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Skills-Based Talent Architecture and the Decline of Credential-Based Hiring

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Abstract

Hiring based on credentials, where the degrees and diplomas as well as institutional affiliation are viewed as measures of competence, is becoming increasingly less relevant as the workplace is organized around constantly changing tasks. The current study addresses how a skills-based talent architecture is introduced in place of credential filtering as an organizing principle of recruitment, staffing, and development processes. An integrative literature review approach was used to screen, code, and synthesize twenty studies published between 2015 and 2022 in terms of theme, methodology, and architecture. The findings indicate that there are five inter-related layers in the architecture: skills ontology and taxonomy; skills evidence and assessment; talent matching and internal mobility; development and reskilling; and governance, fairness and analytics. It is found that there is more literature devoted to the layers of assessment and governance rather than skills taxonomy and internal mobility. From a rubric-based comparison, the skills architecture beats the credential one in the following areas: scope of the talent pool, adaptability to changes in the task, internal mobility, and accuracy of predictions. However, the skills-based architecture lags behind in terms of implementation readiness and efficiency in screening. It can be noted that the shift from credentialism to non-credentialism is not a matter of changing policies but the matter of architecture that relies on the reliability of skills data, accountability of algorithms, and the competence of line managers.

Keywords: Skills-Based Hiring, Talent Architecture, Credentialism, Degree Inflation, Talent Management, Personnel Selection, HR Analytics.

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Introduction

For the greater part of the twentieth century, educational qualifications served as the main currency for entering the labour market. Degrees provided employers with a cost-efficient and legal instrument that seemed to condense such traits as skills, determination, and the ability to learn into one signal. However, data gathered since 2015 demonstrates that the need for degrees tends to correlate with labour supply, not with the characteristics of job positions. During the Great Recession, education and experience requirements rose more rapidly in the states and occupations that had the greatest amount of applicants available for the jobs, meaning that degrees were used as rationing instruments, not as signals about what was required from the job itself (Modestino et al., 2020). Furthermore, commonly mentioned skill gaps have been explained not by shortages but by overly restrictive hiring standards and the unwillingness of employers to provide training (Cappelli, 2015). Meanwhile, the content of work is evolving much faster than the system of credentials can catch up. While automation makes certain tasks obsolete and creates new ones, it continually modifies the set of skills necessary for the jobs (Acemoglu & Restrepo, 2019). Modern labor markets place a premium on the bundle of social and cognitive skills and not only on cognitive skills (Deming, 2017); moreover, it was shown that skill requirements for occupations vary significantly between firms and that such variation is correlated with wages and firm-level productivity (Deming & Kahn, 2018). Additionally, analysis of more than twenty-one million job ads online shows that an overwhelming majority of them lack credentials requirements, thus casting doubts on the sustainability of the credential society (Brown & Souto-Otero, 2020). International evidence also suggests that the returns to credentials diminish with growing education levels while skill returns stay constant (Araki, 2020); moreover, the credential inflation process might eventually lead to decredentialization (Araki & Kariya, 2022).

The academic literature of talent management has thus reacted by focusing on an integrated approach to talent philosophy, which connects to value creation, capture, leverage and protection (Sparrow & Makram, 2015). However, empirical talent management literature has traditionally privileged elitist approaches based on pedigrees (Gallardo-Gallardo & Thunnissen, 2016). Furthermore, the technology which makes large-scale skill inference possibly creates additional challenges of data quality, fairness and worker acceptability (Tambe et al., 2019). This has left the topic of the erosion of credentialism largely unexplored in fragmented manner, drawing on labor economics, sociology of education, industrial-organizational psychology and human resource management disciplines. Thus, this paper aims to achieve three goals: firstly, compile information on reasons for erosion of credentialism; secondly, build a hierarchy of talent architecture based on skills, rather than credentials; thirdly, identify the strengths and weaknesses of evidence at each level of this hierarchy.

The structure of the paper is as follows: In Section 1 the background, objectives, and motivation of skills-based talent architecture are presented. In Section 2 the current literature review of credentialism, skills-based hiring practices, skills evaluation, and HR technologies is performed. In Section 3 the research methodology and process of framework creation are described. In Section 4 the results of reviewing the literature and comparison of hiring practices are presented. The discussion of the results is conducted in Section 5. Section 6 concludes the paper.

Literature Review

Credentialism and the Weakening Degree Signal

The theory of credentialism operates on the assumption that education is a proxy for productive capabilities. Using internationally comparable data based on about thirty thousand individuals in twenty-six nations, Araki (2020) demonstrates that credentials retain a greater premium over measurable skills, but this premium decreases with educational expansion, whereas skills remain valuable even when skills become more widely distributed. Araki and Kariya (2022) further develop this theory, drawing the distinction between credential inflation, in which more education is required to do the same job, and decredentialization, in which degrees have lost their sorting ability. The big data analysis of job openings adds support to this view, as employers commonly refer to requirements in terms of skills and experience rather than qualifications (Brown & Souto-Otero, 2020). The results presented by Modestino et al. (2020), concerning the cyclicality of degree requirements, along with the argument of Cappelli (2015), criticizing skill-gap discourse, lead to the conclusion that the use of credentials as screening tools is partly motivated by employer convenience.

Skills as the Unit of Talent

The related stream of work takes skills, not qualifications, as the essential element of human capital. The increasing payback of social skills in the labor market (Deming, 2017) and the heterogeneous demands for cognitive and social skills at the firm level (Deming & Kahn, 2018) indicate that titles and degrees are poor ways of describing what people really do. The task-oriented perspective on technological change corroborates this finding by proving that the process

of automation constantly reassigns tasks from machines to humans (Acemoglu & Restrepo, 2019). In the field of management, fifty years of human capital research are summarized in an article which suggests going beyond the educational and experience proxies in favor of studying real human capital elements producing unit performance (Nyberg & Wright, 2015).

Validity of Skills Evidence in Selection

The validity of a skills-based architecture depends entirely on the validity of the evidence used to assess skills. The issue that has concerned personnel selection science from the very beginning has been how to predict job performance (Ployhart et al., 2017). One re-analysis of meta-analytic validity estimates indicated that previous adjustments for range restriction were an exaggeration of predictor validity and that structured interviews, job knowledge tests, and work sample tests are some of the most powerful predictors, with general cognitive ability holding less predictive value than initially thought (Sackett et al., 2022). Digital methods of personnel selection, which include online tests, asynchronous video interviewing, and gamification of tests, provide a means of assessing skills en masse but with a lack of valid evidence and positive applicant reactions to these tests (Woods et al., 2020).

Talent Architecture, Technology and Governance

Talent management architectures combine philosophies, processes and value creation mechanisms into one coherent system (Sparrow & Makram, 2015). In relation to multinational companies, pivotal roles, global talent pools and the human resource architecture differentiation have been noted as the key practices in connecting talent management and performance (Collings et al., 2019). Technology is changing the above practices more and more every day, starting from electronic recruitment and self-service applications and up to human resource analytics which is applied inconsistently by organizations and has a weak impact on organizational performance results (Marler & Boudreau, 2017; Stone et al., 2015). There are certain limitations in using artificial intelligence in human resource management associated with complexity of human resource outcomes, limited dataset, necessity for the fair treatment and employees' reaction to such decisions (Tambe et al., 2019). Algorithmic human resource management automates more and more matching and evaluation decisions, and the research proves its effect on recruitment, training and performance management as well as its technological and ethical implications (Vrontis et al., 2022; Meijerink et al., 2021).

Table 1: Summary of Selected Prior Studies Informing the Architecture

Author(s) and Year	Focus	Contribution to Skills-Based Architecture
Cappelli (2015)	Skill gaps and shortages	Skill gaps partly reflect narrow hiring criteria and under-investment in training
Sparrow & Makram (2015)	Talent management architecture	Value creation, capture, leverage and protection as design logic
Collings et al. (2019)	Global talent management	Talent pools and differentiated HR architecture link talent to performance
Araki (2020)	Credentials versus skills	Credential premium falls with educational expansion; skill premium persists
Brown & Souto-Otero (2020)	Big-data job adverts	Many postings specify competences rather than credentials
Araki & Kariya (2022)	Decredentialization	Credential inflation can progress to loss of sorting power
Sackett et al. (2022)	Selection validity	Structured, job-specific evidence ranks among the strongest predictors

Table 1 is an important compilation of research on skills-based talent architecture that emphasizes the move from credential-based recruiting to skills, competencies, and job-specific information.

Research Gap

Despite the richness of both streams, there is little integration of labor market research on falling credentials with the organizational processes required to substitute for credentials. There is a paucity of research on the ways that the skills taxonomy, assessment evidence, internal mobility, and development and governance need to interrelate, which is precisely what these paper attempts to do.

Research Methodology

Research Design

Integrative review design coupled with conceptual framework generation was used. This is appropriate for a multidisciplinary phenomenon with no coherent empirical tradition. Quantification of the body of literature under

review in addition to qualitative synthesis was done so that biases of emphasis and neglect would be clearly revealed. The whole process of research entailed five stages as depicted in Fig. 1.

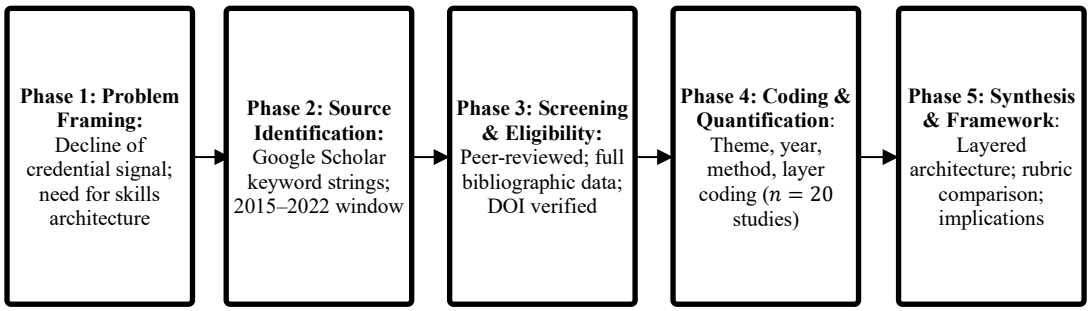


Fig. 1: Research Methodology Flow

Source Identification and Screening

The sources were identified by means of searches conducted in Google Scholar, with the use of different combinations of keywords such as skills-based hiring, credentialism, degree inflation, decredentialization, skill demands, job ads, talent management architecture, validity of personnel selection, digital selection, human resource analytics and algorithmic human resource management. The time range was limited to 2015-2022. Only those sources which were peer-reviewed and had full volume, issue and pages as well as DOI were included in further analysis. Titles and abstracts were checked in order to see if they were relevant to at least one out of four questions concerning why credential signals are becoming less important, what skills are, how skills can be validated and how talent management systems and technologies manage skills.

Coding Protocol

Each article was coded on four different axes: thematic cluster (credentialing, skills demand, selection validity, talent management architecture, or HR technology), year of publication, methodology (quantitative empirical, meta-analysis, systematic or narrative review, or conceptual), and architectural layers addressed. More than one layer code could be assigned since some articles were relevant for more than one layer, which resulted in a total of thirty-five-layer codes. The comparison between the practices of credential versus skill-based hiring was done using six criteria on a scale from 1 to 5.

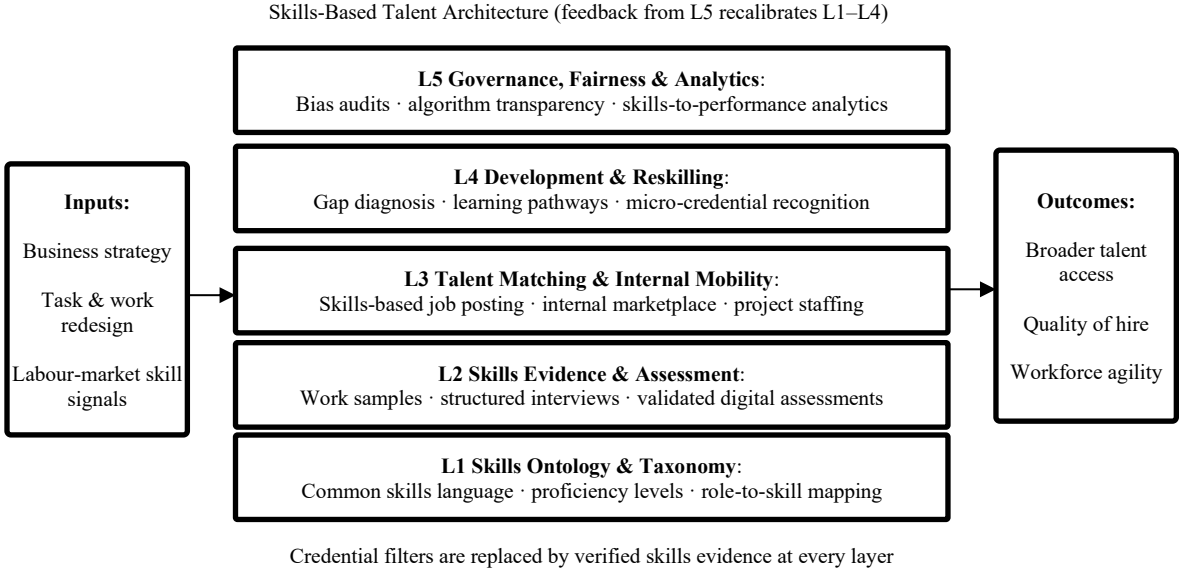


Fig. 2: Proposed Skills-Based Talent Architecture

Framework Development

Recurring processes that emerged through coding were classified recursively into functional layers in such a way that the lower layers provide the input data for the higher layers. The developed skills-based talent model, depicted in Fig. 2, makes connections between strategic and labor market inputs and organization outputs using five layers, where the governance layer feeds back to readjust the taxonomy, assessment, mobility, and development layers.

Results and Analysis

Thematic Distribution

Fig. 3 shows how the corpus is distributed by theme clusters. Five studies (25%) each are on credential signalling and human resource technology, four (20%) are on talent management architecture, and three (15%) are on skill demand and selection validity respectively. It is evident therefore that the trend towards reduced reliance on credentials in recruitment is analyzed from labour market and organizational technology perspectives, with selection validity being a key theme cluster.

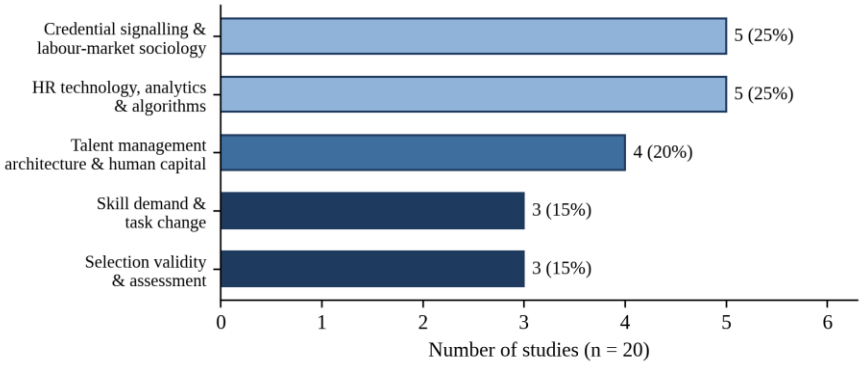


Fig. 3: Distribution of Reviewed Studies by Thematic Cluster

Temporal and Methodological Profile

Fig. 4 depicts the distribution of publications through the entire period under analysis; there are two peak points of four publications each in 2015 and 2020 and a continuous increase in the number of publications from zero in 2013 to twenty in 2022. Fig. 5 shows that the methodology used in this research mostly consists of systematic and narrative reviews (40% of the total), empirical quantitative studies (30%), conceptual/theoretical research (25%), and one meta-analysis (5%).

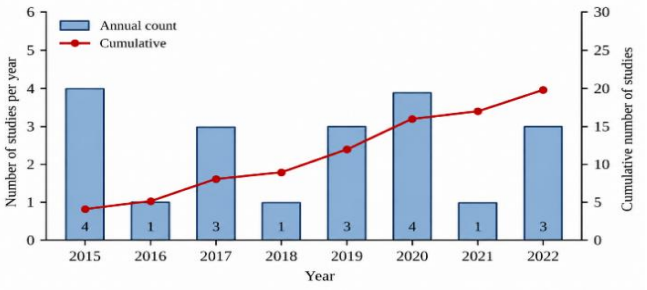


Fig. 4: Year-Wise and Cumulative Distribution of Reviewed Studies (2015–2022)

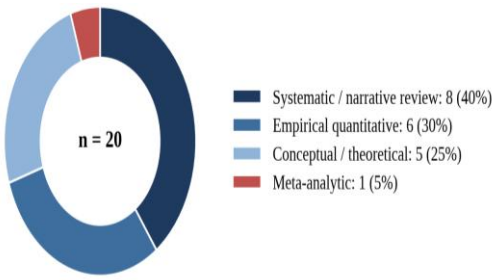


Fig. 5: Methodological Composition of the Reviewed Corpus

Coverage of Architecture Layers

The heat map presented in Fig. 6 shows the thematic clusters crossed by architectural layers. L2 (assessment) layer has the highest number of evidences, which amounts to eleven. Eight codes were found under L5 (governance), six – under L4 (development), and five were discovered for L1 (ontology) and L3 (mobility). Studies that concern credential signaling were concentrated around the assessment layer, technology studies – around the governance one, and talent management studies – around mobility and development layers.

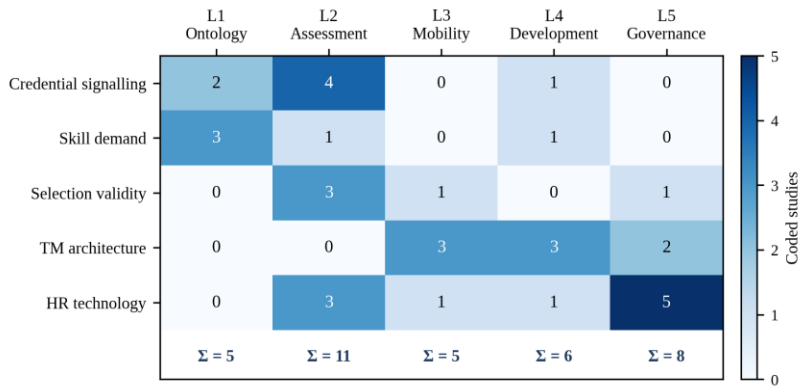


Fig. 6: Heat Map of Thematic Clusters against Architecture Layers

Comparative Evaluation of Hiring Logics

The contrast between the two hiring logics based on their respective features is shown in Table 2, while the rubric ratings can be found in Fig. 7. Skills-based approach has better predictive precision (4 against 2), breadth of the talent pool (5 against 2), opportunities for internal mobility (4 against 2) and ability to adapt to changes in tasks (5 against 2). Credential-based hiring remains superior in screening efficiency (4 against 3) and implementation readiness (5 against 2), since education credentials are inexpensive to verify and already integrated into the existing recruiting systems, job descriptions and processes. Mean rubric rating is 3.83 for skills-based approach and 2.83 for credential-based approach.

Table 2: Comparison of Credential-Based Hiring and Skills-Based Talent Architecture

Dimension	Credential-Based Hiring	Skills-Based Talent Architecture
Unit of evaluation	Degree, institution, years of experience	Verified skills and proficiency levels
Primary evidence	Transcripts and certificates	Work samples, structured interviews, validated assessments
Talent pool	Narrowed by degree filters	Widened to non-traditional and internal candidates
Internal mobility	Tied to job titles and grades	Skills-matched projects and roles
Response to task change	Slow; requires re-credentialing	Rapid; skills profiles are updated continuously
Main risk	Exclusion and credential inflation	Measurement error and algorithmic bias

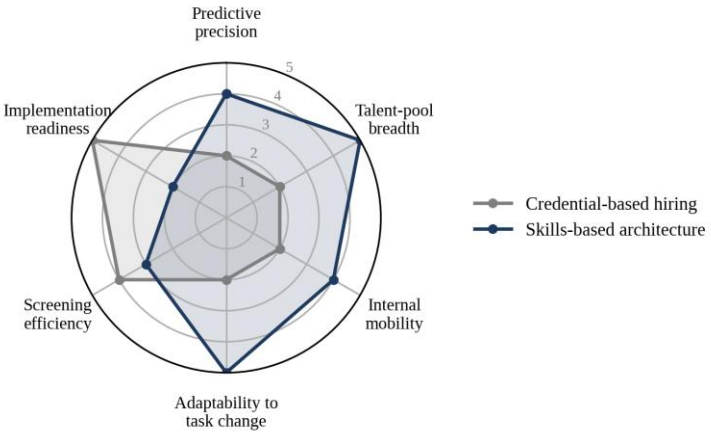


Fig. 7: Rubric-Based Comparison of Credential-Based and Skills-Based Hiring (1 = weak, 5 = strong)

Discussion

These findings imply that the phenomenon of degeneration of credentialism should be considered in terms of the architectural shift rather than the abolition of the degree criterion in a recruitment advertisement. Market analysis

demonstrates the reasons behind the weakening impact of the degree criterion due to the fact that returns to credentials diminish along with educational expansion but not the value of skills (Araki, 2020), the degree signal may cease functioning in its sorting role (Araki & Kariya, 2022), and employers start characterizing vacancies according to competences (Brown & Souto-Otero, 2020). The reason for the increase in degree requirements with an abundance of labour implies that skills-based recruitment in tight labour market conditions might return to being a credential filtering system (Modestino et al., 2020).

It follows logically from the fact that the reliability of skills-based recruiting hinges on the quality of skills evidence. The improved validity figures produced by Sackett et al. (2022) reinforce the case for job-related evidence, rather than a proxy one, and the established notion of the selection as predicting performance situates assessment at the core of the system's architecture (Ployhart et al., 2017). However, the existing digital assessment solutions have evolved faster than their validation, hence replacing credentials with unvalidated skill tests may mean swapping one proxy for the other (Woods et al., 2020).

The governance layer was one of the two most well-evidenced layers, because there was worry about the potential for skill inference on a large scale by algorithms. The limitations of small data, fairness, and explainability, automation of human resource decision making through algorithms, and ethical considerations of intelligent automation suggest that filtering based on credentials does not mean that bias will not persist; rather, the risk simply shifts to skill inference ((Meijerink et al., 2021; Vrontis et al., 2022; Tambe et al., 2019). This means that bias audits, transparent matching, and performance-based skills analysis are required, which is currently immature as a field (Marler & Boudreau, 2017).

The lack of focus on the ontology and mobility layers is the biggest lacuna. The importance of talent architecture is based on its ability to create, capture, leverage, and safeguard value, while talent pools and differentiated architectures play an important role in translating capability into performance (Collings et al., 2019; Sparrow & Makram, 2015). Skills-based mobility provides an opportunity to move away from the elite and pedigree-based talent management paradigm that has traditionally been dominant in talent management literature (Gallardo-Gallardo & Thunnissen, 2016). However, without a common taxonomy of skills based on the specific diversity of skill requirements and continuous bundling of tasks, matching and development cannot be performed efficiently (Acemoglu & Restrepo, 2019; Deming & Kahn, 2018). Additionally, the taxonomy has to cover social skills which credentials never captured (Deming, 2017).

Theoretical Implications

This research adds to the literature with a hierarchical framework that links labour market signaling and credentialism theories with organization talent management and human capital resource theories (Nyberg & Wright, 2015). It reconceptualizes the credential versus skills debate in terms of information infrastructure; credentials have waned partially due to the feasibility of other infrastructures through which to prove skills (Stone et al., 2015).

Practical Implications

In the context of HR managers, there is a need for a sequencing in the architecture. The first step would be the development of common skills language (L1) followed by the redesign of assessment tools (L2), validation of the assessment tools prior to their use in creating internal mobility channels (L3), development tools aimed at addressing the identified skill deficiencies (L4), and lastly governance aimed at monitoring adverse impact and skills performance (L5). The issue of implementation-readiness deficiency indicates that the capability of line-managers and system integration is just as important as assessment technology, since many skills gaps are organization-related (Cappelli, 2015).

Conclusion

The paper aimed at providing a rationale for the waning power of credentials in hiring and designing the talent architecture which will serve as its alternative. The synthesis of twenty papers shows that credential sorting has been weakening due to educational expansion, the growing importance of skill-related abilities, and the existence of more direct evidence for skills. The designed five-layer talent architecture involving skills ontology, skills evidence, matching and mobility, development, and governance constitutes a comprehensive framework for this change. There is strong evidence for assessment and governance and little evidence for taxonomy and internal mobility, while the benefits of skills-based hiring depend on the solution to the problem of its lower readiness for implementation. The selected literature consists of twenty papers in peer-reviewed journals between 2015 and 2022, and the rubric scores represent the results of a structured synthesis and not primary data. Further research would involve empirical testing of the framework through multi-organization field studies, the design and maintenance of the skills taxonomies in

practice, validity and fairness of digital skills assessment, and stability of skills-based practices through labour market cycles.

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