



# Self-determination theory in the workplace: the evolution, present, and beyond

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## ABSTRACT

Work motivation has been a central topic for over a century with self-determination theory (SDT) shaping its trajectory. This review aims to (1) provide a comprehensive overview of the state of work-related SDT research and (2) develop expansions of SDT to pave the way for future research. To achieve our first goal, we leveraged co-word bibliometric science mapping to analyze 1,192 articles, resulting in six clusters belonging to three overarching themes: satisfaction of the basic psychological needs, motivation quality and determinants, and motivation-relevant individual and organizational factors. Temporal analyses suggest a progressive trajectory characterized by central tenets that have expanded and integrated over time, with evidence of recent stagnation. For our second goal, a research agenda, summarized in a model of self-determination theory for work environments, integrates individual factors and four broad approaches: horizontal and vertical expansions, consideration of alternative work arrangements, and technological changes as drivers and boundary conditions.

## 1. Introduction

Motivation at work has been a central organizational behavior topic for over a century, devoted to understanding the “initiation, direction, intensity, and persistence of voluntary action” with important implications for job-related attitudes, performance, productivity, turnover, and well-being (Kanfer et al., 2017, p. 339). Work motivation also has important societal implications as full and productive employment are key elements of the United Nation’s sustainable development goal for ‘Decent Work and Economic Growth’, addressing some of the ‘Grand Challenges’ the world is facing (UN, 2021). One of the most influential work motivation frameworks is self-determination theory (SDT; Deci & Ryan, 1985a). Proposed as a *meta*-theory of human optimal functioning and well-being (Deci & Ryan, 2000), SDT’s contribution to work motivation scholarship largely occurred following a seminal paper by Gagné and Deci (2005, p. 356) who argued SDT “provides a fuller and more useful approach to understanding the motivation bases for effective

organizational behavior.” SDT has been invoked to better understand worker motivation across a variety of industries (e.g., private, and public organizations), sectors (e.g., technology, banking, manufacturing, health, and education), professions (e.g., public servants, engineers, police, farmers, artists, and teachers), and work arrangements (e.g., casual, full/part-time, and gig workers).

While numerous qualitative (e.g., Deci et al., 2017; Slemp et al., 2021) and quantitative (e.g., Slemp et al., 2018; Van den Broeck et al., 2016; Van den Broeck et al., 2021) reviews have summarized, synthesized, and spurred research on SDT, they are limited. Qualitative reviews are often broad in scope but are heavily influenced by the authors’ subjective beliefs (Ramos-Rodríguez & Ruíz-Navarro, 2004), may fail to integrate different scholarly communities operating in parallel (Cronin & George, 2023), and are often myopically focused on research conducted and published in organizational science to the detriment of other related scientific fields exploring highly relevant phenomena (e.g., nursing and education). Quantitative reviews assess a limited number of

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focal variables and emphasize testing, as opposed to developing, theory (Carpini et al., 2017). The sheer volume of SDT-related scholarship makes it difficult to fully capture the breadth and depth of work-related SDT research, which puts it at risk of becoming fragmented and siloed (Raetzke et al., 2022).

Science mapping, a form of bibliometric analysis (Van Eck & Waltman, 2014), enables a broader, more integrative perspective on how SDT has been applied by assessing the current state of the science and pave the way forward. Specifically, we used co-word analysis, which is a science mapping technique that examines the content of the publications themselves. Co-word analyses assume that words that frequently appear together within and across publications have a thematic relationship with one another (Donthu et al., 2021).<sup>5</sup> Co-word bibliometric analysis allows scholars to rigorously “zoom out further and empirically capture the relationship between multiple topic areas” (Lee et al., 2014, p. 340), and allowed us to provide a robust substantive “big picture” that illuminates the *theoretical structure and content* of work-related SDT research. Through it, we can empirically examine whether the literature is characterized by *progression* — that is, an expansion toward new topics, settings, and conceptual innovations — *variegation* — whereby the literature is hindered due to a proliferation of terms — or by *normativism* — where a small set of dominant ideas and assumptions continue to be recycled with limited theoretical or practical advancement (De Bakker et al., 2005). This distinction is critical for a mature literature like the one on SDT at work because without a mechanism to track the field’s intellectual trajectory, there is a risk of theoretical stagnation, especially in our rapidly evolving work context. Mapping the SDT literature can uniquely identify both the central and peripheral themes, illuminate isolated or neglected areas of inquiry, and offer a clearer picture of where the field has been and where it might go to provide a foundation for future theoretical development and help researchers and practitioners alike assess the vitality, scope, and relevance of SDT research in today’s work landscape.

We approached our goal in three ways. First, we examined the current state of work-related SDT scholarship (*The Present*) to synthesize and evaluate the current state of SDT knowledge, identify parallel and siloed communities, and provide novel insights for theoretical development (Cronin & George, 2023). Second, we considered where SDT has been to help project where it is going using a temporal analysis (*The Evolution*; Carpini et al., 2017) that highlights theoretical advancements and emerging scholarly communities, provides insight into the developmental trajectory of the theory (De Bakker et al., 2005), and identifies research gaps. Finally, we reflect on both longstanding and contemporary issues arising from our integrative multidisciplinary review (*Beyond*) with a research agenda that pushes for theoretical expansions that exploit SDT beyond how it has been used so far to optimize work motivation.

### 1.1. A brief overview of self-determination theory

SDT offers a conceptualization of motivation and propositions that contrast with other motivation theories (Gagné & Deci, 2005). Many motivation theories, such as expectancy theory (Vroom, 1964), goal setting theory (Locke & Latham, 1990), and equity theory (Adams, 1963) only consider the quantity or level of motivation a worker may have, while other theories consider only intrinsic (i.e., enjoyment) and extrinsic (e.g., rewards) forms of motivation (Hackman & Oldham, 1980; Porter & Lawler, 1968). In these frameworks, intrinsic and extrinsic motivations are assumed to have additive effects on work

performance, but SDT proposes that intrinsic motivation is of higher quality than extrinsic motivation and therefore rejects the additivity hypothesis (Deci et al., 1999). Gagné and Deci (2005) also highlighted that it is insufficient to only consider intrinsic and extrinsic motivation and offers a multidimensional conceptualization of motivation that differentiates between six types of motivation aligned along a continuum of self-determination or internalization (Howard et al., 2020). The lowest level of self-determination is a complete lack of motivation (i.e., amotivation). Next are four forms of extrinsic or instrumental motivation representing degrees of internalization. The concept of internalization borrows from developmental psychology’s organismic perspective which proposes that humans develop through processes of differentiation and integration (Ryan, 1995; Witherington, 2007) and is defined as the taking in of an initially externally regulated behavior so that it becomes internally regulated (Ryan, 1995). SDT’s concept of internalization is different from Kelman’s (1958), Ellemers et al. (2004) and Ashford and Mael’s concept of identification with an *object* (e.g., a person or a social entity); SDT focuses on internalizing the value and regulation of an *activity*.

The four types of extrinsic motivation include external regulation, which is not internalized, and is defined as doing something to obtain a reward or avoid a punishment; introjected regulation, which is partially internalized and defined as doing something out of ego-involvement; identified regulation, which is more internalized and defined as doing something out of perceived importance or meaning; and integrated regulation, which is fully internalized and defined as doing something because it is an integral part of the self. The highest level of self-determination is intrinsic motivation, whereby action arises from personal enjoyment and interest. Reflecting the degree of internalization, the motivation types are aligned along a continuum of self-determination (Howard et al., 2020) and are often characterized as being either autonomous (i.e., identified, integrated, and intrinsic) or controlled motivation (i.e., external and introjected). Meta-analytic findings show autonomous forms of motivation are associated with better work outcomes than controlled forms of motivation and amotivation, and that intrinsic motivation accounts for the greatest proportion of variance in almost all work outcomes except for performance, which is explained more strongly by identified regulation (Van den Broeck et al., 2021), supporting the importance of promoting identified regulation in the workplace because not all work is intrinsically enjoyable (Gagné & Deci, 2005). External regulation has negligible effects on performance and negative effects on well-being, while introjection has mixed effects, promoting performance but with negative well-being consequences. Finally, integrated regulation has been investigated less because measurements have struggled to differentiate it from other regulations (Howard et al., 2017). The continuum of motivation has also been applied to goal setting: After stating their goals, people are asked to rate intrinsic and extrinsic reasons for pursuing them, which are of consequence to goal attainment and satisfaction with goal attainment (self-concordance theory; Sheldon & Elliot, 1999).

SDT also proposes that autonomous motivation is nurtured through the satisfaction of basic universal psychological needs for competence (feeling mastery), autonomy (feeling volition), and relatedness (feeling connected; Deci & Ryan, 2000). These needs are not defined with the same criteria as those proposed by Maslow (1954), Herzberg (1966), Alderfer (1972), or McClelland (1987); they are deemed to be basic and universal because their satisfaction has been shown to contribute to development and well-being, show evolutionary advantages, cannot be substituted with other needs, and are found cross-culturally (Vansteenkiste et al., 2020). Meta-analytic findings show that when these needs are satisfied at work, people are more autonomously motivated, perform better, and experience greater well-being (Van den Broeck et al., 2016), and that interventions to increase need support improve motivation and outcomes (Slemp et al., 2018, 2024).

SDT includes stable individual differences and propositions relating to the content of goals (Ryan & Deci, 2017). General causality

<sup>5</sup> Unlike other forms of science mapping that include citation analysis, co-citation analysis, and bibliographic coupling, which focus on visibility and network centrality of individual publications in the scientific literature, co-word analysis emphasizes terms used by researchers that reflect core theoretical ideas and constructs.

orientations include an autonomous orientation or the propensity to orient towards environmental cues that support the need for autonomy (e.g., fun and meaning), a control orientation or the propensity to orient towards reward and punishment cues, and an impersonal orientation or the tendency to interpret environments as uncontrollable (Deci & Ryan, 1985b). The autonomy orientation is associated with better overall functioning than the other ones (Hagger & Hamilton, 2021). Goal content theory categorizes goals as intrinsic (e.g., personal growth, close relationships, community giving, and physical health) or extrinsic (e.g., wealth, fame, and image or extrinsic) with meta-analytic results suggesting that pursuing and attaining intrinsic goals is related to better well-being, while pursuing extrinsic goals is related to worse well-being and attaining them is unrelated to well-being (Bradshaw et al., 2023). Goal content and reasons for pursuing a goal (i.e., goal motivation) have independent and interactive effects on outcomes (Vansteenkiste et al., 2004).

Bringing these elements together, Gagné and Deci (2005) proposed a model to drive a research agenda on work motivation that included contextual factors and individual differences as antecedents of work motivation, and performance, well-being, and attitudes as outcomes. Our bibliographic analysis served to ascertain how subsequent research fulfilled and went beyond this research agenda, and to guide theoretical expansions.

## 2. Methods

### 2.1. Search and inclusion criteria

We systematically identified published research utilizing SDT in the workplace, defining SDT research as scholarship applying SDT as the driving theoretical framework (Deci et al., 2017; Gagné & Deci, 2005). The systematic literature search was developed by two specialized librarians from [redacted for blind review]. Articles were drawn from the Business Source Elite (EBSCO), PsycInfo (Ovid), Academic Search Premier (EBSCO), Web of Science Core Collection, Scopus, and Social Science Premium Collection (ProQuest) databases and included no restrictions on language or year of publication. Searches were performed twice: initially on April 3rd, 2023, and updated March 18th, 2024. The search strategy was peer-reviewed by two other librarians using the PRESS guidelines (McGowan et al., 2016; Supplementary Material A; all supplements are also available on [osf.io/w62xz/files/osfstorage](https://osf.io/w62xz/files/osfstorage)).

The searches resulted in 6435 articles after duplicates (6582) were removed (see the PRISMA diagram in Fig. 1). The article library was uploaded to the software Rayyan where the articles were screened using inclusion and exclusion criteria. To be included, articles had to use SDT in a work context and be published as a peer-reviewed journal article, excluding theses, book chapters, and popular science contributions that do not satisfy scientific requirements (Parker et al., 2017). Articles that did not directly use SDT concepts and/or operationalizations were excluded to maintain the internal validity of the data, and only articles that focused on the work context were included, hence studies that only included non-working samples (e.g., students or the unemployed) or focused on other life domains (e.g., leisure activities) among workers were not included. Both theoretical and empirical articles meeting these criteria were included, excluding editorials, commentaries, and perspectives.

The screening was carried out in three steps. First, all articles were screened by two subject matter experts based on title, abstract, and keywords in relation to the inclusion criteria, resulting in 2368 retained articles. Then, they independently screened the remaining articles based on their full text, after which 94 (4%) articles had conflicting decisions requiring a joint review, suggesting high inter-rater reliability. Following the recommendations of Hiebl (2023, p. 249) who noted, “the self-declaration of journals as “peer-reviewed” may no longer serve as a useful quality criterion [...]. So, for future systematic reviews, it may be useful to not only rely on ostensible peer-review processes but to

complement this criterion with further quality checks”, we complemented our screening with additional quality checks. Specifically, the resulting 1319 articles were then screened for quality based on Scimago ranking of the journals at the time of publication, using a threshold of quartile 3 or higher to avoid subjectively evaluating the quality of the individual articles and to stay true to the systematic nature of the literature search (Carpini et al., 2017). We also excluded articles published in MDPI journals (9 journals, 57 articles) due to persistent concerns regarding the peer review and publication process (Hahn et al., 2025).<sup>6</sup> As such, excluded 127 articles on this basis that were, at the time of publication, either published in Scimago quartile 4 (or unlisted) or MDPI journals. A total of 1192 articles were retained.

### 2.2. Data analysis and interpretation

The co-word bibliometric analyses were conducted using VOSviewer (Van Eck & Waltman, 2010) to visualize how strongly terms were associated with one another. Supplementary Material B includes a searchable spreadsheet of all included articles. All terms that appeared at least three times in total across the titles and/or abstracts of the 1192 included articles were retrieved, yielding a total of 2094 unique terms. A *thesaurus* (see Supplementary Material C) was developed in which terms were either merged or excluded to facilitate analysis. Terms were merged to account for different spelling (e.g. ‘fulfillment’ and ‘fulfilment’), use of synonyms (e.g. ‘intrinsic aspiration’ and ‘intrinsic goal’), or different terms representing the same concept (e.g. ‘colleague’ and ‘coworker’). In some cases, we merged distinct low frequency terms under a higher order term (e.g., ‘pay’ and ‘provision’ under ‘compensation’). We also excluded generic terms (e.g., ‘February’), references to specific theories (e.g., ‘social exchange theory’), methodological terms (e.g., ‘cross-sectional’), and contexts (e.g., ‘education sector’). This process resulted in 335 unique terms. We set a minimum threshold of 10 occurrences which yielded 158 eligible terms (Carpini et al., 2017; Jiang et al., 2023). Then, maps were generated. We performed our analyses consisting of an overall ‘big picture’ map visualizing 35 years of SDT scholarship as well as a series of three temporal slices visualizing the evolution of the field over time (Carpini et al., 2017; Table 1 and Supplementary Material D for terms per analysis). For these analyses, we adjusted the cluster resolution parameter “to use the value that yield[ed] the most appropriate level of detail for [our] purposes” (Van Eck & Waltman, 2023, p. 23).

We interpreted the resultant maps following established best practice (Carpini et al., 2017). That is, we considered (1) clusters, (2) terms, (3) term and cluster size, (4) proximity, and (5) linkage strength (Van Eck & Waltman, 2023). Specifically, a cluster – visually differentiated by color – is a collection of terms included in a map that are studied in conjunction with one another more frequently than terms appearing in different clusters. Terms can only belong to one cluster and their relative importance, represented by the size of the term label and associated circle, is determined by the number of times they appear in the data (i.e., count) as well as by the number and strength of connections – visualized with lines – the term has with other terms. Proximity to the center of the map reflects the centrality of the term to SDT research, such that more central terms appear closer to the center than those at the periphery. Each cluster was named based on its defining terms, research area, and knowledge of the literature.

<sup>6</sup> Whilst the quality of a journal does not necessarily equate the quality of the individual articles, we used the journal as an indicator of article quality that was consistent with our quality-based inclusion criteria (Hiebl, 2023).

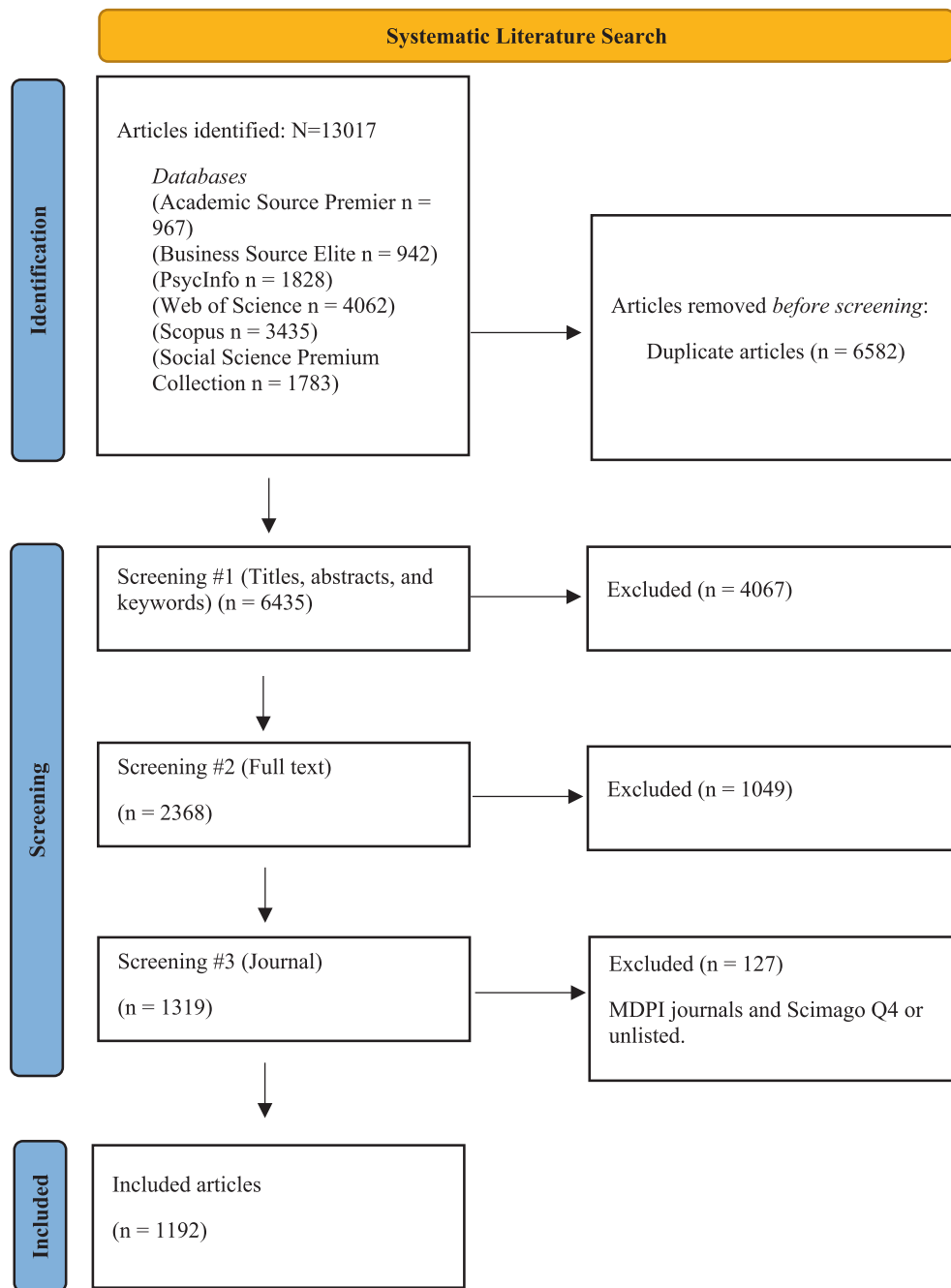


Fig. 1. PRISMA Results.

**Table 1**  
 Science Mapping Parameters.

Period	N of articles	Min N term occurrence	N terms meet threshold	Cluster resolution	Min N terms per cluster	N of clusters
<i>Thirty-Five Years of SDT Workplace Research</i>						
1989–2024	1192	10	158	1.05	10	6
<i>Evolution of SDT Workplace Research</i>						
1989–2013	137	1	20	1.05	1	3
2014–2019	423	10	74	1.35	10	5
2020–2024	632	10	92	1.25	10	6

### 3. Results

#### 3.1. Thirty-five years of SDT research

Utilizing all 1192 journal articles identified between 1989 and 2024, we extracted 158 terms that yielded six distinct, yet interconnected clusters (see Fig. 2). The six clusters represent SDT research on (1) basic psychological needs (*antecedents and outcomes of need satisfaction and autonomy, competence, and relatedness* clusters), (2) motivation quality and its determinants (*motivation types and intrinsic motivation, leadership, and compensation* clusters), and (3) the individual and organizational factors (*individual performance and top-down antecedents* clusters).

##### 3.1.1. Antecedents and outcomes of need satisfaction cluster

The first cluster highlights the centrality of basic psychological need satisfaction as the underlying mechanism connecting various antecedents and outcomes ( $n = 35$  terms, yellow). It is clearly defined by the terms ‘need satisfaction’ and ‘basic psychological needs’ that jointly operate as primary conduits in the overall map and are in juxtaposition to more recent SDT developments including ‘need frustration’ (Chen et al., 2015). Within this cluster are two prominent perspectives on the antecedents and consequences of need satisfaction. First, the seminal work on managerial autonomy support (e.g., Deci et al., 1989) and, more recently, controlling behaviors and need thwarting (e.g., Halvari et al., 2021) that have highlighted the critical role of managers in both fostering and undermining basic need satisfaction at work. Second, there is evidence of the integration of the job demands-resources (JD-R) model with SDT (Bakker & Demerouti, 2017; Deci et al., 2017) such that basic psychological needs are often leveraged as explanatory mechanisms between ‘job demands’ and ‘job resources’ and well-being outcomes (e.g., ‘engagement’, ‘burnout’, and ‘job satisfaction’; e.g., Olafsen & Frølund, 2018). In short, this cluster represents the substantive role of overall need satisfaction as a critical mechanism through which managers and work characteristics influence employee outcomes.

##### 3.1.2. The autonomy, competence, and relatedness cluster

The second cluster highlights the primacy of the needs for autonomy, competence, and relatedness ( $n = 32$  terms, orange). Whilst highly related to the previous cluster, it emerged as a distinct cluster. Defined by ‘autonomy’, ‘competence’, and ‘relatedness’ (rather than overall psychological need satisfaction) as central terms, this cluster is the most widely distributed with terms appearing near every other cluster. Interestingly, the three need terms have a combined count equal to 125% that of the general need satisfaction terms, potentially suggesting scholars often attend to the unique contribution of each need in explaining work-related phenomena (Van den Broeck et al., 2010). This cluster also contains two notable areas of SDT research: Autonomy support training interventions for managers (e.g., Deci et al., 1989) and related principles (e.g., Itzchakov et al., 2023) and intrapersonal motivational processes, such as goals and aspirations that are at the heart of self-concordance theory and goal content theory (Grouzet et al., 2005; Sheldon & Elliot, 1999). The intrapersonal has been given less attention, as evidenced by low occurrences of terms compared to the contextual factors.

##### 3.1.3. Motivation types cluster

The third cluster highlights the importance of considering motivation quality ( $n = 11$ , green) with ‘autonomous motivation’ and ‘controlled motivation’ as prominent terms that dwarf terms reflecting the nuances of the motivational continuum (e.g. ‘external regulation’). This suggests scholarship has comparatively ignored the importance of different regulations in understanding employee experiences, despite recent meta-analytic evidence suggesting such in-depth consideration is meaningful (Van den Broeck et al., 2021). The location of this cluster and its relationships with other clusters and terms suggests the theoretical distinction of motivational quality is a persistent feature of SDT

scholarship. The motivation quality cluster is strongly connected to the first two clusters on psychological needs, as well as the next two.

##### 3.1.4. Intrinsic motivation, leadership, and compensation cluster

Intrinsic motivation has largely been lauded as the most desirable type of motivation (Van den Broeck et al., 2021), drawing a great deal of scholarly attention from leadership and compensation scholars as evident in the fourth cluster ( $n = 21$ , red). Largely defined by the prominence of intrinsic and extrinsic motivations alongside two scholarly topic areas – leadership on one hand and compensation on the other. The strong presence of numerous leadership styles including transformational (e.g., Conchie, 2013), ethical, empowering and servant leadership (e.g., Hartnell et al., 2023) all speak to the integration of SDT with leadership research. Interestingly, scholarship on leadership styles appears almost entirely isolated from that on autonomy support suggesting a notable disconnect. Meanwhile, the impact of compensation and other rewards has long been a point of contention between SDT scholarship and associated fields (e.g., Gerhart & Fang, 2015) with research on the potential negative effects of rewards on intrinsic motivation clearly represented in this cluster (e.g., Kuvaas et al., 2016). Finally, the proximity and linkages across this cluster and the ‘individual performance’ cluster demonstrates the often-utilitarian justification for studying the relationships between leadership, pay, motivation, and performance, neglecting aspects such as well-being.

##### 3.1.5. Individual performance

An enduring insight from SDT is that types of motivation have important implications for valued outcomes including work attitudes, individual work performance, and other work-related behaviors, as evident in the fifth cluster ( $n = 25$ , blue). The ‘behavior’ and ‘performance’ terms appear close to one another, suggesting scholars may be using these terms interchangeably, possibly muddying the nomological network in the process (Carpini et al., 2017). The performance related terms of ‘proactive performance’, ‘task proficiency’, and ‘team member proficiency’ highlight the three primary domains in which research on individual performance has been conducted (Carpini et al., 2017; Griffin et al., 2007). A notable omission is the lack of a term reflecting adaptive performance, suggesting a gap in the literature. Other behaviors include ‘job crafting’ and ‘deviance’. In addition, ‘passion’, ‘harmonious passion’, and ‘obsessive passion’ are all members of this cluster, reflecting the dual model of passion (Vallerand et al., 2003), which was developed based on SDT principles. Interestingly, it seems that performance-related outcomes have been more frequently studied in relation to motivation and less frequently in relation to the satisfaction of needs.

##### 3.1.6. Top-down antecedents

The multi-level and complex context in which work occurs is widely acknowledged and is featured in the sixth cluster ( $n = 34$ , cyan). Terms such as ‘strategy’, ‘human resource management’, ‘policy’ and ‘culture’ all hint to top-down and multi-level forces influencing work motivation (e.g., Gagné, 2018; Laguerre & Barnes-Farrell, 2024). Interestingly, key human resource practice indicators (e.g., ‘career’, ‘retention’, ‘productivity’, and ‘commitment’) point to desirable organizational and individual outcomes of these top-down practices mediated by SDT variables. Despite being the second largest in terms of the number of terms, this cluster only accounts for 14% of the total number of occurrences and is dispersed across a large area with relatively weak links to other clusters. Overall, this cluster highlights the intended value of SDT for organizationally functional outcomes and a desire to acknowledge multi-level influences, yet as we will discuss, few studies rise to this challenge.

##### 3.1.7. Summary

Thirty-five years of SDT workplace research has yielded a diverse literature that can be distinguished into six clusters. Consistent with the key tenets of SDT, scholarship is most dense around issues of basic psychological need satisfaction and different types of motivation,



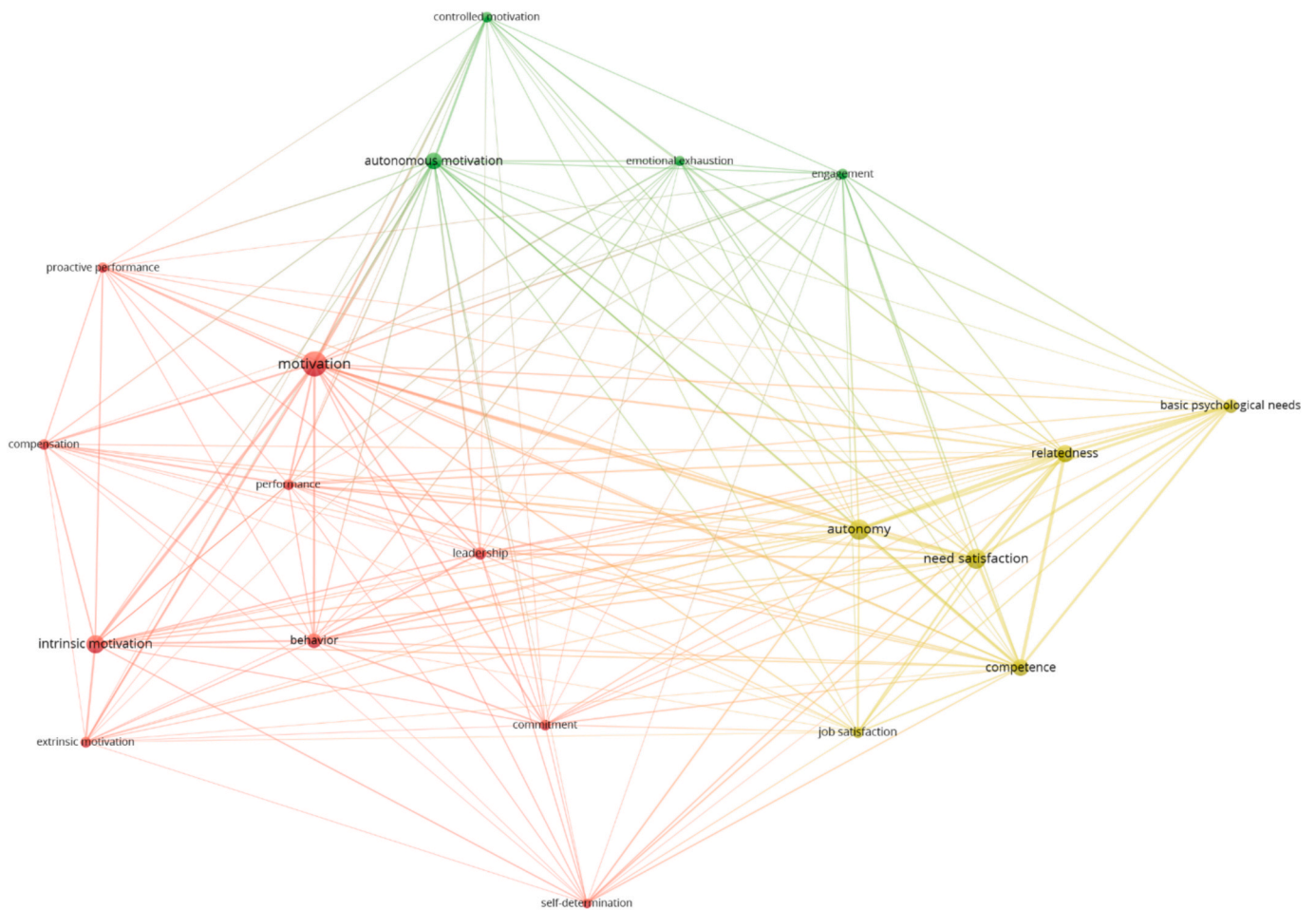


Fig. 3. Inception: Science Map 1989 – 2013.

predict internalization and the promotion of optimal functioning diverged from the established motivation literature. The three clusters, while linked, remain largely segregated from one another, hinting at early indicators of siloes in SDT research. The first cluster, *motivation and behavior* ( $n = 10$ , red), centers around intrinsic and extrinsic motivation and their relations to behavior, commitment, and compensation. This cluster appears to be the seed of both the *individual performance and its antecedents* and the *intrinsic motivation, leadership, and compensation* clusters in the overall map.

The second cluster, *motivation quality* ( $n = 4$ , green), represents the early development of the motivation continuum from more controlled to more autonomous forms of motivation. Representing the seeds of the same cluster appearing in the overall map, it comprises terms like ‘emotional exhaustion’ and ‘engagement’ besides the term performance, which marks a shift to considering well-being in the motivation literature. Given the centrality of well-being outcomes within the JD-R model (Demerouti et al., 2001), their presence may explain the later integration with the JD-R model (Van den Broeck et al., 2008). The third cluster, *basic psychological needs* ( $n = 6$ , yellow), features ‘autonomy’, ‘competence’, and ‘relatedness’ as well as ‘need satisfaction’ prominently, which represents a combination of the need-focused clusters appearing in the overall map. Spurred by improved and adapted measurements (e.g., Van den Broeck et al., 2010), it has close connections to the two other clusters and marks the introduction of the basic psychological needs theory in the organizational literature, explaining how various social-contextual factors affect employee motivation, performance, and well-being (in this period “job satisfaction”) by satisfying (or not) the basic psychological needs (e.g., Deci et al., 2001).

### 3.2.2. Consolidation: ensconcing SDT in organizational behavior research (2014–2019)

The middle phase ( $N = 74$ ) includes all 20 early phase terms and 54 emerging ones, showing how SDT has established itself in the organizational literature. Mapping the terms resulted in five clusters that closely resemble those appearing in the overall map (Fig. 4). The first cluster centers around the *basic psychological needs* ( $n = 10$ , yellow). While it is the smallest based on number of terms, it is the largest based on number of occurrences, making it central in this period. It shows substantial growth both in the number of times each of the terms appears and in the number of terms included in the cluster from the earlier period. Interestingly, ‘autonomy’ sits away from the other two needs, emphasizing scholarly preoccupation with this need. Other terms appearing in this cluster (e.g., ‘development’, ‘change’ and ‘training’) indicate new research on SDT-based interventions and development programs, which mainly focused on training managers (e.g., Tafvelin et al., 2019), but expanded to include coworkers (Jungert et al., 2018).

The second cluster, *motivation quality* ( $n = 21$ , green), features prominently and centrally in the map, enabled by methodological advances in measurement (e.g., Gagné et al., 2015). Related is an explosion of terms, occurrences and linkages examining contextual antecedents (‘organizational support’, ‘job autonomy’) and outcomes (e.g., ‘attitudes’), and terms like ‘goals’ and ‘challenge’, indicating a growing consideration of how goal hierarchies and content may relate to motivation quality (Van den Broeck et al., 2017). Confirming a previous observation (Deci et al., 2017), ‘autonomous’ and ‘controlled’ motivation and need-related terms appear on opposite ends of the map, indicating that whilst both were important research areas, they were rarely concurrently examined. The third cluster, *support and well-being* ( $n = 13$ ,

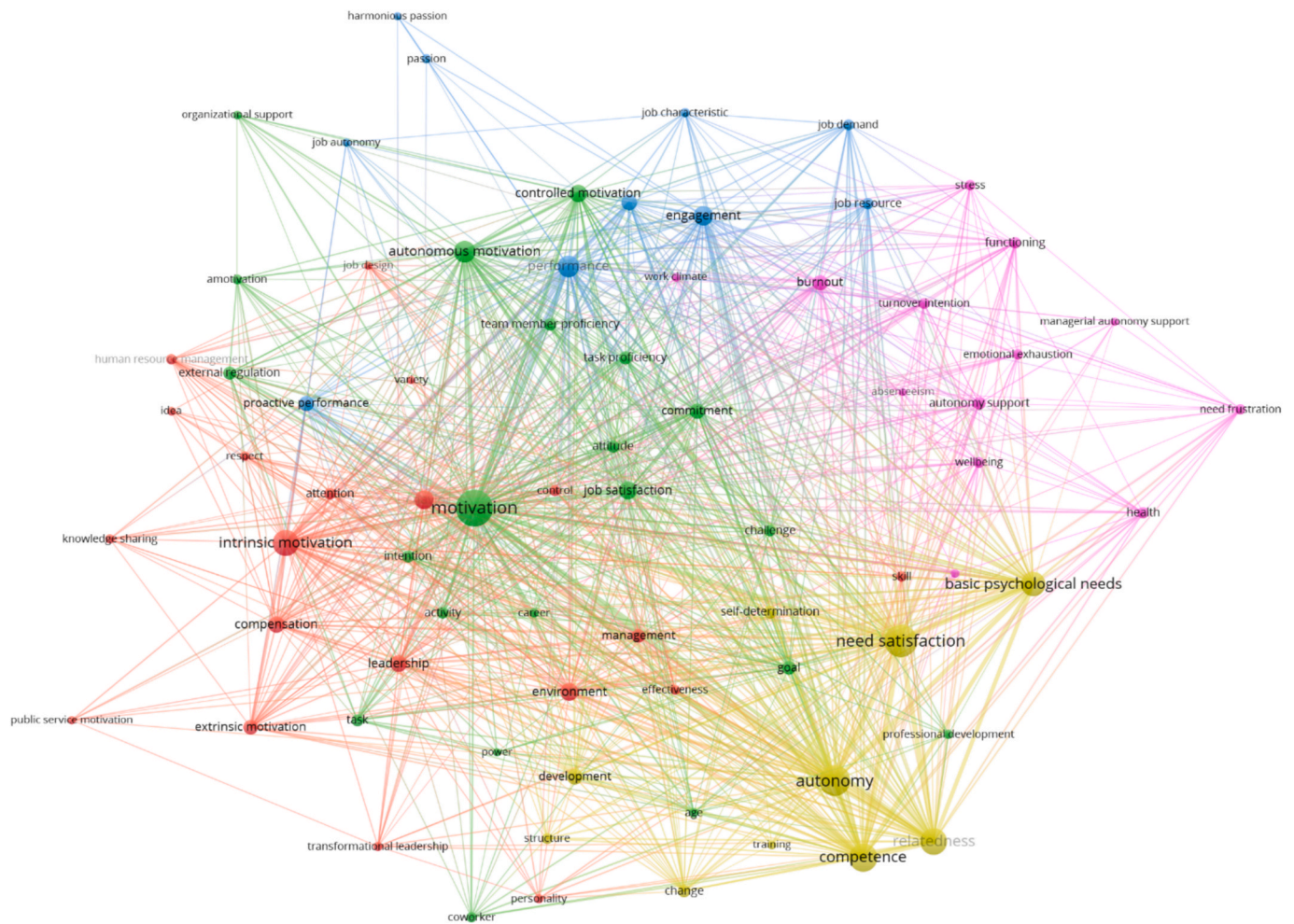


Fig. 4. Consolidation: Science Map 2014–2019.

pink), reflects growing recognition that employee well-being (e.g., ‘burnout’, ‘absenteeism’) is a function of psychosocial factors in the workplace, such as ‘autonomy support’, the ‘work climate’, ‘job demands’, and ‘resources’. Interestingly, this cluster contains ‘need frustration’ (e.g., Olafsen et al., 2017), which, supported by conceptual and measurement advances distinguishing need satisfaction from frustration (Chen et al., 2015), has clear links with ill-being indicators (e.g., ‘turnover intentions’ and ‘absenteeism’) and employee engagement. Overall, this cluster is poorly integrated with other ones as indicated by its distance and fewer linkages.

The fourth cluster, *intrinsic motivation* ( $n = 20$ , red), revolves around intrinsic motivation, behaviors, and leadership, suggesting it is an expansion of the same cluster in the inception phase. It highlights evolutions such as greater differentiation in leadership styles/theories (e.g., ‘transformational leadership’), job characteristics (e.g., ‘job design’ and ‘variety’), and macro-level organizational antecedents (i.e., ‘environment’, ‘management’ and ‘human resource management’). Interestingly, leadership seemed to be studied in conjunction with motivation, while need support seemed to be studied in relation to need satisfaction (see pink cluster). Studies in this period have continued to investigate how leader behaviors affect recipients (Fernet et al., 2015), but also studies looking at how leader behaviors affect the leaders themselves (Lanaj et al., 2016) and the motivation to lead (Gilbert & Kelloway, 2018). This period also saw advances in research on knowledge sharing motivation (Gagné et al., 2019). Finally, we see the modest emergence of research linking personality to motivation. In this period, the red cluster overlaps with and has more linkages to the *motivation quality* cluster. The

fifth cluster, *work design, engagement, and performance* ( $n = 10$ , blue), is dominated by the ‘performance’ and ‘engagement’ terms. It is equally distanced from the *motivation quality* and the *need support and well-being* cluster. Work design research has moved beyond the JD-R model, with terms linked with three clusters: General job design and variety were linked to intrinsic motivation, job autonomy was equally researched with intrinsic motivation and motivation quality, job characteristics studied equally with motivation quality and psychological needs, and job demands and resources were linked to the psychological needs. Finally, ‘passion’ and its subtype ‘harmonious passion’ terms form a minor subcluster with weak links to other clusters, suggesting this topic area was isolated.

### 3.2.3. Proliferation: more of the same (2020–2024)

The map for 2020 to 2024 features a large 29% increase in the number of terms, reflecting the ongoing impact of SDT. The 92 terms are constituted of the initial 20 terms from the early phase, 45 from the middle phase (9 middle phase terms disappeared), and 27 new terms. Results yielded six clusters visualized in Fig. 5. Overall, the map is denser with central terms appearing in closer proximity to one another and a greater number of linkages across clusters. The clusters *motivation quality* and *intrinsic motivation* cut across the map, suggesting greater integration with diverse literatures, whereas other clusters remain more isolated. However, the general structure and content of the clusters did not change much, indicating plateauing of how SDT has been applied in the workplace in this last period.

The first cluster is a continuation of the *basic psychological need*



crafting', which emerged in this period's literature, referring to proactively adjusting work role and tasks (Wrzesniewski & Dutton, 2001). Although job crafting was studied through the lens of SDT in the previous period, it only gained enough attention in this period to be included in the map (e.g., Zhang et al., 2025). Whilst conceptualized as a proactive behavior, job crafting is notably distant from 'proactive performance', highlighting the extent to which proactive concepts have also developed in siloes. Relative to the previous phase, and compared to the general map, this cluster seems to be more distanced from the *motivation quality* and the *need satisfaction* clusters.

The fifth cluster, *well-being in context* ( $n = 12$ , pink), is an evolution of the previous *support and well-being* cluster in so far as it now focuses more squarely on contextual drivers and boundary conditions of well-being. The cluster continues to demonstrate strong integration of the JD-R model (e.g., 'job demands/resources') and job characteristics theory with SDT, such that 'engagement' continues to be an important link to employee performance and leadership. Whilst need frustration appears more prominently, it remains more closely connected to less internalized forms of motivation (e.g., controlled) than to need satisfaction, suggesting this literature remains relatively distinct. Additionally, greater consideration of environmental features is apparent in this cluster, which effectively links it to related scholarship on *basic psychological needs and motivation quality*. Finally, a new addition in this phase is the *training and demographics* cluster ( $n = 11$ , purple), which quite spread out. Most terms appear close to the *psychological needs cluster* (yellow; e.g., 'gender', 'age', 'training', and 'skill') and *motivation quality cluster* (green; e.g., 'intention', 'coworker', and 'interest'), while several other terms appeared along with the individual needs in the orange cluster in the total map, which was said to contain interventions and training programs (e.g., Itzchakov et al., 2023). 'Coworkers' is the term with the second highest number of occurrences and mirrors interventions focused on coworker support that gained traction (e.g., Zeijen et al., 2020).

### 3.3. A summary of the state of knowledge

The results of our co-word bibliometric analysis of 1192 SDT journal publications from 1989 through to 2024 confirms the impact this theory has had on organizational behavior and allied scholarly fields. The sheer volume of research using SDT emphasizes its perceived usefulness to uncover motivational processes previously unknown, such as the importance of the three needs to adequately motivate workers and the importance of motivation quality, not just quantity. The research body also highlights the value of promoting motivational internalization through precise interventions aiming to increase need satisfaction (e.g., work redesign, leader training). We conclude from the analysis that this is what SDT has so far most solidly brought to our knowledge of motivational processes in the workplace.

Central to SDT, and consistent with the Gagné and Deci (2005) model, antecedents and outcomes of need satisfaction occupy 42% of the total terms in the overall map, and across the temporal analysis. The introduction of theory and measurement related to need frustration and thwarting offers novel insights into 'the dark side of motivation'. Also consistent with SDT is a persistent focus on the quality of motivation and relevant antecedents that represent 20% of terms appearing in the overall map. The overall map suggests two siloed and parallel approaches to examining the quality of motivation, one emphasizing intrinsic and extrinsic motivation and the other autonomous and controlled – a disparity appearing in the first period and persisting throughout. The separation appears to be a function of research on compensation, leadership, commitment, and employee performance with the former distinction, and research on work design with the latter, suggesting these literatures would benefit from integration.

According to SDT, the extent to which the needs are satisfied relates to the level of motivational internalization which are both important processes determining optimal human functioning and well-being (Deci & Ryan, 2000). Consistent with this view, 37% of the terms contained in

the overall map appear to reflect this central tenet of SDT, considering both employee and organizationally relevant indicators of functioning and well-being. From the first period, the seeds of this overarching theme are evident in terms including proactive performance and job satisfaction. These seeds took root and blossomed in the following periods as scholars enthusiastically expanded the criteria of motivation quality using SDT (e.g., turnover, attitudes, careers, task, and team member proficiency) and environmental antecedents at multiple levels (e.g., culture, HRM, climate). Interestingly, from 2014 onwards, it appears theoretical developments related to work passion, job crafting, performance, and the nature of work solidified SDT as an important theory to study work well-being and functioning.

Whilst applications of SDT to the field of organizational behavior were slow to begin, the theory has since expanded dramatically, assisted by the seminal Gagné and Deci (2005) article (see Fig. 6). This trajectory suggests SDT in the organizational literature aligns with the *progression hypothesis*, such that incremental advancement is apparent. With this said, there is evidence for the *normativism hypothesis* particularly as it relates to the middle and most recent periods; while there are more linkages across terms in the latter map and density is increasing, only 29% of the terms in the most recent period are new whereas 73% of terms in the middle period are new. The issue of plateauing is consistent with observations from the literature screening process (methods), where it became evident that a significant portion of the SDT literature tests many of the same (or similar) hypotheses across different occupational groups or contexts, offering limited theoretical contribution above and beyond what is already known. Although such applications may hold practical value, we argue the SDT can offer more. Building on our co-word bibliometric review, we outline avenues we believe offer rich opportunities to apply the theory in innovative and important ways to help expand our understanding of work motivation.

## 4. Beyond: unveiling future research opportunities

The co-word bibliometric analysis facilitated an objective and comprehensive overview and assessment of the field's development, content, and impact. However, the picture identified, coupled with our understanding of the field and theory, underscores the existence of untapped research opportunities that could propel research forward. Notably, our temporal analysis showed the field is showing signs of stagnation and fragmentation, both of which undermine scientific advancement. This highlights opportunities for future research we describe below. Fig. 7 portrays an expanded model of SDT for work environments from the one offered by Gagné and Deci (2005) that encompasses the current state of the field, as identified through the science mapping, as well future research avenues. Underlying, yet not visualized in the Figure, is the fact that SDT is an *organismic and dialectical theory* – an issue largely ignored in current research. As an organismic theory, individuals are assumed to be self-governing entities with tendencies for "self-expansion" (i.e., differentiation) and for integration (i.e., needs for competence and autonomy; Ryan & Deci, 2017) while being a dialectical theory means organisms and their environments form a "biosphere" in which they transform each other (i.e., need for relatedness; Ryan & Deci, 2017). Truly acknowledging these assumptions requires research that not only looks at how to promote optimal functioning at the multiple levels of analyses portrayed in Fig. 7, but research that examines how individual, team, organizational, and societal optimal functioning influences the environment (e.g., through individual need crafting, team climate, organizational design, and public policy). We thus strongly encourage researchers to consider alternative directions for the proposed mediational pathways.

More specifically, we propose six ways to expand the scope of SDT in organizational behavior: (1) individual factors; (2) horizontal extensions; (3) vertical extensions; (4) the impact of technological changes; (5) different work arrangements; and (6) the dark side of internalization. Research questions for each of these expansions are presented in Table 2.

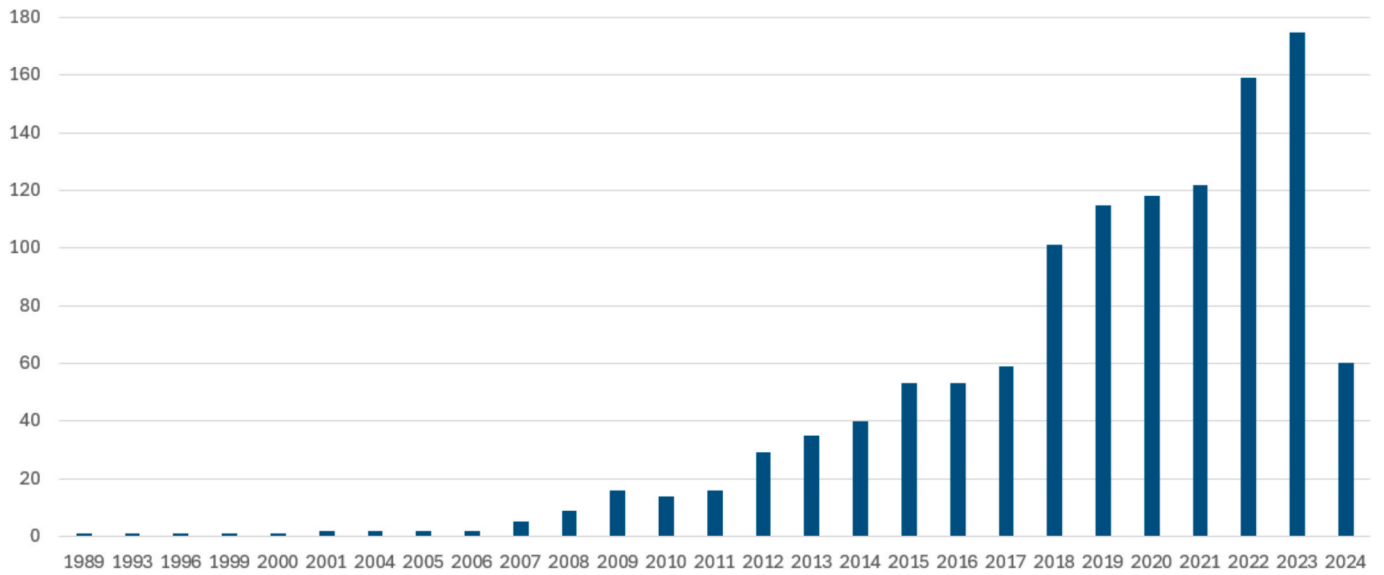


Fig. 6. SDT Publications Over Time.

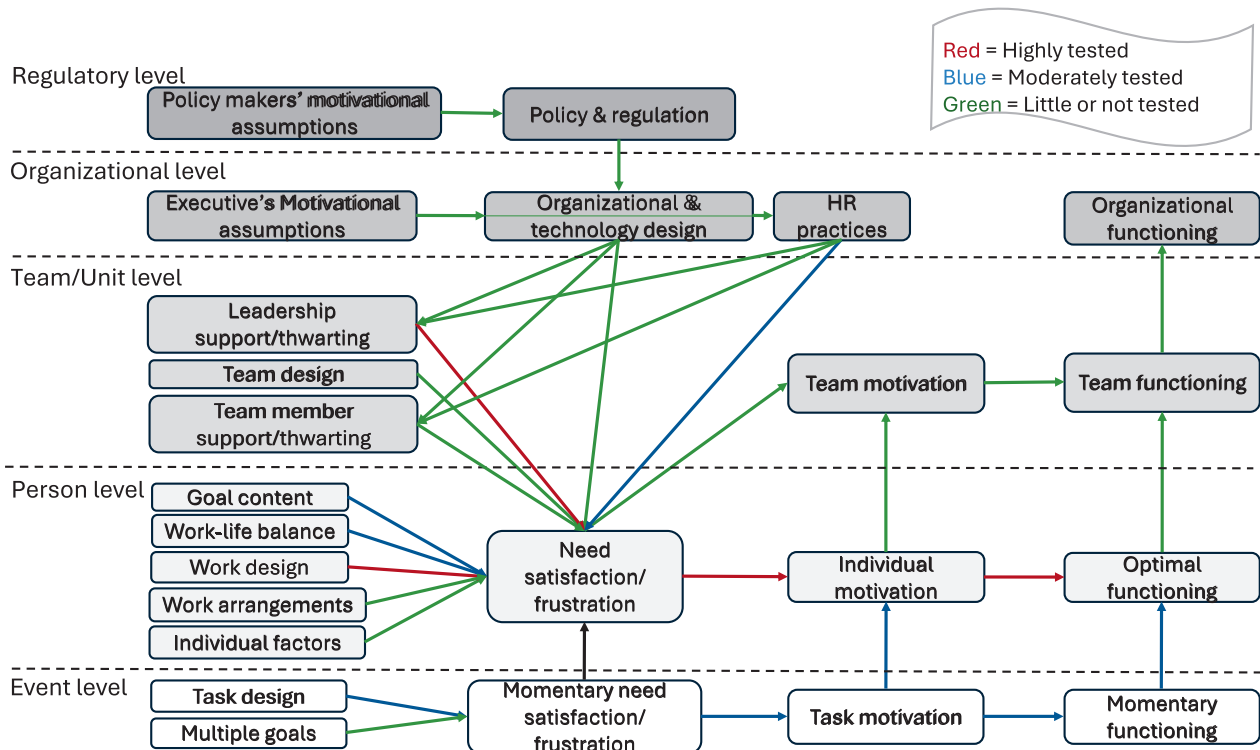


Fig. 7. A Model of Self-Determination Theory for Work Environments. Note. For simplicity, potential reciprocal relations and interactions are not visualized. Relationship categorization (established, developing, and emerging) are resultant from the size of research topics and associated term counts within the science maps themselves.

We conclude with pressing methodological concerns that may be inhibiting theoretical progress across the aforementioned areas, and methodological futures that could expand SDT in the workplace beyond what we currently know.

#### 4.1. Individual factors

Notably scant is research on individual differences, as evident in the very small term in our overall map. Indeed, it is only in the 2020 – 2024 map where ‘personality’ appears, suggesting interest in this area is

relatively recent. Interestingly, in the overall summary map, ‘individual differences’ and ‘personality’ sit in very different clusters and appear to be evolving into separate streams of research. This evidence of early variegation is problematic because there is little understanding of individual-level boundary conditions that may inform essential SDT-related processes such as the link between need satisfaction and motivation quality to outcomes. While it may be easier to intervene on contextual factors, individual differences could influence effectiveness; they could have direct or moderating effects on motivation and work outcomes (e.g., is conscientiousness’ known effect on work performance

**Table 2**  
Research Questions based on Future Research Directions and Complementary Frameworks.

Future Research Direction	Specific Research Questions	Example Complementary Theories
Individual Factors: What individual differences have direct, indirect or moderating effects on need satisfaction, motivation and optimal functioning at work?	Can we measure need strength independently of need dissatisfaction?	Person-environment fit theory
	Does need strength matter?	Person-environment fit theory
	Do workers at different career stages and/or age have different levels of need strength?	Career stage theories Theories of life-span development
	Are there gender differences in reactions to need supportive and thwarting contexts?	Person-environment fit theory Theory of purposeful behavior Personality system interaction theory Trait activation theory
	Which personality-based theory explains best how personality influences need satisfaction and motivation?	Job crafting models
	How do work-related need crafting and contextual factors interact in shaping employees' need satisfaction, motivation, and work functioning?	
	What are the reciprocal dynamics between work-related need crafting need experiences, and work functioning over time?	Broaden-and-build-theory
	Do recruitment methods need to increase anticipated need satisfaction through signalling?	Signalling theory Media richness theory Resource-based view of the firm
	Do personnel selection methods need to support psychological needs and increase quality of motivation to (a) offer a positive candidate experience that increases organizational attractiveness and (b) enhances the performance of candidates?	Organizational justice theory Signalling theory Media richness theory
	Does offering variable performance-based pay attract candidates with different work motivations?	Expectancy theory Equity theory
Horizontal Expansion: How do HR systems and practices influence need satisfaction and work motivation?	How do employees with different values or initial work motivation react to variable performance-based pay once on the job?	Theory of basic values
	Is it ethical/legal to select candidates based on their motivations?	Organizational justice theory
	How can we assess employee performance in need supportive ways?	Tournament theory Goal setting theory
	Does the metrification of performance affect motivation quality?	Expectancy theory Work performance theory
	How does variable performance-based pay influence the different types of motivation?	Expectancy theory Organizational justice theory Tournament theory Agency theory

**Table 2 (continued)**

Future Research Direction	Specific Research Questions	Example Complementary Theories
	What mechanisms explain its effects? How does motivation explain the effects of rewards on unethical and deviant behaviors? How do pay fairness, transparency and dispersion influence need satisfaction and work motivation? How does job precarity and financial insecurity influence work motivation? How does diversity status and disability influence need satisfaction?	Organizational justice theory  Organizational justice theory Tournament theory  Uncertainty reduction theory  Revised model of factors affecting the treatment of disabled individuals in organizations Social identity theory Stigma theory Self-verification theory Agency theory
Levels of analysis: How do SDT propositions hold from macro to micro levels?	How does regulation, policy, influence organizational design, leadership, and employee motivation? How do motivational assumptions influence the development of regulation, policy, and organizational design? How do organizational goals translate into behavior? How does team motivation develop and how does it influence team processes and effectiveness? Do the motivation types have homologous effects at the event, task or daily level as they do at the domain (job) level? Does need satisfaction in the work domain have compensatory or spill-over effects in other domains (and vice-versa)?	Agency theory Theory X & Y  Behavioral theory of the firm Dynamic capabilities theory Theory of action phases Social identity theory Framework of team processes Theory of emergence process  Theory of action phases Construal level theory  Work-life balance theory
Technology: How does technology and AI influence need satisfaction and work motivation?	How does technology and AI embedded into task processes impact need satisfaction and work motivation? How does algorithmic management impact need satisfaction and work motivation?	Sociotechnical design theory Work design theory Anthropomorphism theory  Model of algorithmic management characteristics
Alternative work arrangements: How do they influence need satisfaction?	How does remote work, including ICT use, influence need satisfaction and work motivation over time? How do different employment contracts influence need satisfaction and work motivation?	Work-life balance theory  Human resource architecture model Psychological contract theory
Dark side: What drawbacks exist by promoting intrinsic motivation and	How does motivation differences across tasks influence performance in discrete tasks?	Theory of action phases Construal level theory

(continued on next page)

Table 2 (continued)

Future Research Direction	Specific Research Questions	Example Complementary Theories
internalization at work?	Does intrinsic motivation cause prejudice?	Integrated theory of prejudice Theory of group behavior
	How can we mitigate the negative consequences of intrinsic motivation? What is the consequence of compartmentalized internalization at work? How does motivation influence fatigue and recovery?	Recovery experiences framework Job demands and resources theory Model of cognitive control

mediated by certain types of motivation?), they could have indirect effects on outcomes through affecting need satisfaction (i.e., differential sensitivity or attention to contextual factors; e.g., women interpreting ambiguous stimuli as more controlling than men; Koestner et al., 1987), or they could trigger specific interpersonal reactions leading to differential need satisfaction (e.g., introverts seeking less social contact or working remotely and consequently being less informed or “promotable”; Gajendran & Harrison, 2007).

Individual difference variables in SDT research have included need strength, the general causality orientations, and personality. Need strength, defined as individual differences in how much autonomy, competence, and relatedness one needs, has been difficult to assess. Two notable studies have attempted to measure need strength using different approaches, all of which proved to be challenging because they typically negatively correlate with need satisfaction (Chen et al., 2015; Wörtler et al., 2020). In other words, the less satisfied people feel, the more they report needing competence, autonomy, and relatedness. Until we can find a way to independently measure need strength from need dissatisfaction, we will not be able to adequately test questions such as whether need strength moderates the effect of need supportive and thwarting factors on need satisfaction and frustration, or whether workers of different ages or at different career stages have differential need strength (Goštautaitė et al., 2022).

Research on general causality orientations has been relatively rare in the work domain (e.g., Halvari et al., 2021), possibly due to psychometric assessments, which are scenario-based, being complex and time-consuming. Yet, more research can be undertaken to get a better understanding of the role of these orientations at work (e.g., in interaction with social-contextual factors). Alternatively, we could consider personality traits as they are easier to assess and they are somewhat correlated with orientations (Van den Broeck et al., 2016). What is apparent from the few studies on personality and SDT is that relationships appear to be complex (Ryan et al., 2019); personality is treated as an antecedent and as a moderator because a person’s personality may make them more or less resilient to threats to need satisfaction and proactive in seeking support, influence how they interpret a situation, and/or because their personality invokes certain environmental reactions (Ryan et al., 2019). Several personality-oriented theories could be used to inform hypotheses. For example, the theory of purposeful work behavior proposes that personality traits interact with job characteristics to influence need satisfaction (Barrick et al., 2013), with a bit of evidence supporting it (e.g., Barrick & Mount, 1993). Another study found that organizational design can influence how workers view the behavior of highly conscientious colleagues: more stringent hierarchies weaken perceptions that conscientious people’s voice is ethical (Lukšyte et al., 2024). Indeed, there are opportunities to refine SDT by drawing inspiration from personality theories (e.g., personality system interaction theory and trait activation theory; Koole et al., 2019; Tett et al., 2021). But there might also be strong arguments for the role of sustained

work-related need support and thwarting in effecting personality changes over time (Wu, 2016).

Finally, in our review we noted the emergence of job crafting as an individual-level factor studied in relation to SDT. Building on this, the recently introduced concept of work-related need crafting (Olafsen et al., 2025) offers a way to more clearly integrate and anchor crafting into SDT scholarship on work motivation. In particular, work-related need crafting refers to employees’ cognitive and behavioral efforts to increase need satisfaction and reduce need frustration at work by reframing job features, building resources, and optimizing demands (Olafsen et al., 2025). By emphasizing employees’ proactive capacity to shape their motivational experiences at work, need crafting has the potential to broaden the individual-level perspective within work-related SDT research. This helps to balance a literature that has primarily emphasized contextual factors, and it provides an avenue to more fully explore SDT’s assumption that humans are agentic beings capable of actively fostering their own need satisfaction (Vansteenkiste & Ryan, 2013). One avenue of future research in this space is to examine the dynamic interplay between contextual factors and work-related need crafting, moving beyond a simple focus on either external antecedents or individual factors to a more interactionist perspective. Furthermore, thinking about motivation as a cyclical and evolving process, research can investigate the reciprocal relations between need crafting, need experiences, and work functioning, tracking how crafting itself can be fueled or constrained by need experiences and functioning over time. Additionally, intervention studies can benefit from taking a multilevel perspective where not only managers are trained in need-supportive leadership, but where employees can be trained in need crafting to complement and strengthen previous top-down approaches (Slemp et al., 2021).

#### 4.2. Horizontal expansion

Human resource (HR) management is the one element of an organization that directly influences every organizational member, from the highest to lowest ranking (Stone et al., 2024). As such, the opportunity to realize positive impact through evidence-based HR practice is noteworthy. This could enhance the popular AMO framework of HR practices (M standing for motivation; Appelbaum et al., 2000), as called for by Bos-Nehles et al. (2023). Not only would this emphasize the importance of motivation quality and how to promote it with adequately designed HR practices, but SDT as a theory of optimal functioning, also encompasses both performance and well-being, with the latter deserving far greater attention from HR (Tay et al., 2023). Though some HR practices were present in the late phase map, we consider horizontal expansions across more HR practices that flow from the organizational level down (Fig. 7), adding practices that are oft-considered central to an HR manager’s portfolio: recruitment and selection, performance management, compensation, and diversity, equity and inclusion (Stone et al., 2024).

##### 4.2.1. Recruitment and selection

Whilst recruitment is concerned with building a pool of talent, selection seeks to identify the best candidate from said talent pool (Stone et al., 2024). To date, scholars have largely ignored the potential for SDT to inform recruitment efforts. However, SDT may prove useful in understanding talent pool characteristics. For example, how does offering pay-for-performance influence the motivational composition of job candidates and what happens to their motivation once they are in the job under different compensation schemes? how can organizations signal opportunities for psychological need fulfillment as an attraction tool (e.g., highlighting teamwork, decision-making latitude, or career development opportunities)? addressing the quality of the talent pool has direct implications for the selection process, which can also be informed by SDT; need satisfaction during personnel assessments might matter to organizational attractiveness and to maximize candidates’ opportunities

to demonstrate their potential. Nascent research has found forced-choice personality assessments to be less autonomy-frustrating if people are given the opportunity to express who they are through slightly modified procedures, while other research explored, so far with limited success, if relatedness support could be improved during impersonal asynchronous video interviews (Borman et al., 2024; Moore et al., 2024). By integrating SDT with relevant theories such as person-environment fit, media richness and signalling theories, SDT may help identify how to attract more and better fitting candidates, and how to run a selection process that satisfies candidates' psychological needs. Ultimately, enhancing recruitment and selection using SDT may offer theoretical advancement whilst delivering practical solutions to growing talent shortages. However, one must ask about potential ethical and legal implications of selecting candidates with different motivation profiles, which we know already happens; indeed research has shown that interviewers tend to favor candidates who show intrinsic motivation (wanting an interesting job) for the job over those who show extrinsic motivation, a tendency known as the motivation purity bias (e.g., wanting to make a lot of money; Derfler-Rozin & Pitesa, 2020)

#### 4.2.2. Performance management

Although performance-related terms are salient features of the overall and temporal maps (e.g., 'performance', 'performance outcomes'), current research emphasizes behaviors as opposed to overarching systems. SDT could be applied to understand optimal ways of assessing employee performance and delivering feedback to enhance and sustain autonomous motivation. Though there have been advocates for the use of performance appraisals and feedback to be developmental rather than evaluative (DeNisi & Pritchard, 2006), more research is required to fully understand how to craft appraisals – Both the administrative and interpersonal elements – In ways that fulfill psychological needs. Indeed, need support has only very recently been leveraged in performance management research (Van der Hauwaert et al., 2022), and not yet used to study competitive systems traditionally based on tournament theory (Connelly et al., 2014) or the best methods of goal setting or feedback during performance reviews. For example, self-concordance research that deals with goal motivation, content (Bradshaw et al., 2023), and feedback, demonstrates that informative non-controlling feedback yields more autonomous motivation (Harackiewicz & Larson, 1986)

Another important aspect of appraisals is the measurement of performance. While objectivity is important, there may be some motivational consequences to the metrification of performance (Carpini et al., 2017), and performance appraisal systems may be differentiated as being either behavior- or outcome-based, corresponding to whether the organization prioritizes the inputs of the employee (e.g., task proficiency, helping) or objective results (e.g., sales). Whilst research shows the detrimental effects of a mismatch between employee behaviors and outcomes as a function (Bergeron et al., 2013), such mismatch may also have implications for employee need satisfaction and motivation. In addition, there have been arguments for the increasing importance of adaptive and proactive performance in contemporary organizations that evolve in a more volatile and ambiguous world (Griffin & Grote, 2020). Adaptivity and proactivity have been shown to be promoted more effectively through autonomous than through controlled motivation (Gagné et al., 2022b), but they may be more difficult to assess (i.e., metrify).

#### 4.2.3. Compensation

The role of rewards in promoting motivation has been an ongoing point of contention (Fulmer & Li, 2022; Fulmer et al., 2023; Gerhart & Fang, 2015; Kuvaas et al., 2016), clearly visible within both the overall and temporal maps. At the core of this debate is the notion that external rewards undermine intrinsic motivation and hinder both performance and well-being (Gagné et al., 2022a). We advocate for the expansion of SDT beyond the current debates to consider how compensation

influences all types of motivation, not just intrinsic, and how compensation influences well-being, not just performance, through its effects on need satisfaction. Beyond these additional linkages, more can be done with SDT to better understand the use of contingent pay, pay system characteristics (Gagné et al., 2025), and financial security

Meta-analyses on the effects of rewards on intrinsic motivation and performance have predominantly included studies focused on relatively simple repetitive tasks, some of which have been automated in today's organizations (e.g., Deci et al., 1999; Kim et al., 2022). Given that contemporary work has on average higher knowledge demands, is more complex, and requires more adaptive and proactive performance, it is crucial to verify if old findings still hold (Gagné et al., 2022a). Moreover, none of these meta-analyses examined mediating mechanisms such as the psychological needs, types of motivation, or the functional significance of rewards (Deci & Ryan, 1980). Because numerous organizational and financial scandals have been associated with the use of monetary incentives and the glorification of wealth and status goals (Castro et al., 2020; Gottschalk, 2020; Stout, 2013), research could dig deeper into the psychological mechanisms involved in how different types of motivation and incentives might be associated with moral disengagement (Newman et al., 2020). While unethical behavior has been linked to incentives (Park et al., 2022) and need thwarting with academic misconduct (Kanat-Maymon et al., 2015), we are aware of only one recent study linking some of these mechanisms together (Gagné et al., 2025).

SDT research has largely been silent on other pay system attributes, including pay fairness, transparency, and dispersion. While we know that pay fairness reduces controlling perceptions and enhances intrinsic motivation (Wenzel et al., 2019), relations of justice perceptions with need satisfaction and work motivation appear to be complex (Malhotra et al., 2022; Olafsen et al., 2015, 2025), and we have yet to understand how specific types of compensation (e.g., base pay, merit increases, bonuses, commissions) or their combinations, and different bases for setting pay and increases (e.g., performance-based, skill-based, experience-based, seniority-based) influence need satisfaction through justice perceptions. Moreover, research suggests pay transparency can enhance intrinsic motivation (Wenzel et al., 2019) and can moderate the effects of justice on intrinsic motivation (Hartmann & Šlapničar, 2012). New regulations to increase pay transparency (e.g., in the USA) necessitate research uncovering how pay transparency influences psychological needs and work motivation and under what circumstances.

Vertical pay dispersion (across hierarchical levels) has increased significantly in the past decade, going from a ratio of CEO to worker pay of 20:1 to 399:1 in the past 50 years (Bivens & Kandra, 2022). While unequal wealth distribution is argued to lead to power differentials that deprives powerless individuals of their self-determination (Howard, 2024), we do not know the effects of such dispersion on need satisfaction and motivation, though research indicates that high CEO pay negatively affects employees' trust in leaders (Schulz et al., 2022) and increases employee deviance (Smulowitz & Almandoz, 2021). In contrast, high horizontal pay dispersion (within a hierarchical level) is argued to motivate workers to put more effort into their work because it weeds out poor performers and reinforces vicarious learning (Shaw, 2014) and is seen as fairer (i.e., good performers get more than poor performers; Lawler, 2000). But there is mixed evidence of a positive relation between pay dispersion and organizational-level performance, with some studies finding curvilinear effects (Shaw, 2014), and we do not know how it affects need satisfaction and autonomous motivation. Several moderators have been found, including procedural justice and pay transparency, which may influence autonomy satisfaction, and interdependence among employees could influence relatedness satisfaction and other team processes (Shaw, 2014; Siegel & Hambrick, 2005; Tenhiälä et al., 2023).

We know that financial insecurity leads to ill-health (Sayre, 2023) through lower need satisfaction (Weinstein & Stone, 2018), and that the negative effects of job insecurity on performance is mediated by intrinsic

motivation (e.g., Mahmoud et al., 2021). It might also make money more salient, which could make people become less prosocial, enjoy work less, and decrease their well-being (DeVoe & Pfeffer, 2010; Vohs et al., 2006). Having financial constraints and lower job autonomy influence how much meaning workers experience (Allan et al., 2014). Given increases in job precarity, the rise of gig-work, and overreliance on pay-for-performance (Sayre, 2023), we need solutions. What would happen to people's work motivation if they were decently paid or were guaranteed basic income? Interestingly, universal basic income trials have not shown decreases in labour participation (Gilbert et al., 2018), perhaps because they increase autonomous work motivation and well-being (Howard, 2024). Though such a system could increase labor shortages in areas where work is by nature less enjoyable or meaningful, it could encourage attention to good work design (Hüffmeier and Zacher, 2021).

#### 4.2.4. Diversity, equity, and inclusion (DEI)

In an increasingly fragmented, marginalized, and divided world, there have been calls to use SDT to DEI-related issues at work (Legate & Weinstein, 2024). To date, our analyses suggest this call is yet to be thoroughly addressed given the scarcity of diversity, equity, and inclusion related terms appearing in the maps. With this said, some exceptions demonstrate the potential utility of SDT in this research area. For example, we know that work motivation and the importance of different psychological needs changes with age (Goštautaitė et al., 2022), and that age is a substantial moderator of relationships between HR practices and need satisfaction (Laguette & Barnes-Farrell, 2024). Integrating SDT with advice on managing mature workers that include integrating (i.e., harnessing knowledge), including (i.e., work climate), and individualizing work practices (i.e., accommodations; Chong et al., 2025) might help build higher quality policies, practices, and systems that retain employees for longer, and that could be applied to other forms of diversity. Furthermore, Legault et al. (2011) found brochures intended to reduce prejudice that used autonomy supportive (controlling) language resulted in less (more) prejudice, compared with the control condition. Similarly, research suggests antiracism messaging can influence autonomy with implications on participants' willingness to act (Legault et al., 2025). Extending these findings, scholars may question how DEI policies may be best introduced and reinforced to enhance more internalized forms of motivation that support policy support and behavioral adherence.

Although much of the DEI research has focused on observable forms of diversity (e.g., gender, race, and age), extant research may also be meaningfully extended to the emerging research on concealable forms of diversity. Complementing theoretical paradigms such as social identity theory, stigma theory, and self-verification theory (see Follmer et al., 2020), SDT may help extend models of concealable identity disclosure from both the perspective of the employee disclosing and the stakeholders receiving the disclosed information. For example, Chong and Carpini integrated SDT with the work design literature to propose a conceptual model of how various work design features can support and thwart need satisfaction amongst neurodivergent employees. SDT could be integrated into theoretical frameworks such as 'the revised model of factors affecting the treatment of disabled individuals in organizations' to unpack the motivational mechanisms explaining the treatment of neurodiverse employees (Bölte et al., 2025). In a study of LGBTQ employees, supportive colleagues, supervisors, practices, and LGBTQ peers were all significantly related to basic need satisfaction (Schönauer et al., 2025). Such work could be extended to examine the motivation of co-workers to support mental health in the workplace, similar to a recent study of pharmacists; those who knew someone impacted by suicide were more likely to use autonomy supportive means of intervention in a suicide-related crisis because they reported higher levels of identified motivation, whereas those with personal experience with suicide experienced more amotivation and more likely to use coercive means of intervening (Carpini et al., 2025).

SDT may also be used to add depth to existing research on workplace

intersectionality. Intersectionality is defined as "the intertwined and multiplicative effects of multiple identity groups, considers how various combination of individuals' social identities (e.g., gender, race/ethnicity, age) and their embedded meanings impact their lives, their employment, and the organizations where they work" (Thatcher et al., 2023, p. 710). Adapting an intersectional lens can bring together research on both observable and concealable forms of diversity such as that of neurodiverse race/ethnic minorities (Chong & Carpini, 2025). SDT may also help unpack the motivational mechanisms underpinning how societal (e.g., DEI policy reversal or challenges) inform organizational DEI policy adherence by leaders, with trickle-down effects to individual identity management practices (e.g., emphasizing or downplaying), an issue we elaborate below.

#### 4.3. Expanding levels of analysis

The results of our science maps offer glimpses into the potential for SDT to be applied at multiple levels of analyses (see Fig. 7). While the science maps highlight various terms including 'leadership', 'managerial autonomy support', 'team', 'corporate social responsibility', 'culture', and 'technology', SDT scholarship has largely been conducted at the individual person-level of analysis. It is applied relatively less to the team-level, and very infrequently at the organizational, regulatory, or event levels. Little rigorous research has linked organizational design features (e.g., coordinating mechanisms, standardization, formalization, centralization; Teece et al., 1997) to employee motivation, apart from a few correlational survey studies that have found links between the level of autonomy support versus control in organisational design features and employee intrinsic and extrinsic motivation (e.g., Donnelly et al., 2021; Van der Hauwaert et al., 2022). For example, self-managing organizations, which operate through autonomous work teams supported by coordination structures, seem ripe for examination through an SDT lens (Lee & Edmondson, 2017; Martela, 2023). Conducting multilevel research on macro-level organizational factors through an SDT lens could, for example, uncover ways of removing barriers, such as rigid standard procedures and decision-making centralization, so that managers can apply need-supportive leadership behaviors they learn through training and coaching (Leroy et al., 2023), and could also examine potential cross-level interactions between organizational design features and leadership behaviors on employee motivation. Integrating SDT with theories used to study macro-organizational factors might be an effective way to develop the theory in new directions. For example, Gagné (2018) proposed a model to understand how to translate organizational goals into organizational behaviors by integrating SDT with the theory of action phases (Heckhausen & Gollwitzer, 1987). This first attempt at proposing ways to bring together knowledge from strategic management, for example from the behavioral theory of the firm (Cyert & March, 2015) and dynamic capabilities theory (Teece et al., 1997), and motivational knowledge has not been tested despite 'strategy', 'human resource management', 'policy', and 'culture' featuring in the science maps. Another important organizational feature not yet examined through an SDT lens is teamwork. Grenier and colleagues (2024) proposed a model, yet to be tested, of team motivation emergence informed by team dynamics theories that include team processes like coordination and emergence processes that describe dynamics by which individual motivation within a team might converge over time and transform, through other mechanisms, into team-level motivation.

Not only can we conduct research on the impact of organizational design on employees, but we could also conduct research on what influences organizational design. As a revival of sorts of Theory X and Y (McGregor, 1960), Gagné and Hewett (2024) argued that the motivational assumptions of business leaders (e.g., founders, executives, board members) might influence how they design organizations and management practices. Believing that employees are inherently intrinsically or extrinsically motivated and believing or not that they can internalize

organizational goals might, for example, influence how much decision-making power, access to information, and responsibility they give employees. Doing research on the motivational assumptions of leaders and developing interventions to change their beliefs could enhance employee and organizational outcomes. By the same token, we can take things a level higher by assessing governance characteristics. For example, given that one study found that corporate governance, which has been described as ranging from being controlling to autonomy-supportive, influences the motivation of top management teams to behave (un)ethically (Shi et al., 2017), could it also influence executives to design organizations in more or less need supportive ways? Government or industry-specific policy and regulation might also influence organizational design and management practices with trickle down effects on individual motivation. For example, policy for assistance to the unemployed influence government-funded employment services organizations, such that assuming people do not want to work makes them adopt punitive measures to force job seekers to apply for jobs instead of supporting their needs (Sykes, 2023). There is also the current push for organizations to adopt environmental, social, and governance (ESG) frameworks that could be informed by SDT principles, given SDT's focus on individual and societal optimal functioning (Vallerand, 2013) and on promoting self-transcendent or prosocial goals through the internalization process (Gagné, 2003; Gagné & Hewett, 2024).

Finally, we can zoom in to consider how most research has so far focused on the overall job or between-person level, with little research having considered within-person task level, day level, and momentary or event levels. Motivation is a dynamic phenomenon and studying it at the job level might not be optimal. Need satisfaction does fluctuate daily and affects daily well-being, and both job characteristics and individual differences affect its daily variations (Coxen et al., 2021), though some homeostatic process seems to protect people against need satisfaction fluctuations (Huyghebaert-Zouaghi et al., 2024). Similarly, task-level need support predicts task-level need satisfaction and well-being (Wang & Panaccio, 2022), while motivation for different job tasks (e.g., teaching versus grading) are differentially related to burnout (Fernet et al., 2008). Building on these insights, it could be valuable to theorize possible spill-over or compensatory effects across tasks and days that could help design better work structures, methods, and supports to create sustainable motivation and optimal functioning (e.g., Shin & Grant, 2019).

Research on organizational goal pursuit could leverage self-concordance theory and goal content theory using intensive data collection methods, for example to examine how employees juggle multiple goals, prioritize tasks, pursue instrumental versus experiential goals (Fishbach & Choi, 2012), and envision goals from being abstract to concrete (Gollwitzer, 2012). For example, goal hierarchy theories indicate that abstract goals tend to trigger more value-related (i.e., desirability) cognitions, whereas more concrete goals tend to trigger more practical (i.e., feasibility) cognitions (Gollwitzer, 2012; Trope & Liberman, 2003). Could this imply that job-level motivation (higher abstractness) is more sensitive to desirability considerations and task-level or daily-level motivation (higher concreteness) is more sensitive to feasibility considerations? While much research show findings at the daily-level parallel to those at the person-level, there are exceptions. For example, a recent study of HR professionals who completed surveys five times per day revealed that task autonomous motivation was positively associated with productivity at the between-person level (comparing people) but not at the within-person level (comparing days), and that previous day productivity was associated with decreases in next-day task autonomous and controlled motivation (Hogenelst et al., 2022). Do feasibility considerations at the task level (e.g., time pressure, focus on completion) override the effects of motivation quality? More research is needed to address these issues as they may have important implications for the daily management of motivation and optimal functioning. Though research has evaluated the role of deadlines, approach and avoidance orientations, progress, and to some degree incentives in the

pursuit of goals (e.g., Ballard et al., 2018; Neal et al., 2017), SDT has not been considered as an explanatory lens.

#### 4.4. Technological advancements

Technology shapes what, how, when, where, and with whom work is done, and its growing importance is evident in the emergence of the 'technology' term since 2020. Recent applications of SDT to technology design and use in the health and education domains offer good examples that can inspire future research and ensure the introduction of technology into work processes, including AI and augmented reality, enhances and does not negatively impact the motivation of workers (e.g., Bingley et al., 2023; Cazzoli et al., 2024; Huang et al., 2019; Peters et al., 2018). Human-robot/technology interactions is a relatively recent line of inquiry that could also benefit from SDT insights. It seems particularly relevant to evaluate how humans working with robots find their psychological needs impacted. For example, we know that humans tend to anthropomorphize technology, which might stem from a need to master it and relate to it (i.e., competence and relatedness) that improves trust in the technology, positive emotions towards it, and adoption (Christoforakos & Diefenbach, 2023; Epley et al., 2007; Li & Suh, 2022; Roesler et al., 2021). Paradoxically, robot anthropomorphism can also increase job insecurity because it facilitates social comparisons (Wang et al., 2023). Consumer research has already produced a significant body of knowledge on anthropomorphism in service robots (Blut et al., 2021) while other research has uncovered how humans comply with robot versus human requests (Haring et al., 2021) and how outsmarting an imperfect robot enhances work meaningfulness (Goštautaitė et al., 2023). SDT might enhance these nascent insights using the psychological needs to derive hypotheses. It could also inform how to design human-technology "teams" with communication, coordination, and collaboration in mind (Grenier et al., 2024; Mingyue Ma et al., 2018), and how anthropomorphizing recruitment and selection technologies might influence candidates' experiences (e.g., Ochmann et al., 2024).

#### 4.5. Alternative work arrangements

Work has become more flexible because of technological developments and the accelerated implementation and normalization of alternative work arrangements during the COVID-19 pandemic. Transitioning from in-office work to remote and hybrid work can alter social-contextual factors that are known to affect work design, social interactions, and feedback processes (Hill et al., 2024), and consequently employees' motivation, performance, and well-being. Findings present mixed evidence on whether remote work is beneficial or detrimental to workers and to organizational performance, suggesting multiple pathways (Bloom et al., 2024; Gajendran et al., 2024; Hill et al., 2024) that could potentially be reconciled by considering need satisfaction and frustration (Olafsen, Jauvin, et al., 2024; Perry et al., 2018). Moreover, the shift to remote and hybrid work can significantly impact leadership practices. Although SDT research has extensively explored the role of managerial styles in employees' need-based experiences and quality of motivation (Slemp et al., 2018), it has predominantly focused on face-to-face and in-office contexts. Research needs to provide insights into how to effectively lead remote workers through enhancing need satisfaction and autonomous motivation (Olafsen, Stenling, et al., 2024).

Flexible work arrangements enabled by technological advancements make work and nonwork lives more closely intertwined than ever before (Chan et al., 2023), and though some research has examined links between work-family conflict, work need satisfaction, and work motivation (e.g., Baumann et al., 2024; Kuvaas et al., 2017), we could investigate how work motivation and the psychological needs impact engagement in leisure activities that may be crucial to recovery from work fatigue (Kujanpää & Olafsen, 2024), or whether employees compensate for a lack of autonomous motivation at work with need

fulfilling leisure or volunteering activities and vice-versa (Kujanpää & Olafsen, 2024). Understanding compensatory and spillover processes across domains is vital to design appropriate interventions. Additionally, employment arrangements have evolved (e.g., gig work, Wu & Huang, 2024), some of which rely on algorithmic management whereby digital labor platforms undertake routine human resource management practices (e.g., task assignment, performance evaluation). Whilst algorithmic management is a cornerstone of the gig economy, there are growing applications within traditional organizations. To this end, scholars have suggested adopting an SDT perspective to understand the effects of algorithmic management on worker outcomes (Gagné et al., 2022b; Jabagi et al., 2019). Finally, it might be necessary to consider how varied employment contracts lead to different psychological contracts (i.e., unwritten, implicit expectations and obligations between an individual and an organization), which could influence worker reactions to different human resource practices and consequently need satisfaction (Batistić, 2018).

#### 4.6. The dark side of internalization

Terms including ‘internalization’, ‘deviance’, and ‘dark side’ all appear together in our overall map and hint at growing critiques as to the universally beneficial effects of internalization. Indeed, there is growing recognition that traditionally ‘positive’ workplace experiences and behaviors may also have negative or unintended consequences (Carpini & Soo, 2022), which could apply to SDT. For example, Shin and Grant (2019) found that working on an intrinsically motivating work task reduced performance on a subsequent less intrinsically motivating task, which may have implications for the ordering of tasks and goal hierarchies. Other research suggests higher intrinsic motivation may shape perceptions of others: Employees higher on intrinsic motivation are less likely to help coworkers whom they perceived to have lower intrinsic motivation because they perceived these employees to be less moral (Kwon et al., 2023). These dynamics can shape ongoing interactions between coworkers and ultimately organizational effectiveness.

Another concern might be whether workers can internalize organizational goals that cause harm to people or the environment. This question is legitimate in organizations that must balance conflicting issues regarding energy provision and national sovereignty (e.g., resource companies and militaries). But it seeps into more professions than we may think, including defence lawyers and healthcare workers whose work tasks (e.g., voluntary assisted death) may tug at their value of not causing harm. “Compartmentalized identifications”, defined as behaviors people rate as personally meaningful but inconsistent with their higher-order values, tend to be imbued with defensiveness and be experienced as less authentic than “open” identifications (Ryan & Deci, 2017). Resolving such a quandary requires having “integrated regulation” as part of the motivation continuum because it represents internalizing the value of an activity in ways that are congruent with one’s higher-level value system. It also highlights the importance of developing methods to reconcile compartmentalized identifications into one’s value system (Pelletier & Rocchi, 2023). This area of research should be developed more in organizational contexts where conflicting values and goals may be a frequent part of workers’ lives.

Yet another question is whether autonomous motivation impinges on workers’ ability to disengage from work and recover. Recovery is necessary to regain energy and mitigate the long-term consequences of work stress (Sonnetag et al., 2022). With evidence for the positive outcomes associated with both autonomous work motivation (Van den Broeck et al., 2021) and recovery experiences (Sonnetag et al., 2022), it is intriguing that the association between the two constructs is mixed. While one study found detachment (i.e., mentally distancing from work during non-work time) and autonomous motivation were positively correlated (Cangiano et al., 2021), another found they were not (e.g., Olafsen & Bentzen, 2020), and a third study found higher autonomous

motivation negatively predicted future detachment (Stockkamp et al., 2023). These findings raise several questions: Is thinking about work when autonomously motivated not detrimental because it involves positive reflections on one’s work? Or could the lack of recovery in autonomously motivated employees be detrimental in the long run? Are all types of recovery experiences (i.e., detachment, relaxation, control, and mastery; Sonnetag et al., 2022) associated in the same way to work motivation? Furthermore, what individual and contextual boundary conditions help reconcile competing results?

#### 4.7. Methodological concerns and futures

Our co-word bibliometric analyses show that research has tended to either examine needs or motivations, but relatively rarely both, and we suspect one reason is the impractical length and complexity of instruments measuring SDT constructs. For example, some measures of need support/thwarting/indifference and satisfaction/frustration/dissatisfaction now include nine subscales (Huyghebaert-Zouaghi et al., 2021; 2023), while work motivation measures typically have five to six subscales (e.g., Gagné et al., 2015). Using long questionnaires is challenging and so too is using them in predictive analyses, impeding the development of knowledge on bottom-up cross-level phenomena. Curiously, Meyer et al. (2022) found that simply asking employees “how motivated they are” is positively related to autonomously driven motivational profiles and not associated with amotivated and controlled profiles. Does it mean that when we ask employees how much motivation they have, they respond in terms of how autonomously motivated they are, and would this provide enough information? Given that scoring method comparisons indicate that the full breadth of motivations accounts for more variance in outcomes than simpler alternatives (e.g., aggregations) indicates that it may be suboptimal (Howard et al., 2020), but researchers should keep working on developing simplified methods. Given there are several constructs (e.g., job satisfaction, turnover intentions) being regularly assessed using single-item measures, could we develop psychometrically sound instruments with a single item per subscale (e.g., Martela & Ryan, 2024)? This would be especially practical when considering task, event or day level associations based on diary or ecological momentary assessment designs.

On the other hand, new methods and technologies can help refine some well-known SDT principles. One such approach includes the use of AI-assisted coding and agent-based computational models. Indeed, research has demonstrated AI can rapidly code audio and video content (Klonek et al., 2020). Furthermore, agent-based computational models (Ballard et al., 2021, Zhang et al., 2019) may offer research perspectives beyond employee perceptions that could be used to elaborate a taxonomy of need supportive and thwarting behaviors (Ahmadi et al., 2023) not only for people in leadership positions, but for people in other roles, such as subordinate and team-member roles. New advances in multilevel modelling and dynamic modelling may also reveal that motivational constructs may or may not have the same structure or the same effects on outcomes at different levels of analysis (e.g., individual versus team motivation), that the dispersion or variation of motivation across people and across time may influence outcomes in ways SDT has not yet proposed, and that intrinsic motivation could, over time, have augmenting or diminish effects on successful recovery from fatigue.

#### 4.8. Limitations

Although the current review includes 1,192 peer-reviewed journal articles from various disciplines, there are several notable limitations. Firstly, our review follows established best practice in co-word bibliometric analyses and only includes peer-reviewed publications. As such, we systematically excluded books, book chapters, and conference proceedings (Carpini et al., 2017). Exclusion of these scholarly outputs is considered best practice because these ‘grey works’ are reviewed to varying degrees and they are not always systematically covered in

databases (Jiang et al., 2023). Secondly, we also excluded journals with a Scimago ranking of 4 (or unlisted) and MDPI journals. Although inclusion of additional quality checks when screening articles as part of a systematic review is encouraged (Hiebl, 2023) and established practice (e.g., Carpini et al., 2017; Jiang et al., 2023; Hahn et al., 2025), it did result in 9.6% of our articles being excluded. As such, it is possible our review is not completely comprehensive and may not generalize to all work-related areas of SDT research. Thirdly, we only included English publications because it is difficult to ensure the consistent meaning of terms across languages with co-word analyses. Future research may seek to systematically capture non-English and non-western peer-reviewed outputs to compare their intellectual structures and identify opportunities for synthesis. Finally, the present research presents a bibliometric overview of the evolution and current state of workplace SDT-related research; however, it stops short of adopting advanced meta-scientific approaches such as the creation of a living meta-analysis (Howard & Slemp, 2025), which would allow for the estimation of effect sizes and the role of mechanisms and boundary conditions. Leveraging the comprehensive list of articles included in our analyses, future research can utilise AI-assisted coding practices to integrate this knowledge for quantitative analyses that can help answer questions such as how motivation differs across industries, cultures, and occupations. Extending this idea, such an approach may also be used to create ‘living co-word bibliometric maps’ of the intellectual structure of SDT research.

#### 4.9. Practical implications

While the main point of the current co-word bibliometric review is to visualize the overarching intellectual structure of a body of literature to inform theory development and future research, the results of the co-word bibliometric analyses also offer some practical implications. The body of research shows that the basic psychological needs for competence, autonomy, and relatedness, and that the types of motivation are central (literally as they are always in the middle of the maps) to understanding much of organizational behavior, as they serve as important psychological mechanisms through which antecedents of important work outcomes (e.g., performance, well-being) have their effects. Beyond underscoring the common advice of the importance of supporting employees’ basic psychological needs, it suggests that organizations can use the basic needs as a common reference point when evaluating or developing practices and policies. Needs provide a way to assess whether different initiatives, such as incentive systems, leadership training, or return-to-office policies, are likely to support or undermine employee motivation and functioning. In that sense, the basic needs can serve as a practical design principle: when considering new measures or revisiting existing systems, organizations should ask how it may affect employees’ autonomy, competence, and relatedness. By doing so they are far better positioned to anticipate unintended consequences, adjust initiatives before implementation, and ensure that organizational change promotes both performance and well-being. Similarly, focusing on employees’ basic needs as the foundation for intervention design may increase both acceptance and compliance with the intervention as need satisfaction facilitates the internalization of its training and goals. To be effective, such interventions should also recognize that the conditions supporting or thwarting these needs can operate at multiple levels (i.e., within individuals, teams, organizations, and the broader societal context) and should therefore be designed and implemented with this multilevel reality in mind.

## 5. Conclusion

As Albert Camus said, “Without work, all life goes rotten. But when work is soulless, life stifles and dies”. Work is central to people’s lives for both economic and existential reasons (Paulsen, 2008). Organizational research utilizing SDT has and can continue to contribute to the world’s most pressing issues – decent work and economic growth (SDG8), good

health and well-being (SDG3), gender equality (SDG5), and reduced inequalities (SDG10) – thus contributing to optimal functioning for employees, their teams, organizations, and society. SDT is a theory that reconciles tensions between promoting performance and well-being to design and regulate contemporary organizations evolving in a more volatile and uncertain world (Gagné & Hewett, 2024; Gagné et al., 2022a). By considering where SDT research is (*The Present*) and from where it has come (*The Evolution*), we developed theoretical expansions of SDT for the workplace to drive new research directions that promise to shape the future of work meaningfully (*Beyond*).

## CRedit authorship contribution statement

**Marylène Gagné:** Writing – review & editing, Writing – original draft, Project administration, Formal analysis, Conceptualization. **Anja H. Olafsen:** Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing. **Joseph A. Carpini:** Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Claus W. Frølund:** Data curation, Formal analysis, Methodology, Visualization, Writing – review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jbusres.2026.116146>.

## Data availability

All data and analyses files are provided as [supplementary materials](#)

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