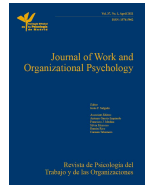




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Sustainable Employability in the Mid and Late Career: An Integrative Review

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ABSTRACT

In the last decade, interest in investigating the sustainable employability (SE) of older workers has gained ground, generating a significant number of theoretical and empirical contributions. However, the construct of SE lacks a definition accepted by the scientific community and unified measurement criteria, which has led to results that, so far, do not allow us to draw solid conclusions on its relevance. The aim of this integrative review is twofold. Firstly, we review the theoretical formulations and definitions proposed, as well as the main empirical results of the studies and interventions on SE. Our review includes 31 studies (26 empirical and five theoretical; total sample size $N = 33,368$). Secondly, proposals and suggestions are offered aimed at integrating the previous results and advancing in the definition, operationalization, and measurement of SE, with the ultimate goal of increasing its value for future research in the mid- and late-career domain.

La empleabilidad sostenible en las etapas media y final de la vida laboral: una revisión integradora

RESUMEN

En la última década, el interés por investigar la empleabilidad sostenible (ES) de los trabajadores mayores ha ganado terreno, generando numerosas contribuciones teóricas y empíricas. Sin embargo, el constructo de ES carece de una definición aceptada por la comunidad científica y de criterios de medida unificados, lo que ha conducido a resultados que hasta ahora no proporcionan conclusiones sólidas sobre su relevancia, su uso y sus implicaciones. Esta revisión integradora tiene dos objetivos. En primer lugar, realizamos una revisión de sus conceptualizaciones y formulaciones teóricas, incluyendo los resultados empíricos de los estudios e intervenciones sobre la SE. Nuestra revisión integradora incluye 31 estudios (26 empíricos y cinco teóricos/revisiones; tamaño total de la muestra $N = 33,368$). A continuación, proponemos un modelo teórico alternativo de la SE que pretende integrar los resultados anteriores y avanzar en la definición, operacionalización y medición de este relevante constructo, con el objetivo último de incrementar su valor de cara a futuras investigaciones sobre los factores implicados en las etapas medias y finales de la carrera profesional.

Palabras clave:

Empleabilidad sostenible

Etapas media y final de

la carrera profesional

Trabajadores mayores

Revisión integradora

In the last two decades, two main factors have modified the parameters that define the mid and late working career: the progressive aging of the labor force and the consideration of factors associated with people's actual capacity and subjective age, rather than their chronological age (Akkermans et al., 2016; Goecke & Kunze, 2020). Regarding the former, the main consequence has been the need to delay retirement ages and to extend working life beyond the usual ages of withdrawal from the labor market. Thus, from an era — late 20th century/early 21st century — characterized by pro-(early)retirement policies and practices, over the last fifteen years we have moved to alternative work arrangements that favor the retention of older workers in employment (Wang & Shultz, 2010), a critical organizational challenge of the 21st century (Moen et al.,

2017). Concerning the second factor, the growing importance given to subjective age and the perception of one's ability to cope with job demands — namely, work ability (Ilmarinen, 2009) —, has detracted from the value of chronological age as the sole criterion for making career decisions for older workers (Le Blanc et al., 2017; McGonagle et al., 2015). In this context of reframing the meaning of being an "older worker", the identification of antecedent and concurrent factors — both individual and contextual — which may facilitate and enhance their employability and career sustainability has earned renewed attention (Van der Heijden et al., 2020). As a result, terms such as Career Sustainability, Aging Workers' Employability, or Sustainable Employability became prominent in this area of research and practice.

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Research on sustainable employment and sustainable employability (hereinafter, SE) is salient as it bears major implications on multiple counts: career continuity of older workers (e.g., [Koolhaas et al., 2015](#); [Le Blanc et al., 2017](#)), their well-being and occupational health (e.g., [Tonnon et al., 2017](#); [van Gorp et al., 2018](#)), organizational demography and talent retention (e.g., [Peters et al., 2019](#)), and society as a whole (e.g., [van der Klink et al., 2016](#)). Of course, the SE concept applies to any working career stage ([Fleuren et al., 2020](#); [van der Klink et al., 2016](#)). However, in this paper, we focus on the mid and late stages because older workers — conventionally, those over 50 years of age ([Caines et al., 2020](#)) — face more risks related to the continuity of their work activity. On the one hand, due to possible health problems, changes in work capabilities, and the potential skills obsolescence, and on the other hand, due to contextual, labor market, and organizational factors, in particular, they may be more exposed to ageism. The prevalent stereotypes concerning older workers involve the assumption they perform poorly, are less inclined to invest in the organization's activities, are more resistant to change, are poorly open to learning processes, and pose greater costs to the organization compared to their younger colleagues ([Posthuma & Campion, 2009](#)). In this regard, negative stereotypes and age-related prejudice at work operate not only as contextual factors but also as factors related to the self through meta-stereotypes ([Finkelstein et al., 2015](#)). Such contextual factors translate into HRM policies and practices that limit career opportunities and development ([Fisher et al., 2017](#)), reduce organizational support and access to training ([Harris et al., 2018](#)), and may force early retirement decisions ([Alcover et al., 2012](#)), whereas age meta-stereotypes refer to people's self-beliefs about how others perceive them as being, in this case, older ([Finkelstein et al., 2015](#)), which may also influence their retirement attitudes ([Bal et al., 2015](#)). As a result, these factors can significantly affect the SE of workers at these career stages.

Although research on SE has gained attention less than a decade ago, a remarkable number of publications addressing theoretical, empirical, and applied elements have been produced since then. However, when analyzing this research, a lack of homogeneity is observed both in the definition of the construct and its operationalization and measurement, leading to very scattered results. This review aims to gather these researches and analyze conceptual and methodological issues and results to gain an overview of this emerging topic in the field and propose new avenues for conceptual and methodological development.

For this purpose, we have opted for an integrative review, which, as defined by [Dwertmann and van Knippenberg \(2021\)](#), “focuses on the systematic consideration of similarities and differences between findings, identifying the underlying categorizations that capture these similarities and differences, and developing new theory anchored on these categorizations for similarities and differences not predicted by existing theory” (p. 104). To fulfill the intent of an integrative review, the current paper includes five sections following the suggestion of [Dwertmann and van Knippenberg \(2021\)](#), to which we have added a further section with the description of the Method. The first of these sections deals with the definitions of SE formulated so far in the literature. In the second section, we describe the revision search strategy and the results obtained using the PRISMA model. Third, we code the studies in terms of six initial theory-based attributes instrumental in determining to what extent they capture similarities and differences in outcomes: 1) SE type and measure; 2) design/sample; 3) SE antecedents; 4) SE consequences; 5) SE mediators/moderators; 6) key SE results. Fourth, we coded the studies, as [Dwertmann and van Knippenberg \(2021\)](#) postulate, based “on attributes drawn from the theory outside the area of review or derived inductively to capture observed similarities and differences not predicted by the theory” (p. 112) in the SE research. Next, we propose a new theoretical framework that integrates the findings

potentially inconsistent with the theory from the categorizations defined in the previous section. The closing section suggests a future research agenda based on the theoretical integration we propose.

In Search of the Definition of Sustainable Employability

The terms ‘sustainability’ and ‘employability’ have an honorable tradition in research in various social and natural science disciplines, from economics and ecology to sociology and work and organizational psychology. However, neither within nor between disciplines is there a clear consensus about the definition and measurement of these two constructs ([Abma et al., 2016](#); [Fleuren et al., 2020](#); [Forrier & Sels, 2003](#)). To some extent, their widespread use may run the risk of turning them into catch-all terms, lacking concrete and definite meaning.

If we place the lens on the work and organizational psychology domain, a broad spectrum of topics related to both primary constructs have gained prominence in recent years (i.e., sustainability and employability). Some examples are sustainable work/employment ([Kira et al., 2010](#)), employability ([Van der Heijden et al., 2016](#)), employability capital ([Peeters et al., 2019](#)), organizational sustainability ([Mohrman & Worley, 2010](#)), sustainable career ([De Vos et al., 2020](#)), sustainable work systems ([Zink, 2014](#)), sustainable HRM ([De Vos & Van der Heijden, 2017](#)), and capability set for work ([Abma et al., 2016](#)).

Integrating both into the SE construct, we are attempting to capture the dynamic elements that influence an individual's ability to sustainably maintain employability, health, and well-being throughout the working life. As a result, the construct comprises three primary components: employability, sustainability, and time ([Fleuren et al., 2020](#)). Almost simultaneously, two general definitions were formulated in the specialized literature. On the one hand, [van der Klink et al. \(2016\)](#) use Amartya Sen's capability approach as a theoretical framework and propose the following definition:

SE means that, throughout their working lives, workers can achieve tangible opportunities in the form of a set of capabilities. They also enjoy the necessary conditions that allow them to make a valuable contribution through their work, now and in the future, while safeguarding their health and welfare. This requires, on the one hand, a work context that facilitates this for them and on the other, the attitude and motivation to exploit these opportunities. (p. 74)

For the authors, central to their conceptualization is the set of tangible opportunities, i.e., capabilities that enable the achievement and maintenance of valuable work functioning. Their approach requires personal and contextual (work and organizational) conditions that “enable workers to convert their personal and work inputs into these capabilities (real opportunities for valuable work functioning)” ([van der Klink et al., 2016](#), p. 74). From this starting point, they formulate a process model that includes the influence of factors at three levels: macro-level (societal) setting (e.g., labor market, globalization), meso-level (work) setting (e.g., organizational culture, leadership), and micro-level (personal) setting (e.g., personal, family, and social context), although the type of relationship between these factors and the core mechanisms of the model is not specified.

At the origin of capabilities are two types of resources or inputs: work (such as task structure and job demands) and personal (or personal capacity, which includes knowledge and learning ability). Resources or inputs do not directly affect SE. Still, the association between them and capabilities is mediated by the “conversion factors” (work/organizational and personal), which act as mediators capable of converting resources into a capability set of tangible opportunities (i.e., SE) to achieve certain valuable work-related objectives. Finally, two outcomes are suggested, one central and the other as a proxy for

SE. The first refers to the worker's actual (job) functioning, stemming from the combination of the valuable functionings they choose to achieve based on their capability set and the factors of the work context. These valuable functionings included work ability, work motivation, and work performance. The second outcome refers to the level of well-being, or quality of working life (van der Klink et al., 2016). Abma et al. (2016) developed and validated a questionnaire to assess SE using the conceptualization of van der Klink et al. (2016) to measure the capability set for work. The 22-items questionnaire is intended to measure seven capability aspects for work: use knowledge & skill, develop knowledge & skills, involvement in important decisions, meaningful contacts at work, setting own goals, having a good income, and contributing to something valuable; in addition, it includes a single-item measure of overall capability.

The second definition was developed by Fleuren et al. (2015/2016), subsequently refined in Fleuren et al. (2018b) and Fleuren et al. (2020). These researchers consider SE as a second-order construct consisting of nine first-order factors with an inherently longitudinal nature. These first-order factors are subjective health, need for recovery, fatigue, work ability, skill gap, performance, employability, motivation, and job satisfaction (Fleuren et al., 2018b). These nine indicators capture the 'employability' component of SE (Fleuren et al., 2020). In addition, to capture the 'sustainability' component, the definition should include the increases or stability of 'employability' over time, i.e., including the relationship of "the possible predictors with the slope of 'employability' [which] allows estimating their effects on the 'sustainability of employability', or rather, on SE" (Fleuren et al., 2020, p. 15). Based on their original formulation (Fleuren et al., 2015/2016), they are currently proposing the following comprehensive definition:

Sustainable employability means that an individual's ability to function at work and in the labor market, or their "employability", is not negatively, and preferably positively, affected by that individual's employment over time. This ability can be captured meaningfully as a combination of nine indicators (i.e., perceived health status, work ability, need for recovery, fatigue, job satisfaction, motivation to work, perceived employability, skill-gap, and job performance) that collectively describe how well an individual can be employed at different points throughout the working life. (Fleuren et al., 2020, p. 15)

No specific instrument has been developed from this definition, and researchers use previously existing scales and items to measure the nine SE indicators (e.g., Fleuren et al., 2018b).

In addition to these two general definitions, empirical research has also used different operationalizations of SE (Fleuren et al., 2020), such as the Ability Motivation Opportunity framework (e.g., Le Blanc et al., 2017) and other ad hoc ones, as discussed below. The logical consequence of the lack of consensus in the definition, operationalization, and measurement of this new construct leads to conceptual and methodological fuzziness. Accordingly, the current paper aims to answer the call for a review of the accumulated research and an attempt at integration. The logic of our integrative review, whose foundations we mentioned above (Dwertmann & van Knippenberg, 2021), differs from the narrative review of Fleuren et al. (2020), thus aiming to provide an original contribution to the clarification of the construct.

Method

For this purpose, we use the following strategy of searching the relevant literature. The search was conducted within five psychology and related disciplines databases: PsycInfo, Scopus, PubMed, Medline, and Science Direct. We used the following search terms: set 1: "sustainable employability", and "sustainable AND employability", limited to the fields Title/Abstract/Keywords, and set 2: "TI

sustainable employability AND AB (older workers or aging workforce or older employees or aging workers)". After screening for duplicates, triplicates, and so on, this search process identified 91 articles. Of these 91, 19 records were excluded because they did not include explicit measures of SE (e.g., Oude Hengel et al., 2012; Oude Hengel et al., 2013; van der Meer et al., 2016). The inclusion criterion for empirical articles was having a sample that included, at least partially, workers aged 50 or older. Alternatively, the inclusion of studies with no specified age range (e.g., Detaille et al., 2020) was conditional on mentions in the text suggesting the sample included participants aged 50 years or older. The inclusion criterion of theoretical articles or literature reviews was the specific focus on the SE construct. In addition, only articles published in English were included. The exclusion criterion was applied to studies whose sample consisted of students, graduates, or young workers since our focus is SE in mid-and-late careers. After applying these inclusion/exclusion criteria, of the 72 records assessed for eligibility, the studies included in the review were 31, 26 empirical and five theoretical/reviews; total sample size, $N = 33,368$ participants. Figure 1 shows the PRISMA flow diagram (Page et al., 2021).

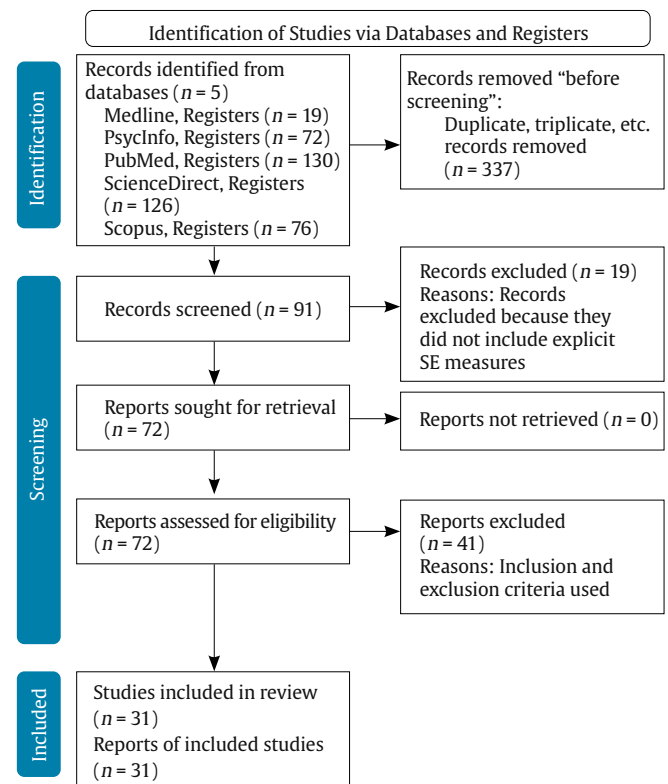


Figure 1. PRISMA Flow Diagram.

Review of Sustainable Employability Research: Initial Coding of Theoretical and Empirical Studies

First, we coded the theoretical and review articles using four categories: (1) SE definition; (2) SE dimensions; (3) theory-related/theoretical approach; and (4) SE outcomes. Table 1 shows the analysis performed and the results obtained. Regarding the analysis of the conceptual and theoretical elements, the two dominant perspectives (Fleuren et al., 2015/2016; Fleuren et al., 2020; van der Klink et al., 2016) were discussed in the previous section. Thus, we will not reiterate it here.

Subsequently, to analyze the main attributes used in SE empirical research, we code the studies in terms of six initial theory-based

Table 1. Sustainable Employability Theoretical and Review Papers

Authors	SE Definition	SE Dimensions	Theory-related/theoretical approach	SE Outcomes
Fleuren et al. (2016) Fleuren et al. (2015/2016)	SE: second-order construct with an inherently longitudinal nature. SE means that an individual's ability to function in current and future work is not negatively affected by that individual's employment over time. An individual's ability to function in current and future work in this context consists of a set of characteristics (i.e., perceived health status, work ability, need for recovery, fatigue, job satisfaction, motivation, perceived employability, skill-gap, and job performance) that collectively describe the degree to which an individual can be employed at different points throughout the working life.	Subjective health; Need for recovery; Fatigue; Work ability; Skill gap; Performance Employability (job internal, firm internal, external); Motivation; Job satisfaction	None	Perceived ability and willingness to work until the official retirement age (p. 557).
Fleuren et al. (2020)	SE means that an individual's ability to function at work and in the labor market, or their 'employability', is not negatively, and preferably positively, affected by that individual's employment over time. This ability can be captured meaningfully as a combination of nine indicators (i.e., perceived health status, work ability, need for recovery, fatigue, job satisfaction, motivation to work, perceived employability, skill-gap, and job performance) that collectively describe how well an individual can be employed at different points throughout the working life.	Idem	None	
Hazelzet et al. (2019)	Based on the definition proposed by van der Klink et al. (2016)	Health; Productivity; Valuable work; Long-term perspective	Amartya Sen's capability approach	Health component (e.g., well-being, vitality, and quality of working life); Productivity component (e.g., work ability, productivity, work engagement, and work performance); Valuable work component (e.g., positive attitude, job motivation, and having the right competences for one's work); Long-term perspective component (e.g., future employability of employees of all ages and long-term effects) (p. 3).
van der Klink et al. (2016)	SE means that, throughout their working lives, workers can achieve tangible opportunities in the form of a set of capabilities. They also enjoy the necessary conditions that allow them to make a valuable contribution through their work, now and in the future, while safeguarding their health and welfare. This requires, on the one hand, a work context that facilitates this for them and on the other, the attitude and motivation to exploit these opportunities.	Capability set of tangible opportunities	Amartya Sen's capability approach	Well-being (Quality of Working Life) Achievement of valuable functionings (Work ability, Work engagement, Work performance) (p. 75).

attributes: (1) SE type & measure; (2) design/sample; (3) SE antecedents; (4) SE consequences; (5) SE mediators/moderators; and (6) key SE results, which we use to determine the extent to which they capture similarities and differences in findings. [Table 2](#) includes the results of this initial coding.

SE Type and Measure

Among the 26 empirical studies identified, most of them used a subjective approach to measure SE. The few exceptions were made by [Leijten et al. \(2015\)](#), who used an objective and subjective approach to SE, and [van Dam et al. \(2017\)](#), that used an objective approach. Three studies also focused on HR policies and practices ([Tonnon et al., 2017](#); [Verbrugghe et al., 2016](#); [Ybema et al., 2020](#)). Concerning the studies that investigated SE from a subjective perspective, some of them used measures related explicitly to perceived SE ([Brokerhof et al., 2020](#); [Brouwers et al., 2015](#)), while others also identify different dimensions of employability ([Houkes et al., 2020](#); [Peters et al., 2015](#)). One study also used subjective

measures but related to indicators of perceived SE: for instance, the ability to continue working, motivation to continue working, and opportunity to continue working ([Le Blanc et al., 2017](#)). On the other hand, other studies used a set of variables related to SE: for instance, work ability ([de Lange et al., 2020](#)) and work engagement ([van Dam et al., 2017](#)).

Design and Sample

Concerning the type of design used, despite the fact that some authors (e.g., [Fleuren et al., 2016](#); [Fleuren et al., 2020](#)) consider SE as a construct with an inherently longitudinal nature, the majority of the studies (16) used a cross-sectional design to investigate SE, while only 8 used a longitudinal design. Interestingly, one study used an online field experiment ([Brokerhof et al., 2020](#)) to investigate SE. Considering the sample used in the studies, it is surprising how almost all of the studies were conducted in the Netherlands, while only two in Sweden, one in Australia, and one in Belgium. The age range of the samples was highly variable:

Table 2. Initial coding of Sustainable Employability in Empirical Studies

Authors	Sustainable Employability Type & Measure	Design/Sample	Antecedents	Consequences	Mediators/ Moderators	Key SE results
Abma et al. (2016)	Subjective A 22-item The capability set for work questionnaire	Cross-sectional qualitative and quantitative measures A representative sample of the Dutch working population ($N = 1,157$, aged 16–70 years, mean = 42.7)	Seven capability aspects for work: Use knowledge & skills; Develop knowledge & skills; Involvement in important decisions; Meaningful contacts at work; Setting own goals; Having a good income; Contributing to something valuable; and overall capability.	Work ability; Work role functioning (physical and flexibility); Work performance; Current hours at work; Sickness absence; Self-rated health		The capability set for work questionnaire appears to be a valid instrument to measure work capabilities (i. e., SE) (p. 34).
Brokerhof et al. (2020)	Subjective A six-item Sustainable Employability Scale	Online field experiment. A sample of 166 Dutch people with Inflammatory Bowel Disease, aged 18 to over 50 years old	Narrative impact: A positive illness narrative for the positive story condition and a negative illness narrative for the negative story condition.	Perceived SE	Med: Positive emotions and possible future work selves Mod: identification with narrative role models	Personal engagement with a positive work story of a fellow patient is related to higher SE of employees with a chronic disease (p. 1).
Brouwers et al. (2015)	Subjective Vitality Scan, a 28-item Sustainable Employability Scale	A sample of 1,834 Dutch workers: Younger workers (18–34 years), middle-aged workers (35–54 years), and older workers (55–65 years) (global mean = 45.7 years)	Balance and competence; motivation and involvement; resilience; mental and physical health; and social support at work	Perceived SE		The developed instrument Vitality Scan showed good measurement properties, and it is applicable as a user-friendly, evaluative instrument for worker's SE (p. 1).
de Lange, Pak, Osagie, et al. (2020)	Subjective Work ability; Vitality; and Internal and External Employability	Two-wave complete panel study: 1,478 healthcare Dutch workers ranged 18–58 years (mean = 45.7 years)	Different types of job demands and job resources	Work ability; Vitality; and Internal and External Employability	Mod: Calendar age and occupational time perspective	Few significant findings were found for relations between specific job demands or job resources and several indicators of SE (p. 1).
Detaille et al. (2020)	Subjective	Cross-sectional Two focus groups of 17 double duty nurses caregivers in The Netherlands	Work knowledge and Self-management skills	Perceived SE	Mod: Realistic expectations and social support; HR Instruments and social support	Social support from the workplace is not enough for double duty nurses caregivers to be able to manage the situation. Self-management skills are important to be able to communicate effectively with the workplace and community care organizations about the kind of support needed (p. 1).
Fleuren et al. (2018a)	Subjective Nine dimensions: Subjective health; Need for recovery; Fatigue; Work ability; Skill gap; Performance Employability (job internal, firm internal, external); Motivation; Job satisfaction	Two-wave survey data from a sample of 2,672 Dutch employees ranged 34.59 to 71.33 years old ($M = 53.14$ years)	Age and time effects	Perceived SE		Age has small effects on only two dimensions (employability and perceived health) while time affects three dimensions (fatigue, job performance, and skill gap) of SE. Moreover, for all dimensions of SE most variance exists between (61.43–84.96%) rather than within (15.04–38.57%) subjects (p. 1).

Table 2. Initial coding of Sustainable Employability in Empirical Studies (continued)

Authors	Sustainable Employability Type & Measure	Design/Sample	Antecedents	Consequences	Mediators/Moderators	Key SE results
Hansen et al. (2020)	Subjective	Cross-sectional Online survey with open-ended questions 43 Australian workers ranged to 23-70 years (mean = 43)	Experienced antidepressant medication transition events (ceasing, changing or reducing) (AMTEs)	Effects on employment and workplace functioning		Significant and detrimental impact of antidepressant medication changes occurred in the workplace. While a majority of participants perceived many positive impacts of antidepressant medication on their workplace functioning, considerable negative effects during AMTEs were reported, increasing their job vulnerability (p. 1).
Houkes et al. (2020)	Subjective Five areas: Meaning of SE; Level of SE; Factors affecting my SE; Overall responsibility for SE; Responsibility for factors affecting my SE	Cross-sectional Online questionnaire 632 Dutch employees Age mean = 48.1 years	Demographics variables (gender, age, and educational level)	Vitality and perceived health (as SE proxies)		Validation of MAastricht Instrument for Sustainable Employability (MAISE). Reliability, construct, and criterion validity were adequate to good. SE of the employees was relatively high, and SE was considered a shared responsibility of the employee and employer (p. 1).
Koolhaas et al. (2015)	Subjective	Intervention Dutch public Hospital and University (nurses and university staff); Mean age 52.4 years 64 workers of 10 supervisors (intervention group; mean age = 51.7); 61 workers of 7 supervisors (control group; mean age = 52.9)	Problem-solving intervention	Primary outcome variables: Work ability; Vitality; Productivity Secondary outcome variables: Fatigue, Psychosocial work characteristics; Perceived work attitude; Self-efficacy; Work engagement		Ability to clarify and explore problems with work participation and career aspiration; capability at conducting dialogue with supervisors, and at setting up structured action plans to improve work conditions; awareness of responsibility in creating a healthy workplace; self-confidence in changing the work situation and to enhanced capability for discussing work performance with supervisors (p. 7).
Le Blanc et al. (2017)	Subjective	Cross-sectional Online survey 180 employees from Dutch public service organizations, ranged from 26 to 64 years; The mean calendar age was 48.99 years	Calendar age; Organizational age; Functional age; Life-span age	Ability to continue working; Motivation to continue working; Opportunity to continue working		The four conceptualizations of aging were differently related to the three indicators of SE. Life-span age, in terms of having children, had the strongest negative relationship with the ability to continue working, organizational age had the strongest negative relationship with the motivation to continue working, and functional age had the strongest negative relationship with the opportunity to continue working (p. 1).
Leijten et al. (2015)	Objective and subjective	Longitudinal Self-report questionnaire data from the Dutch longitudinal Study on Transitions in Employment, Ability and Motivation with 3 years of follow-up (2010-2013), among 8,149 employees aged 45-64 years (mean = 53.4 years).	Chronic physical and psychological health problems	Disability benefits; unemployment; early retirement	Physical work load and psychosocial work-related factors (i.e., psychological job demands, autonomy and support)	All health problems affected disability benefits to a similar extent, but psychological health problems especially predicted unemployment and early retirement (i.e., low SE). Specifically, among workers with health problems, higher autonomy, higher support and lower psychological job demands reduced the risk of disability (p. 1058).

Table 2. Initial coding of Sustainable Employability in Empirical Studies (continued)

Authors	Sustainable Employability Type & Measure	Design/Sample	Antecedents	Consequences	Mediators/ Moderators	Key SE results
Nilsson and Nilsson (2021)	Subjective	Cross-sectional Focus group interviews and individual interviews with 145 Swedish participants	Identification of measures and actions to promote a good physical and mental work environment; to promote personal financial and social security; to promote relations, social inclusion and social support in the work situation; to promote creativity, knowledge development and intrinsic work motivation	General SE		Based on the study results a tool for dialogue and discussion on employee work situation and career development was developed. Regular conversations, communication and close dialogue are needed and are a prerequisite for good working conditions and a sustainable working environment, as well as to be able to manage employees and develop the organization further (p. 1).
Peters et al. (2015)	Subjective	Cross-sectional 498 Dutch nurses, range 18-65 years (mean = 42.2 years)	Type of work schedule; Chronological age; Organizational age; Life-span age; Functional age	General health; General fatigue; Emotional exhaustion; Work ability; Work engagement; Work-home interference; Job satisfaction; Sickness absence		Nurses' SE appeared to be mainly related to differences between the types of work schedule rather than age. Fixed early shifts are characterized by the most positive aspects of SE, and three rotating schedules score worst. The 'life-span age' was directly related to aspects of sustainable employability (p. 881).
Peters et al. (2019)	Subjective Self-perceived employability scale, Five dimensions: Occupational Expertise; Anticipation and optimization; Corporate Sense; Personal Flexibility; Balance	Cross-sectional 98 supermarket Dutch workers in various age groups. The younger age group (< 30 years old, <i>n</i> = 47); the middle-aged group (30 to 49 years old, <i>n</i> = 32); and the older age group (50 to 67 years old, <i>n</i> = 19) (mean = 34.78 years)	Age group (older workers in comparison with younger and middle workers)	Self-perceived SE	Mod: Perceived Negative (Meta-) Stereotyping in the Organization Regarding Older Age Group Members; three dimensions: Productivity; Reliability; Personal Adaptability	Perceptions of negative age-based (meta-)stereotyping amplifies the negative effect of older workers' age on their self-perceived employability. Age group membership as well as negative age-based (meta-)stereotypes deter older workers from enhancing their employability, which may potentially impact their career decisions and opportunities, especially in view of swift changing labor market demands (p. 1-2).
Roczniewska et al. (2020)	Subjective Job satisfaction Perceived health Job performance	3-wave study 269 professionals working in 42 units of a healthcare organization in Sweden Age mean = 47.23 years	Vertical trust; Teamwork; Transformational leadership	SE		The multilevel analyses demonstrated that, at the individual level, vertical trust was positively related to all three facets of SE. Next, at the group level, teamwork had a positive link with employee health and job performance, while transformational leadership was negatively related to job performance (p. 1).
Tonnon et al. (2017)	Employers' responses on measures to promote the SE of employees	Cross-sectional Questionnaire among 499 employers and interviews with 17 employers in the construction industry in The Netherlands, on average 49 years old				Measures frequently targeted the work environment (95%; e.g., Safety; Social work environment; Motivation/engagement) and employee health (79%; e.g., Periodic medical examination; Sickness absence; Workload/ work stress), less frequently personal development (63%; e.g., Certification/training; Employability) and organization (65%; e.g., Autonomy; Rewards for achievements) (p. 85).

Table 2. Initial coding of Sustainable Employability in Empirical Studies (continued)

Authors	Sustainable Employability Type & Measure	Design/Sample	Antecedents	Consequences	Mediators/Moderators	Key SE results
van Casteren et al. (2021)	Subjective	Cross-sectional Qualitative study with 16 in-depth semi-structured interviews with Dutch gifted workers (IQ > 130) Age range: 27-58 years (mean = 46 years)		Capability approach to SE		Participants placed great value on the opportunity to learn, to use their knowledge and skills, and tended to have high ethical standards. If realized, these values contributed to wellbeing whereas if not fulfilled, this often resulted in frustration and sadness. The most important personal factors associated with wellbeing at work and SE were the level of organizational awareness, self-knowledge, a willingness to compromise, and fear of stigmatization. Contextually a facilitating leadership style of managers was important, allowing the worker autonomy and decision latitude (p. 1).
van Dam et al. (2017)	Subjective Employability; Work engagement; Affective commitment	Cross-sectional 119 office employees of a Dutch public organization Mean age 43.3 years	Intrinsic job value; Age-supportive climate (individual-level climate perceptions)	Employability; Work engagement; Affective commitment		Intrinsic job value was strongly and positively related with all three indicators of SE for employees of all ages. Age-supportive climate was especially important for older employees' work engagement and affective commitment (p. 2449).
van de Ven et al. (2014)	Objective Temporarily being placed in less strenuous work; Sickness absence of ≥ 6 weeks; Leaving the organization	Dynamic cohort study 5,640 Dutch workers, 4,311 shift and 1,329 day workers	Individual (schedule, age, health status, lifestyle, work family interference) and work-related characteristics (psychosocial job demands, physical job demands, job satisfaction, job security, work organization and communication)	Temporarily being placed in less strenuous work; Sickness absence of ≥ 6 weeks; Leaving the organization		Similar predictors (individual and work-related characteristics) in magnitude and direction were found for work outcomes related to SE among shift and day workers (p. 287).
Van der Heijden et al. (2016)	Subjective Self ratings and supervisor ratings employability scale, Five dimensions: Occupational Expertise; Anticipation and optimization; Corporate Sense; Personal Flexibility; Balance	Cross-sectional 330 pairs of Dutch employees and their supervisors Mean age of the employees = 40.94 years; mean age of the supervisors = 43 years	Occupational Expertise; Anticipation and optimization; Corporate Sense; Personal Flexibility; Balance	Learning value; Applicability of training and development	Mod: Age	The learning value of the job positively related to both self- and supervisor ratings of corporate sense, personal flexibility, and anticipation and optimization. Applicability in the job of recently followed training and development programmes was associated with all dimensions of self-rated employability and with supervisor ratings of anticipation and optimization. Contrary to expectations, it was found that both learning value and applicability of training and development related more strongly to self-rated anticipation and optimization for younger workers (p. 13).

Table 2. Initial coding of Sustainable Employability in Empirical Studies (continued)

Authors	Sustainable Employability Type & Measure	Design/Sample	Antecedents	Consequences	Mediators/ Moderators	Key SE results
van der Meer et al. (2016)	Subjective Work ability; Work engagement	Longitudinal data from three waves of the Study on Transition in Employment, Ability, and Motivation in The Netherlands 6922 employees aged 45-64 years (mean = 53.74)	Lower work ability and work engagement predict the use of company policies on reduced working hours and exemption from evening/night work Covariates: Age; Gender; Company size; Physical workload; Job demands; Social support; Age discrimination	Work ability; Work engagement		Employees with a higher work ability were less likely to start using the policy reduced working hours. Starting to use this policy was in turn related to lower work ability 1 year later. Starting to use the policy exemption from evening/night work was related to higher work engagement 1 year later. Low work ability precedes the use of some company policies aiming to support SE of older workers (p. 173).
van Gorp et al. (2018)	Subjective	Cross-sectional 163 Dutch workers with multiple sclerosis aged 24-64 years (mean = 42.5) 163 Dutch working general population aged 24-64 years (mean = 42.5)	Work capabilities (Seven valued work aspects, considered valuable by the worker, enabled in the work context, and can be achieved)	Self-rated health; Work ability; Work Functioning Physical; Work Functioning Flexibility; Absenteeism; Presenteeism; Cognitive/neuropsychiatric impairment; Depression; Anxiety; Fatigue		Despite lower physical work functioning, lower work ability and worse self-reported health workers with MS had a larger capability set than the general population. In workers with MS, a larger capability set was associated with better flexible work functioning, work ability, self-rated health; and with less absenteeism, presenteeism, cognitive/neuropsychiatric impairment, depression, anxiety and fatigue (p. 1).
van Holland et al. (2018)	Subjective and objective Work ability; Productivity; Sickness absence	Cluster randomized stepped wedge trial (with follow-up measurements within a 1-3-year period after start of the intervention) in a Dutch meat processing company with 305 workers; Age mean = 50.6 years	Intervention group: Workers' Health Surveillance (physical and mental health, and physical and mental work capacity) Control group: Care as usual	Primary outcomes: Sickness absence; Work ability; Productivity Secondary outcomes: Psychosocial workload (quantitative work demands, work pace, autonomy, possibilities for development, meaning of work, job satisfaction, social support from supervisor, social support from colleagues, and sense of community), Perceived health status; Vitality		Primary outcomes sickness absence, work ability and productivity were better in the control condition. Secondary outcomes did not or minimally differ between conditions. Of the 12 secondary outcomes, the only outcome that scored better in the experimental condition was meaning of work. Primary outcomes did not improve after program implementation and secondary outcomes remained equal after implementation. The program was not cost-beneficial after 1-3 year follow-up (p. 107).

Table 2. Initial coding of Sustainable Employability in Empirical Studies (continued)

Authors	Sustainable Employability Type & Measure	Design/Sample	Antecedents	Consequences	Mediators/Moderators	Key SE results
van Scheppingen et al. (2015)	Subjective Vitality at work; Effective personal functioning; Perceived SE	Cross-sectional 629 Dutch workers from a dairy company aged to 16 from > 56 years	Lifestyle factors (Physical activity; Smoking and alcohol use; Healthy dietary habits; Relaxation); Basic psychological needs for self-determination (Autonomy; Competence; Relatedness); Organizational-cultural factors (Transformational leadership; Balanced workstyle; Organizational social capital)	Vitality at work; Effective personal functioning; Perceived SE		Vitality at work is most strongly associated with basic psychological needs of self-determination, but also with healthy lifestyle behavior, having a balanced workstyle, and social capital. Vitality at work is also associated with effective personal functioning and with SE (p. 45).
Verbrugghe et al. (2016)	Employers' responses on measures to promote the SE of employees aged ≥ 55 years old	Cross-sectional 790 Belgian employers				89% of the responding companies, SE of workers aged ≥ 55 years plays an important role; 70% have no active SE policy/initiative; 18% experience difficulties promoting SE; and 86 % indicate no need for support to promote SE. Respondents noted the following health complaints among workers aged ≥ 55 years: work-related health problems (31%), stress (26%), work agreements/type of work (17%), work/life balance (15%), and career development and/ or training (9%). Topics concerning health and well-being of workers aged ≥ 55 years requiring the most attention include motivation (30%) and adaptation of the workplace to their health requirements (26%) (p. 1).
Ybema et al. (2020)	Owners/directors or HR managers' responses on the extent to which organizations implement HR practices for enhancing sustainable employability	312 owners/directors or HR managers of Dutch companies		SE Workers' health; Motivation; Skills and knowledge		Most organizations implemented a range of HR practices to improve the health, motivation, and skills and knowledge of their employees. Perceived effectiveness of these practices were dependent on the number of HR practices that were implemented, employees' use of and participation in designing these practices. Implementation of HR practices was also related to higher satisfaction with the current employability of employees, and to increased productivity of the organization. Implications for practice and examples of HR practices to enhance SE are given (p. 886).

while the majority of the studies include participants aged 18-70 years or older, few cases only include participants between 45 and 64 years old (Leijten et al., 2015). The studies presented involved different targets of participants. Most of them involved workers, but a smaller amount involved employers (Tonnon et al., 2017; Verbrugghe et al., 2016), employees, and their supervisors (Van der Heijden et al., 2016). Employees involved in the study are from different sectors.

SE Antecedents

Among the studies here considered, most of them ($n = 22$) aimed to explore the antecedents of SE. Several studies include socio-demographical antecedents, mainly age (i.e., chronological age and organizational age) and gender. Moreover, the age variable has been taken into account with reference to individuals' health (i.e., life-span age and functional age) (Le Blanc et al., 2017; Peters et al., 2015) and age-supportive climate (van Dam et al., 2017). Other

studies focused on more health-related variables: mental and physical health have been investigated by [Brouwers et al. \(2015\)](#) and [van Holland et al. \(2015\)](#), chronic physical and psychological health problems were measured by [Leijten et al. \(2015\)](#), several health-related lifestyle factors (i.e., physical activity, smoking and alcohol use, healthy dietary habits, relaxation) by [van Scheppingen et al. \(2015\)](#), experienced antidepressant medication transition events by [Hansen et al. \(2020\)](#). Moreover, several studies focused on psychosocial factors, ascribable to job demands and resources, and job-related psychological states ([Nilsson & Nilsson, 2021](#); [de Lange et al., 2020](#); [Roczniewska et al., 2020](#); [van der Meer et al., 2016](#); [Brouwers et al., 2015](#); [van de Ven et al., 2014](#)): for instance, flexibility, social support, transformational leadership, organizational social capital, work engagement, motivation, involvement. Other studies also focused on relevant work-content variables in addition to socio-demographical, health, and psychological variables, such as work capabilities ([van Gorp et al., 2018](#)), work knowledge ([Detaille et al., 2020](#)), or type of work schedule ([Peters et al., 2015](#)).

SE Mediator/Moderators

An online field experiment conducted by [Brokerhof et al. \(2020\)](#) explored the mediating role of positive emotions in the relationship between reading a positive work story and SE among patients suffering from a chronic disease (i.e., inflammatory bowel disease). The obtained results corroborated the occurrence of an emotional contagion process leading chronic patients who read positive work narratives to experience positive emotional states. In contrast with study hypotheses, the experience of positive emotional states did not significantly contribute to enhanced SE. On the other hand, the association between reading positive narratives and SE was mediated by the awareness of Possible Future Work Selves. Being exposed to successful work experience through positive stories allows patients to gain insight into one's desired work self, which results in higher SE.

Concerning the factors able to moderate the perceived level of SE, [Brokerhof et al. \(2020\)](#) indicated that identification with narrative role models moderated the relationship between positive work stories and SE.

The two-wave panel study among Dutch healthcare workers ([de Lange et al., 2020](#)) investigated the moderating role of age and future time perspective (FTP) in predicting the relationship between psychosocial work characteristics (i.e., job demands and resources) and SE, defined as the combination of work ability – the self-assessment of the degree of physical and mental capacity to continue performing the current job, now and in the next two years ([Ilmarinen, 2007](#)) –, vitality – motivational state characterized by high levels of energy and mental resilience at work, the willingness to invest effort in one's work, and the persistence in coping with job difficulties – ([Schaufeli et al., 2006](#)), and employability. The obtained results provided support to the interaction between supervisor support (as a job resource) and FTP in explaining across-time variation of external employability, a component of SE. According to these findings, aging healthcare workers characterized by a limited FTP at work can also maintain high levels of external employability when perceiving high levels of support from their supervisors. In contrast, calendar age reported no significant interaction effect between psychosocial work characteristics and indicators of SE.

The moderating role of age was also explored in the study conducted by [Van der Heijden et al. \(2016\)](#) among 330 dyads composed of employees and supervisors. The research design assumed that the association between learning characteristics in the workplace and self-rated employability was stronger for older employees, and the same relationship considering supervisor-rated employability was greater among younger employees. In contrast to study hypotheses, the interaction between the learning value of the job and age leads to

higher levels in three components of SE (i.e., self-rated occupational expertise, anticipation, and optimization) among younger employees compared to their older colleagues. In a similar vein, the applicability of training and development programs interacted significantly with employees' age and reported a stronger self-rating of anticipation and optimization (as dimensions of SE) among younger workers compared to their older co-workers.

The relationship between age and self-rated employability was also a key focus of the research conducted by [Peters et al. \(2019\)](#) on a sample of supermarket workers. This study was aimed to explore the moderating role of perceived negative age-based (meta-)stereotyping in the relationship between workers' age and employability. The obtained results supported the assumption that negative (meta-) stereotypes could strengthen the harmful effect of age on perceived employability among older age group members. Compared to their younger colleagues, older workers perceiving negative (meta-) stereotypes concerning their productivity, reliability, and personal adaptability also reported lower levels on four components of SE (i.e., anticipation and optimization, occupational expertise, corporate sense, and balance).

Based on a sample of Dutch nurses, the qualitative study conducted by [Detaille et al. \(2020\)](#) highlighted the role of HR tools, such as a clear definition of duties and responsibilities, to promote SE among double-duty caregivers nurses. Further variables able to buffer the detrimental impact of caregiving burden on SE rely on realistic expectations about the ability to successfully perform caregiving tasks as held by participants, their family members, and community care organizations.

Additionally, the relationship between caregiving tasks and SE depends on the availability of support sources on and off the job (i.e., from colleagues, managers, and family members).

A longitudinal Dutch cohort study with a 3 years-follow-up ([Leijten et al., 2015](#)) draws similar conclusions on the protective role of positive psychosocial work-related factors. Based on a sample of workers affected by different types of chronic health problems (i.e., chronic diseases, disorders, or handicaps), this study investigated favorable psychosocial work-related factors able to reduce the risk of receiving disability benefits. Thus, high levels of autonomy, support from colleagues and/or supervisors, and lower psychological job demands in an organizational environment act as significant moderators against the detrimental impact of health problems on SE among aging workers.

SE Consequences

Concerning the consequences of SE, a wide range of outcomes and domains were investigated. Other than an increase in employability per se, research showed effects on individual, work-related, and organizational outcomes. The individual outcomes considered were work ability, self-efficacy, general health, general fatigue, emotional exhaustion, self-rated health, cognitive/neuropsychiatric impairment, depression, anxiety, fatigue, perceived health status, vitality, and effective personal functioning. Regarding work-related outcomes, SE is related to employment and workplace functioning, physical work functioning, flexibility work functioning, psychosocial work characteristics, perceived work attitude, work engagement, job satisfaction, work-home interference, applicability of training and development, skills and knowledge, affective commitment, and motivation.

Among the organizational outcomes investigated, SE is related to disability benefits, unemployment, and early retirement, being temporally placed in less strenuous work, leaving the organization, learning value, absenteeism, presenteeism, productivity.

Overall, empirical studies use a plethora of indicators that 1) prevent comparing the results obtained across studies and 2) preclude their integration into a solid body of evidence to advance

the theory and practice of SE. This conclusion stems from the comparison between SE indicators of the models proposed by van der Klink et al. (2016) and Fleuren et al. (2015/2016, 2020), as well as the measures of outcomes resulting from SE interventions identified by Hazelzet et al. (2019).

Recoding SE Research in basis of “Sustainable” and “Employability” Theoretical Foundations

Our first goal in this section is to identify the core components of the constructs implicit in SE, i.e., sustainable, employability, and time, and, once this is completed, proceed to recode the empirical research on SE (collected in Table 2) using the identified core components. In doing so, we follow Dwertmann and van Knippenberg's (2021) recommendations regarding step 3, according to the structure and objectives of an integrative review.

In work contexts, sustainability refers to the availability over time of personal resources (skills, motivation, attitudes, etc.) and external resources (work, organizational, family, etc.) (Kira et al., 2010; van der Klink et al. 2016). A central aspect of sustainability is maintaining these resources despite their use over time (Fleuren et al., 2020). From the combination of both types of resources, employees can increase their learning, initiate and maintain their motivation, increase competence, gain work ability, develop personally and professionally, and thus turn them into added resources that will lead to valued work outcomes (Brzykcy et al., 2019; Di Fabio, 2017; Roczniowska et al., 2020; Stuer et al., 2019). This evidence allows us to identify the first two core components of sustainability: personal resources and external resources (available over time).

The resources available to the employee conditions/influences their present and future individual capacity and work ability (Brouwers

et al., 2015; Kooij, 2015; Stuer et al., 2019), which constitutes the third SE core component. Previous evidence has consistently shown the importance of maintaining this individual capacity over time to ensure SE (Hazelzet et al., 2019; Peters et al., 2015; Smyth et al., 2018), maintaining engaged at work, and desire to work longer (Vignoli et al., 2021).

The fourth component of sustainability is related to job opportunities. From the capability approach (van der Klink et al., 2016), work and employment characteristics determine the opportunities that, interacting with individual capability, create tangible opportunities in the form of capability sets. Opportunities arising from the work context are necessary also according to the alternative approach proposed by Fleuren et al. (2016) and Fleuren et al. (2020). Individuals, mobilizing and using their motivation and capacity, can take advantage of these opportunities and turn them into SE. In short, the four sustainability core components are grouped into two individual (personal resources and individual capacity) and two external (external resources and job opportunities) components, with time as a cross-cutting component. Sustainable, therefore, is the adjective derived from sustainability that qualifies employability.

As for the second construct implicit in SE, employability has been considered from an individual and external perspective, although the former has been prevalent. The most used approach considers employability as “an individual characteristic that is determined by various (internal and external) factors and describes how well an individual is capable of being (i.e., becoming and maintaining to be) employed in work” (Fleuren et al., 2020, p. 2). This conceptualization could be identified in the competency-based approach (Van der Heijde & Van der Heijden, 2006), the description of an active work-specific adaptability (Fugate et al., 2004), or the alternative definition of employment possibility in the current organization or external labor market (Forrier & Sels, 2003).

Table 3. Recoding of Sustainable Employability in Empirical Studies

Paper	SUSTAINABLE			Job/ Employment opportunities	EMPLOYABILITY		TIME
	Personal resources	External resources	Individual capacity		Individual perceptions	External evaluation	
Abma et al. (2016)	Yes	Yes	Yes	No	Yes	Yes	No
Brokerhof et al. (2020)	Yes	No	Yes	No	Yes	Yes	No
Brouwers et al. (2015)	Yes	Yes	Yes	No	Yes	No	No
de Lange et al. (2020)	Yes	Yes	Yes	Yes	Yes	No	Yes
Detaille et al. (2020)	Yes	Yes	Yes	No	Yes	No	No
Fleuren et al. (2018a)	Yes	No	Yes	No	Yes	No	Yes
Hansen et al. (2020)	Yes	Yes	Yes	No	Yes	No	No
Houkes et al. (2020)	Yes	Yes	Yes	No	Yes	No	No
Koolhaas et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Le Blanc et al. (2017)	Yes	No	Yes	Yes	Yes	No	No
Leijten et al. (2015)	No	Yes	No	Yes	Yes	Yes	Yes
Nilsson and Nilsson (2021)	No	Yes	No	No	Yes	No	No
Peters et al. (2015)	No	No	Yes	No	Yes	Yes	No
Peters et al. (2019)	No	No	Yes	No	Yes	Yes	No
Roczniowska et al. (2020)	Yes	Yes	Yes	No	Yes	No	Yes
Tonnon et al. (2017)	Yes	Yes	No	No	Yes	Yes	No
van Casteren et al. (2021)	No	Yes	Yes	No	Yes	Yes	No
van Dam et al. (2017)	No	Yes	Yes	No	Yes	No	No
van de Ven et al. (2014)	No	Yes	Yes	No	Yes	Yes	No
Van der Heijden et al. (2016)	No	Yes	Yes	No	Yes	Yes	No
van der Meer et al. (2016)	No	Yes	Yes	No	Yes	No	Yes
van Gorp et al. (2018)	Yes	No	Yes	Yes	No	Yes	No
van Holland et al. (2018)	Yes	Yes	Yes	No	Yes	Yes	Yes
van Scheppingen et al. (2015)	Yes	Yes	Yes	No	Yes	No	No
Verbrugghe et al. (2016)	No	Yes	No	No	Yes	Yes	No
Ybema et al. (2020)	No	Yes	Yes	No	Yes	Yes	No

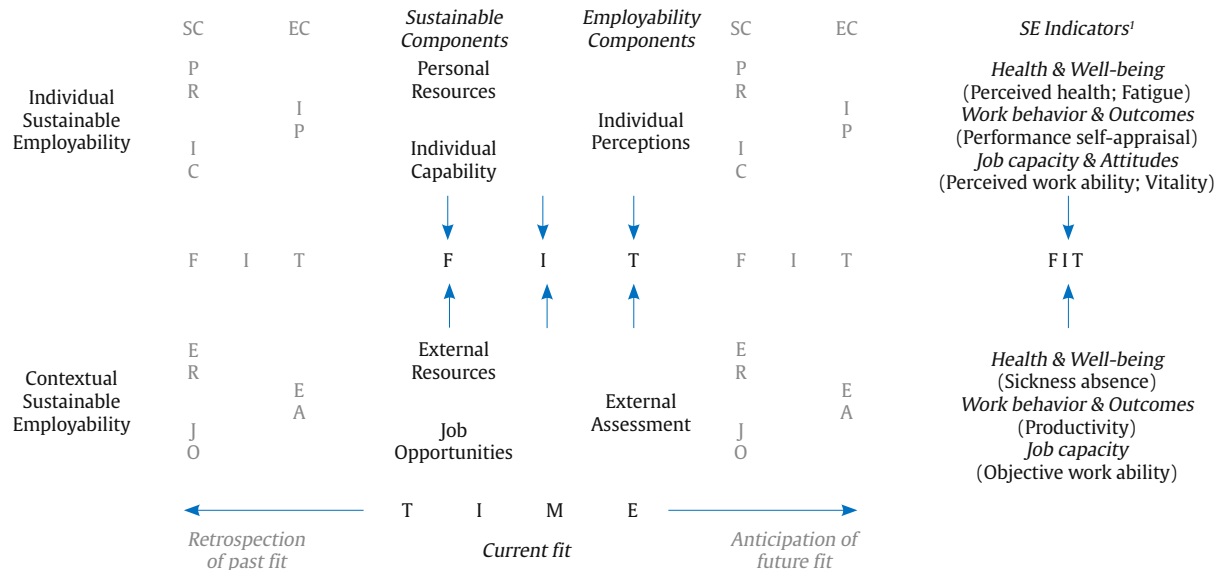


Figure 2. Sustainable Employability Fit Model over Time

Note: Indicators are shown as examples; they are not exhaustive. Please see Table 4 for a complete description of the ES indicators proposed.

Although less common, the conceptualization of employability as employers' assessment of employees' skills looks unavoidable. Indeed, perceived employability may be inadequate if current or potential employers do not gauge a similar evaluation concerning their employees. It is precisely this mismatch in employee and employer perceptions of older workers' employability that dramatically hinders their retention in the labor market and employment after retirement (Sullivan & Ariss, 2019). Previous evidence shows that employability-enhancing practices provided by organizations to older workers are crucial to their current and future employability (Fleischmann et al., 2015; van Harten et al., 2016), and that introduction to sustainable human resource management is a necessary co-responsibility (Peters et al., 2019). As in the case of sustainability, the two core components of employability have time as a cross-cutting dimension.

Our analysis has allowed us to identify the seven core components of SE: personal and external resources, individual capacity, and job opportunities (related to sustainability), individual perception and external assessment (related to employability), and the consideration of all of them over time. With this theoretical framework, we then recode the studies included in our review to capture the overlaps and deviations of SE research from its theoretical foundations. Table 3 shows the results of this recoding.

Concerning sustainability components, the recoding of 26 studies (Table 3) suggests that slightly more than half of the studies (15) include personal resources, around three-quarters of the studies (20) consider external resources, the majority (22) consider individual capacity, and only four studies include employment opportunities. As for the employability components, all but one of the studies includes individual capacity, and only a little more than half (14) involves external evaluations. Finally, although conceptually all researchers consider SE over time as previously stated, only seven studies of the 26 included in the review consider more than one temporal measure. The remaining studies are cross-sectional.

Finally, only the study by Koolhaas et al. (2015) considers the seven components of SE defined in our analysis. Two other studies include six components: that of de Lange et al. (2020) (missing 'external evaluation' as a component of employability) and that of van Holland et al. (2018), who do not consider employment opportunities as a component of sustainability. The remaining studies include between three and five components out of the seven identified.

A Proposal for an Integrative Theoretical Framework of Sustainable Employability Based on its Core Components

Based on the theoretical analysis conducted in the previous section, we propose an integrative theoretical model of SE based on the seven core components identified (Figure 2). Our general model differentiates, first, between two SE dimensions – individual SE and contextual SE – and, second, within each dimension, the model identifies three core antecedents. The antecedents of individual SE refer to personal resources and individual capacity ("sustainable" components), but also individual perceptions of employability ("employability" component). Overall, the combination of these three antecedents creates the individual SE conditions.

On the other hand, the antecedents of contextual SE correspond to external resources and job opportunities ("sustainable" components) and the external assessments of employability ("employability" component). According to our model, the contextual SE conditions stem from the combination of these three antecedents. In addition, to link both SE dimensions, we use the well-established concept in the literature of fit between individual SE and external SE. For instance, from a lifespan approach (e.g., Baltes & Baltes, 1990), individuals use different strategies to adjust their resources and capabilities to external demands and conditions throughout the aging process in their working life. This assumption is consistent with the Selective Optimization and Compensation (SOC; Baltes & Dickson, 2001) theory. In our model, the fit is postulated between individual SE conditions and contextual SE conditions. And third, as a longitudinal dimension (the seventh core SE component identified previously), the model includes the fit between individual SE and contextual SE over time. Thus, the proposed framework is not limited to capture the current fit but rather assumes a retrospective position concerning the past fit and an anticipatory view of the future fit.

Our choice to assume a longitudinal perspective of fit between individual SE and contextual SE along the aging process was based on the conceptualization of person-environment (P-E) fit and evidence on its main characteristics. On the one hand, P-E fit theory suggests the degree of compatibility between individuals and their work contexts influences their attitudes, behaviors, and work outcomes (Edwards et al., 2006). On the other hand, empirical results revealed that fit is dynamic and may change as individuals age (Perry et al., 2012). As pointed out by several researchers in the aging at work domain

(e.g., [Beier et al., 2020](#); [Kooij et al., 2020](#); [Truxillo et al., 2012](#); [Wong & Tetrick, 2017](#)), the P-E fit framework has prominently demonstrated its usefulness in explaining the processes involved. Thus, it can be particularly fruitful also in understanding the overall functioning of the ES, articulating the different components of its two dimensions over time. Additionally, our model may be able to integrate the temporal dimension of fit between individual SE and contextual SE, identifying the retrospection of past fit, current fit, and anticipation of future fit, as proposed by [Shipp and Jansen \(2011\)](#).

Based on these theoretical foundations and rationales, we propose the following definition:

Sustainable employability (SE) in the mid-and late-career refers to the dynamic fit throughout these career stages between the worker's personal resources, individual capability, and perceived employability (individual SE) and external resources, job opportunities, and external assessments of employability (contextual SE). This dynamic fit translates into three domains: well-being and health levels, work behaviors and outcomes, and job capacity and attitudes, valued by the worker and the context, which have a direct effect on the maintenance, eventual increase, and development of employability until the end of the working career.

In addition, our proposed integrated model includes a series of SE indicators, both subjective and objective, relating to the three domains described above. Finally, although in this article we formulate a definition of SE referring to the mid and late stages of the working career, this definition can be perfectly adapted to SE at any age and career stage, since the core components of the definition apply to the entire working life.

Based on this definition and the collected evidence, the following section summarizes the domains and corresponding indicators of individual and contextual SE of our model (see [Figure 2](#) and [Table 4](#)).

Individual SE

Health and well-being. Concerning the health and well-being domain, a first indicator of individual SE corresponds to perceived general health. Among the studies focusing on health as a SE indicator, [Peters et al. \(2015\)](#) revealed significant differences among nurses working with various work schedules. According to these authors, differences in individual SE also stem from the reported levels of general fatigue. As an additional example, fatigue and the subsequent need for recovery were included as an indicator of individual SE in the quasi-experimental trial conducted by [Koolhaas et al. \(2015\)](#) to assess the effectiveness of a problem-solving intervention among workers from medical University departments. Similarly, in a dynamic cohort study of [van de Ven et al. \(2014\)](#), fatigue was reported as an individual characteristic able to predict SE work outcomes among male shift and day workers.

Work behavior and outcomes. Subjective indicators of work behavior and outcomes related to individual SE essentially reflect the employees' self-appraisal of their job performance. For instance, job performance was incorporated as an indicator of the productivity component of the MAastricht Instrument for Sustainable Employability (MAISE) developed by [Houkes et al. \(2020\)](#) to describe the perceived level of SE among employees from various occupational sectors. Consistent with this operationalization, empirical results indicate self-appraised job performance as a dimension of individual SE affected by perceived social job resources among healthcare workers ([Roczniewska et al., 2020](#)).

Job capacity and attitudes. This domain of individual SE embraces several indicators: perceived work ability, vitality, and job attitudes (i.e., job satisfaction, work engagement, and commitment). Work ability and vitality were identified as being respectively the health and motivational components of individual SE, positively

affected by open future time perspective among healthcare workers ([de Lange et al., 2020](#)). Furthermore, the research provided support to the structural validity of subjective SE as a formative construct indicated, among others, by work ability levels ([Fleuren et al., 2018b](#)). As a dimension related to subjective SE, vitality was also identified as a dimension positively predicted by the three psychological needs for self-determination, healthy lifestyle factors, and organizational-cultural factors ([van Scheppingen et al., 2015](#)). As previously stated, different kinds of positive job attitudes were reported as indicators of individual SE across the selected studies. For instance, research measuring work engagement and affective commitment revealed a positive relationship between these key dimensions of individual SE and intrinsic job values for employees of all ages, in addition to a strong association with age-supportive climate among older employees ([van Dam et al., 2017](#)). As an indicator of subjective SE, empirical findings indicate work engagement as a positive work-related state enhanced by company policies to dispense older workers from evening or night shifts ([van der Meer et al., 2016](#)).

A further example of the role played by positive job attitudes stems from the research conducted by [Peters et al. \(2015\)](#). These scholars included job satisfaction and work engagement as components of subjective SE affected by differences in nurses' work schedules. Additional results pointed out that job satisfaction, as a dimension of SE in combination with health and job performance, could be promoted by employee confidence in management's overall integrity and reliability ([Roczniewska et al., 2020](#)).

Contextual SE

Health and well-being. Indicators of contextual SE pertaining to the health and well-being domain could be clustered in two main categories: objective indicators of employees' health status and sickness absence. For instance, the number of sickness absence data recorded by the company was included as a primary outcome in a trial study evaluating the effectiveness of a workers' health surveillance program on aspects of SE ([van Holland et al., 2018](#)). The same study also included objective data on physical health status through screening tests based on biometric indices (e.g., blood pressure) and functional capacity measures (e.g., postural tolerance). Similarly, objective data on sickness absence were included as an indicator of the health SE dimension. This information was based on the absence percentage reported during a specific time lag ([Ybema et al., 2020](#)) or the incidence of long sickness absences (i.e., equal to or longer than six weeks) as reported by employees ([van de Ven et al., 2014](#)). Additionally, research also used organizations' absenteeism reports covering the frequency and duration of absence episodes for each employee ([Peters et al., 2015](#)).

Work behavior and outcomes. The main indicators of work behavior and outcomes as dimensions of contextual SE rely on productivity and performance appraisal. Productivity was included, for instance, according to a loss score computed using the number of lost working days expressed in monetary terms ([van Holland et al., 2018](#)). A further example consists of employers' evaluation of employees' productivity in terms of organizational productivity, customers satisfaction, and financial result during a given time frame ([Ybema et al., 2020](#)). On the other hand, several studies considered the accordance on the assessment provided by supervisors on different facets of job performance, such as the ability to implement the contents of training and development activities, occupational expertise, corporate sense, personal flexibility, anticipation and optimization, and balance ([Van der Heijden et al., 2016](#)).

Job capacity. This domain of contextual SE was assessed across several studies combining both objective and subjective data. Concerning objective measures, job capacity was mainly measured using indicators of employees' work ability. For instance, empirical

Table 4. Domains and Indicators of Individual and Contextual Sustainable Employability

	SE Domains	SE Indicators
Individual Sustainable Employability	Health & Well-being	Perceived General Health (S) Fatigue & Need for Recovery (S)
	Work Behavior & Outcomes	Performance Self-Appraisal (S)
	Job Capacity & Attitudes	Perceived Work Ability (S) Vitality (S) Job Attitudes (Job Satisfaction, Work Engagement, Commitment) (S)
Contextual Sustainable Employability	Health & Well-being	Objective General Health (O) Sickness Absence (O)
	Work Behavior & Outcomes	Productivity (O) 360-degree Performance Appraisal (S)
	Job Capacity	Objective Work Ability (O)

Note. S = subjective; O = objective.

research focused on comparing work ability and work functioning between workers with multiple sclerosis and workers from the general population (van Gorp et al., 2018). Further empirical evidence was based on the assessment of objective employment status (as opposed to unemployment condition and early retirement), in addition to receiving several types of government financial benefits (Leijten et al., 2015). An additional indicator of (reduced) job capacity lies in taking advantage of the opportunity to be temporarily placed in less strenuous work positions due to major health complaints (van de Ven et al., 2014).

Based on the previous evidence and consistent with our integrated model, Table 4 shows our parsimonious proposal of Domains and Indicators of Individual and Contextual SE.

In short, our integrative model aims to capture 1) the core components of sustainability and employability over time; 2) differentiation between individual SE and contextual SE; and 3) the main indicators of both SE so that they cover the three domains of health and well-being, work behavior and outcomes, and job capacity and attitudes. In doing so, we aim to structure previous theory and research in a more coherent way and open avenues to guide future research on this construct of increasing relevance to career management, especially in the mid and late stages.

Conclusions and Agenda for Future SE Research

Anchored on the new integrative theory developed in the previous section, the last goal of this paper is to present the main implications of the proposed model and recommendations to guide future research on SE.

Individual SE and Contextual SE

The majority of SE research conducted so far is based on an individual perspective, as noticed in the most renowned models (e.g., Fleuren et al., 2020; van der Klink et al., 2016), and the results of our review. However, a comprehensive perspective should also include contextual factors and an external assessment of workers' employability over time. Consequently, future SE research should consist of individual SE and contextual SE measures and develop an articulation that allows for joint indices or indicators of overall SE.

Sustainable components. First, regarding the sustainable components of both types of SE, future research should identify the critical personal resources that contribute to maintaining or increasing individual SE and the key external resources that contribute to maintaining or improving contextual SE. Previous research has identified some of the most relevant ones; thus, for example, for personal resources, perceived health (e.g., Brokerhof et al., 2020; Brouwers et al., 2015; Fleuren et al., 2018a; van Gorp et al., 2018) and vitality (e.g., de Lange et al., 2020; van Holland et al., 2018). In the case

of external resources, research has often included social support at work (e.g., Hansen et al., 2020; Koolhaas et al., 2015; Nilsson & Nilsson, 2021) and work organization factors (e.g., Houkes et al., 2020; Tonnon et al., 2017; van de Ven et al., 2014). However, sufficient consistency between studies is not appreciated, so it would be advisable to identify the most relevant ones grouped by dimensions. For example, in the case of personal resources, those related to health resources, work resources (skills, competencies) and personal resources (self-efficacy, life satisfaction), and in terms of external resources, grouped into social (support, leader-member exchange), work organization (flexibility, autonomy), and organizational culture and climate (age-supportive climate).

Additionally, in line with the previous suggestion, future research should identify the main variables that define individual capacity and job opportunities. So far, most research coincides, concerning individual capability, in highlighting work ability, personal and work functioning, balance, or perceived employability (e.g., Abma et al., 2016; Peters et al., 2019; Van der Heijden et al., 2020; van Gorp et al., 2018; van Scheppingen et al. 2015). However, the studies also include a great variety of variables measured, thus making it difficult to compare studies and integrate the results obtained. As reported in Table 3, research on job opportunities has not included consistent indicators so far, with the only exception of few studies that have measured opportunities to continue to work (Le Blanc et al., 2017; van Gorp et al., 2018), employment status (Leijten et al., 2015), or work participation (Koolhaas et al., 2015). In this area, future research should try to identify contextual SE measures related to job opportunities. Finally, other contextual factors should also be considered, such as the influence of digitalization at work (robotics, artificial intelligence, automation) and its potential effects on job opportunities and overall SE in the mid-and late-career stages (Alcover et al., 2021).

Employability components. Our integrated SE model also postulates an individual approach (self-assessment) and a contextual approach (external assessment) to employability. So far, research has focused almost exclusively on measuring individual perceptions, while less attention has been paid to external assessments. Moreover, the studies that include external assessments present a high disparity of measures, ranging from absenteeism and sickness absence rates (Peters et al., 2015; van de Ven et al., 2014) to supervisor or employer ratings (Van der Heijden et al., 2016; Verbrugghe et al., 2016), or being a recipient of government financial benefits (Leijten et al., 2015). Consequently, future research should strive to complement measures of self-empowerment with measures of external assessment. In addition, it should identify which are most relevant to the assessment of contextual SE, so that we can integrate the results of these studies. Only the collection of data obtained through standard measures and the replication of research designs across studies will allow us to advance our understanding and prediction of SE.

Temporal Dimension

Both theoretically and empirically, research on SE shows consensus on its temporal dimension, implicit in the concept of sustainability itself. However, as we have already shown in our analysis in Table 3, cross-sectional studies predominate so far. While we can consider that SE research is still in its (promising) preliminary stages, it is clear that future research can only be longitudinal. Only in this way SE research can be consistent with the construct definition and making a significant contribution to its understanding.

Following our model, future research should include the current fit between individual and contextual components of SE. According to Shipp and Jansen's (2011) proposal considers current fit concerning the retrospection of past fit and anticipation of future fit. In this sense, the experimental study by Brokerhof et al. (2020) included an interesting measure of possible future work selves, which is somewhat aligned with our proposal to measure anticipation of future fit. On the other hand, it is worth recalling here that also the well-established measure of work ability in aging at work research includes a forecast of the perception of work ability in two years. These antecedents reinforce our consideration of future fit as an inescapable indicator of SE over time.

SE Indicators

Finally, concerning SE indicators, research has used a wide variety of measures, as we presented in the section dedicated to SE consequences reflected in Table 2. Undoubtedly, all the indicators used can partially measure SE, although most studies only include individuals' perceptions, and few of them include external indicators. Consequently, to alleviate these limitations, our suggestion for future research entails the balanced consideration of self-perceived and external, i.e., subjective and objective, indicators. At the same time, our model postulates integrating both types of indicators into three domains: health and well-being, work behavior and outcomes, and job capacity and attitudes. Finally, future research should identify the core indicators in each domain and select, following the principle of parsimony, those with the highest predictive power.

Concluding Remarks

SE is a construct that can potentially be used in any work context and applied to the entire working population, although the focus of our review has been on SE in the mid-and late-career stages. In this sense, it is advisable to broaden the national contexts of SE studies since the vast majority come from samples of Dutch workers. It is necessary to conduct studies in other labor, social, cultural, and economic contexts and conduct studies that analyze SE with standard instruments in samples from different countries.

With the overarching goal of consolidating the SE construct across international research, new efforts are required to establish alliances between research teams from different countries and expand cross-cultural studies. In our opinion, SE is very sensitive to labor market conditions, cultural factors, technological conditions, and organizational socialization, and cultural patterns. Therefore, it is necessary to contrast the results obtained in different countries with a greater diversity of national and occupational samples. This is the most reliable way for researchers in this field to ensure the sustainability of SE research over time.

Conflict of Interest

The authors of this article declare no conflict of interest.

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