can effectively use the index, which can be adapted as new challenges emerge globally due to evolving demographic structure and collective impasse of needed transition to a more sustainable future.

The LLWI also enables organizations to measure their practices against global standards, e.g., ISO 25550:2022 Ageing societies: General requirements and guidelines for an age-inclusive workforce. This includes creating metrics allowing easy comparison and sharing of data across borders and encouraging organizations to strive for continuous improvement in their practices.

Future plans include developing, validating, and publishing in 2025 a short version of the LLWI reduced to a third in length. This streamlined version will enable organizations to conduct self-assessments in less than half the time when using the original format. This streamlined version shall provide a good overview while reducing the level of detail. Moreover, an ultra-short version with just nine items, one for each dimension, is under development and will be finished and tested in 2025. This version is intended for large-scale representative data collection to efficiently assess organizational aspects of the workers' health and well-being.

The long-term sustainability of age diversity initiatives requires robust institutional backing and clear funding mechanisms, ideally through partnerships with international organizations like the ILO, OECD, or WHO. These organizations can provide legitimacy, potentially sustained resource support, and uphold quality standards by setting international norms. They also work with representatives from different cultures and address institutional arrangements and behaviors. They could initiate international discussions about established norms, cultural practices, and stereotypes, including age stereotypes and their management.

To ensure project longevity in empowering the ageing workforce to be better prepared for post-retirement life, organizations should establish a dedicated governance structure with representatives from multiple stakeholders, including industry partners, academic institutions, and policymakers, who can guide the evolution of these programmes as demographic shifts continue. Regular data collection and analysis will be crucial for tracking changing demographics and needs, allowing the index to evolve forward with real-world scenarios rather than repeating the past. The LLWI should be treated as a living framework requiring regular revisions and social dialogues rather than becoming a static window-dressing tool.

The funding model for continued renewal could combine multiple sources. Organizations should establish a regular review cycle (perhaps every 2-3 years) to maintain relevance and effectiveness, assess and update metrics, and incorporate new research findings and emerging workplace trends. This could be supported by creating a global community of practice where organizations can share experiences and best practices. Building relationships with academic institutions could provide ongoing research support and validation, while partnerships with professional associations could help with dissemination and adoption.

Conclusion

As demographic transitions place increasing pressure on labour markets, organizations and policymakers must ensure that workplaces evolve to support older employees' rights, capabilities, and well-being. The LLWI provides a critical framework for assessing and improving age-inclusive employment practices at the organizational level, bridging the gap between policy aspirations and workplace realities.

Governments should incorporate LLWI-based benchmarks into national employment policies, incentivizing organizations to adopt age-friendly practices through fiscal benefits, regulatory compliance frameworks, and public recognition. Moreover, integrating LLWI assessments into corporate governance and ESG reporting would encourage organizations to view ageing workforce policies as a strategic imperative rather than a compliance exercise.

The LLWI's cross-cultural adaptability underscores its potential as a globally recognized tool, informing policy decisions that balance economic sustainability with social responsibility. Its future refinement must remain an iterative process driven by research, stakeholder engagement, and ongoing policy dialogue.

Ultimately, the LLWI offers a diagnostic mechanism and a roadmap for shaping workplaces where older employees are accommodated and actively empowered. A concerted policy effort integrating LLWI principles into national and organizational strategies will be instrumental in achieving the broader goal of human dignity for all, irrespective of age.

References

- Bravo My Life (2024), "Ageing workforce who resist promotions", available at: https://bravo.etoday.co.kr/view/atc_view/15592 (accessed 1 January 2025).
- Cheon, B., Hwang, I. and Park, K. (2018), "Labour market duality in Korea and policy responses", Bank of Korea WP 2018-40, available at: <http://dx.doi.org/10.2139/ssrn.3300519> (accessed 10 January 2025).
- Deller, J. and Maxin, L.M. (2009), "Professional activities of retirees", *Journal of Gerontology and Geriatrics*, Vol. 42 No. 4, pp. 305-310.
- Deller, J. and Pundt, L. (2014), "Flexible transitions from work to retirement in Germany", Alcover, C.M., Topa, G., Parry, E., Fraccaroli, F. and Depolo, M. (Eds.), *Bridge Employment: A Research Handbook*, Routledge, London, pp. 167-192.
- Deller, J., Liedtke, P.M. and Maxin, L.M. (2009), "Old-age security and silver workers: an empirical investigation identifies challenges for companies, insurers, and society", *Geneva Papers on Risk and Insurance*, Vol. 34, pp. 137-157.
- Deller, J., Wöhrmann, A.M., Wilckens, M.R. and Finsel, J. (2020), "Later Life Workplace Index - demographics management for organisations", Schwuchow, K. and Gutmann, J. (Eds.), *HR-Trends 2021: Strategy, Culture, Big Data, Diversity*, Haufe, Freiburg, pp. 490-500.
- Finkelstein, R., Roher, S. and Owusu, S. (2013), "Compendium of strategies and practices", *The New York Academy of Medicine*, available at: http://ageing.columbia.edu/sites/default/files/AgeSmartEmployer_Compndium.pdf (accessed 1 January 2025).
- Finsel, J., Wilckens, M., Wöhrmann, A.M. and Deller, J. (2020), "Later Life Workplace Index - A tool to support company employment practices", Naegele, G. and Hess, M. (Eds.), *Old and New Social Inequalities in Career Abandonment and Retirement Transition*, *Dortmund Contributions to Social Research*, Springer VS, Wiesbaden, pp. 359-384.
- Finsel, J.S., Wöhrmann, A.M., Wang, M., Wilckens, M.R. and Deller, J. (2023), "Later Life Workplace Index (LLWI): validation of an English version", *Work, Aging and Retirement*, Vol. 9 No. 1, pp. 71-94.
- Henkens, K., Van Dalen, H.P., Ekerdt, D.J., Hershey, D.A., Hyde, M., Radl, J. and Zacher, H. (2018), "What we need to know about retirement: pressing issues for the coming decade", *The Gerontologist*, Vol. 58 No. 5, pp. 805-812.
- International Organisation for Standardization (ISO) (2022), *ISO25550:2022 Ageing Societies: General Requirements and Guidelines for an Age-inclusive Workforce*, International Organisation for Standardization, Vernier.
- Japan Industrial Safety and Health Association (2003), "Points of creating a comfortable workplace using ergonomic methods", available at: https://www.jaish.gr.jp/user/anzen/sho/panf/panf_kougaku_all.pdf (accessed 10 January 2025).
- Koo, J. and Jung, T. (2020), "A study of conglomerate executives in adaptation processes after involuntary retirement", *The Korean Journal of Culture and Social Issues*, Vol. 26 No. 4, pp. 379-407.
- Krippendorff, K. (2013), *Content Analysis. An Introduction to its Methodology*, Sage Publications, Los Angeles, CA.
- Lee, S., Roh, S., Oh, J., Park, J. and Roh, S. (2023), *The End of Open Recruitment and Changes in the Labour Market, Research Report 2023-15*, Korea Labour Institute, Sejong.
- Mayring, P. (2010), *Qualitative Content Analysis: Foundations and Methodology*, Beltz, Weinheim.
- Ministry of Health, Labour and Welfare (MHLW) (2024), "Ordinance for enforcement of the Act on stabilization of employment of elderly persons", available at: https://elaws.e-gov.go.jp/document?lawid=346M50002000024_20240401_505M60000100068 (accessed 6 June 2024).
- OECD (2011), "OECD factbook 2011–2012: economic, environmental and social statistics", OECD Publishing, Paris, available at: <https://doi.org/10.1787/factbook-2011-en> (accessed 1 January 2025).
- Oh, J. (2020), "Employee perceptions of HRM practices and their turnover intentions: evidence from South Korea", *Evidence-based HRM*, Vol. 8 No. 2, pp. 145-160.

- Statistics Bureau of Japan (2022), “The population of older adults”, available at: <https://www.stat.go.jp/data/topics/topi1321.html> (accessed 24 May 2024).
- Statistics Bureau of Japan (2023), “The trends of regular and non-regular employees”, available at: <https://www.stat.go.jp/data/roudou/sokuhou/nen/dt/pdf/gaiyou.pdf> (accessed 24 May 2024).
- The JoongAng (2024a), “Those who decline promotions: choosing a thin but long path”, available at: <https://www.joongang.co.kr/article/25287802> (accessed 1 January 2025).
- The JoongAng (2024b), “Increasing employment of ageing workforce in SMEs”, available at: <https://www.joongang.co.kr/article/25270004> (accessed 1 January 2025).
- Truxillo, D.M., Cadiz, D.M. and Hammer, L.B. (2015), “Supporting the ageing workforce: a review and recommendations for workplace intervention research”, *The Annual Review of Organisational Psychology and Organisational Behavior*, Vol. 2, pp. 351-381.
- United Nations Population Fund (2024), “Ageing”, available at: <https://www.unfpa.org/ageing#readmore-expand> (accessed 22 January 2025).
- Wilckens, M., Finsel, J., Wöhrmann, A.M. and Deller, J. (2019), “Later Life Workplace Index, - operational management of ageing and age-diverse workforces”, Goinger Kreis e.V. (Ed.), *Crossing Borders Between Companies and Society*, Westarp Verlag, Hohenwarsleben, pp. 359-384.
- Wilckens, M.R., Wöhrmann, A.M., Adams, C., Deller, J. and Finkelstein, R. (2020), “Integrating the German and US perspective on organisational practices for later life work: the Later Life Work Index”, Czaja, S.J., Sharit, J. and James, J.B. (Eds.), *Current and Emerging Trends in Ageing and Work*, Springer, Heidelberg, pp. 59-79.
- Wilckens, M.R., Wöhrmann, A.M., Deller, J. and Wang, M. (2021), “Organisational practices for the ageing workforce: development and validation of the Later Life Workplace Index (LLWI)”, *Work, Ageing and Retirement*, Vol. 7 No. 4, pp. 352-386.
- Wöhrmann, A.M., Deller, J. and Pundt, L. (2018), “Complementing AAI at the meso level – the Silver Work Index”, Zaidi, A., Harper, S., Howse, K., Lamura, G. and Perek-Białas, J. (Eds.), *Building Evidence for Active Ageing Policies: Active Ageing Index and its potential*, Palgrave MacMillan, Singapore, pp. 75-94.
- Zaidi, A., Gasior, K., Hofmarcher, M.M., Lelkes, O., Marin, B., Rodrigues, R., Schmidt, A., Vanhuysse, P. and Zolyomi, E. (2013), *Active Ageing Index 2012: Concept, Methodology and Final Results*, European Centre Vienna, Vienna.

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