

Equality, Diversity, and Inclusiveness in the Field of Project Management:

Theoretical Relationships
and Managerial Tool

Paul Gardiner,¹ Rami Alkhudary,² Marie Druon¹

¹SKEMA Business School, Université Côte d'Azur, Lille, France

*²Laboratoire de Recherche en Sciences de Gestion (LARGEPA),
Université Paris-Panthéon-Assas, Paris, France*

Table of Contents

Abstract 2

Introduction 3

Methodology Used to Collect and Summarize the Literature 5

Conducting the Review 5

Descriptive Statistics of the Literature Collected 5

Equality, Diversity, and Inclusiveness (EDI) Definitions and Interpretations 10

Diversity 11

Team Member Diversity Perspective 11

User Diversity Perspective 11

Partner Diversity Perspective 11

Project Diversity Perspective 11

Equality 12

Inclusiveness 12

Theoretical Relationships and Boundary Conditions 13

Diversity of Project Management in the Literature 15

Team Diversity in General 15

Knowledge Diversity 17

Value Diversity 17

Behavioral and Cultural Diversity 18

Social Diversity 19

Functional Diversity 19

User Diversity 20

Partner Diversity 20

Technological Diversity 20

Equality in the Literature of Project Management 21

Inclusiveness in the Project Management Literature 22

Inclusive Work Environment 22

Inclusion of Individuals 22

Inclusion of Secondary Stakeholders 22

Stakeholder Inclusiveness 22

Inclusiveness and Sustainability 23

Concluding Remarks and Theoretical Implications 24

Managerial Implications 24

Future Research Agenda 26

References 28

Appendix 34

Abstract

We carried out a systematic literature review (SLR) to understand the impact of equality, diversity, and inclusiveness (EDI) on performance and creativity in the workplace within project-based organizations (PBOs). Our methodology is fully described in the report and follows standard SLR protocols. We also describe in detail the nature and characteristics of the research studies in the literature included in our study, paying attention to the methodological and industrial sector diversity, as well as the specific EDI dimensions studied. We found that most EDI research in the literature concerns the construction (37%) and information technology (41%) sectors and uses quantitative methodological techniques (55%). We also discovered that there is a lack of consistency or consensus in the terms used by authors to describe the various EDI constructs. To assist managers in navigating the spectrum of terms, some of which use subcategories of the main EDI terms and others represent near-identical constructs, we include a section on the nomenclature of EDI terms.

An important contribution of our research is the identification of the theoretical relationships extracted from the empirical research in the SLR set. In total, we delineated 41 theoretical relationships in which either a correlation or a cause-and-effect relationship was found between an EDI-related dependent variable and one of three principal independent variables discovered in the articles selected: project performance, team performance, and product quality. One surprising finding was that in several cases the same dependent variable simultaneously had positive and negative associations with the independent variable by virtue of two or more mediating variables.

All 41 relationships are clearly identified in Table 2 and discussed in the report, along with any relevant situational and contextual factors. The nature of the relationships found, which were frequently paradoxical due to the mediating variables, lend themselves to managerial manipulation for heightening the positive associations and reducing the negative associations

for PBOs. However, because it is not always easy to predict the desired effect, we suggest that new digital technologies can be helpful. For example, could automation (artificial intelligence [AI] and smart contracts) be a way to enhance the “good” aspects of diversity while eliminating the “bad” ones? We consider this question in the report.

Overall, the findings support the proposition that PBOs can improve team and project performance by increasing equality, promoting diversity, and maintaining a healthy balance of inclusiveness in the workplace. The variety of relationships and associated effects, however, suggests that as diversity increases, organizations need to actively introduce mechanisms in order to reduce the negative risks, such as greater relationship conflict, an overabundance of competing stakeholder interests, and a mismatch between gender egalitarianism and the organization’s governance of its project management practices.

We further consider the managerial implications of our findings and propose a novel framework as a tool to help managers develop their awareness of EDI considerations in general, and specifically in their own organization and environmental landscape, paying particular attention to who is involved and the possible added value to the organization. The purpose of this tool is to raise the awareness of EDI phenomena in PBOs and give managers a means of educating themselves and their employees about EDI concerns and its possible impacts, and to consider ways to recruit and manage their workforce more sustainably, building on what is already known and preparing a new vanguard of EDI-savvy leaders for future generations.

We also tentatively suggest a future research agenda for EDI in PBOs based on our findings and the suggestions made for further research in the literature. This agenda is by no means intended to be exhaustive and should be used as a starting point to drive discussions on research focused on EDI dynamics and impacts in PBOs to the next level of maturity.

Keywords: equality, diversity, inclusiveness, project manager, performance, literature review

Introduction

This report presents the results of an SLR conducted to collect and synthesize the extant literature on EDI in the field of project management. The report includes definitions of EDI concepts, descriptive statistics, and theoretical insights into how EDI impacts the performance of projects and PBOs. Managerial implications are also provided in order to help project managers better respond to EDI-related issues. Although diversity appears regularly as a topic in the literature, our results highlight the scarcity of research contributing to an understanding of equality and inclusiveness in the project management literature, particularly from a theoretical perspective.

The constituents of EDI are among the most critical social issues significantly impacting project performance in PBOs today. The importance of diversity, in particular, has been recognized and acknowledged in the United States in recent decades following the introduction of the Civil Rights Act of 1964 (A. Kim & Arditi, 2010).

Many factors, both internal and external to an organization, have had an impact on EDI. For example, with regard to diversity, it is clear that demographic and cultural shifts have modified the characteristics of the workforce (Kidwell, 2003). Furthermore, globalization, which requires collaboration between countries, has helped increase the diversity of expertise among project team members. This is an evolutionary shift: It is now commonplace for today's project teams to comprise different cultural, ethnic, and corporate backgrounds (Miller et al., 2000). International organizations now face the challenge of aligning different tools, diversified teams, and complex task requirements in a virtual collaboration space (Zhang et al., 2018). Within this frame of reference, Ratcheva (2009) and von Raesfeld et al. (2012) explain that organizations need to be "smart" in their use of expertise in order to ensure the sharing of diverse occupational and cultural knowledge and not just technical know-how, otherwise project performance will suffer and ultimately fail in the long term.

There is less published research on gender equality and inclusiveness than on diversity. Most research in the literature tackling gender equality in project management has focused on women's representation in

the construction industry. For example, Arditi & Balci (2009) have shown that competencies relating to the managerial behavior of female project managers do not noticeably differ from their male project manager counterparts.

In regard to inclusiveness, scholars have tended to focus on the role of stakeholders in project management. In their research, Swarup et al. (2011) argue that a more robust approach to the inclusion of stakeholders would increase project performance in the construction industry.

Little attention has been paid in the literature to the sexual orientation of project team members. An exception to this is Wright (2013), who recognized the progress made in the United Kingdom concerning the acceptance of diverse sexual orientations in recruitment practices. The authors suggest that this may be linked to progressive government policy regarding sexual orientation. Indeed, the responsibility to ensure that inclusivity in the workforce is taken seriously is placed firmly on the shoulders of the government by Payne (2012), who contends that the government's role is to encourage organizations to recruit and retain a diverse workforce and to view all employees as equal regardless of their social or personal differences.

Although we found evidence in the literature that projects in the construction industry include an increasingly diverse workforce with different cultural backgrounds, knowledge, values, skills, and work experience (G. Wu et al., 2019), the counterpoint to this trend is that workforce diversity has heightened the challenges and uncertainties of construction projects (Loosemore & Muslmani, 1999; Wong et al., 2010; C. Wu et al., 2019). For example, Loosemore & Muslmani (1999) argue that project managers should be aware of project teams' cultural diversity so they can erode behavioral differences and overcome potential conflicts. These authors highlight the challenges of reconciling disputes within diverse teams.

Our review of the EDI literature related to project management and project-based organizations reveals inconsistencies in the coverage and depth of these important constructs. In view of the importance of EDI for project management and its potential impact in the workplace, the present research aims to more deeply explore the relationship of equality, diversity, and inclusiveness to performance and creativity in the workplace. We used a systematic literature review

methodology to shed light on the most important theoretical relationships and their managerial implications for project managers.

The SLR approach that we used involved collecting a comprehensive set of academic articles and analyzing them in depth. The remainder of this report is organized as follows: Section 2 describes our methodology

embedded in an SLR and presents some descriptive statistics from the collected literature; Section 3 maps the definitional landscape represented by the set of articles studied; Section 4 depicts and summarizes the theoretical relationships found in the literature; and finally, Section 5 concludes with remarks, managerial implications, a framework for a managerial tool (see Table X1), and suggestions for a future research agenda.

Methodology Used to Collect and Summarize the Literature

Our research into the relevance and importance of EDI in the workplace was carried out by conducting a systematic literature review (Moher et al., 2009; Thomé et al., 2016; Tranfield et al., 2003; Webster & Watson, 2002) to collect and summarize the extant literature on EDI in the field of project management. The protocol used to plan and execute the review is explained in the next section.

Conducting the Review

In keeping with the norms of conducting an SLR, various inclusion and exclusion criteria were selected to arrive at the literature collected for analysis (Cook, 1997; Tranfield et al., 2003; Webster & Watson, 2002). The process we used in this research comprised the following steps.

1. A scoping study was carried out to appraise the size and relevance of the available literature (Okoli, 2015).
2. Many keywords and search strings were tested on the journal article database, Scopus. The following search string was finally employed: (diversit* OR equalit* OR inclus*) AND (project manag*" OR "program* manag*" OR "portfolio manag*").
3. Only English-language academic articles were included.

4. The review was limited to journals classified in the *Academic Journal Guide* listing of 2018 to control quality. This procedure is common in the SLR literature (Alkhudary & Gardiner, 2021).
5. The authors read each article's title, keywords, abstract, and more text, if required, to assess the eligibility of the article.
6. Only articles that examined at least one of the EDI concepts as a primary topic of interest were included. The search was conducted in March 2021, producing 118 articles.
7. Articles that (i) did not clearly define the EDI terms studied, (ii) did not examine specific theoretical relationships, and (iii) referred to the EDI terms interchangeably were excluded. This procedure produced a core set of 27 articles of highly relevant academic studies.

The method used ensures the review was based on an in-depth analysis of articles with strong conceptual arguments and whose findings stem from rigorous empirical research. See Figure 1 for a diagrammatic representation of the systematic procedure used for the review.

Descriptive Statistics of the Literature Collected

The final set of 27 articles was published in 13 journals as shown in Table 1. Regarding the years of publication, the first article in our final set was published in 2000 and the last in 2021 (see Figure 2). Note that we did not control for the year of publication in the article-selection process.

Interestingly, the majority of the articles selected followed a quantitative research approach, including 15 surveys and one simulation model. In contrast, only six out of 27 articles followed a qualitative research approach (three articles carried out interviews, one case study, one conceptual argumentative article, and one systematic literature review). The remaining five articles performed a mixed-methods approach covering document analysis, interviews, surveys, and case studies (see Figure 3).

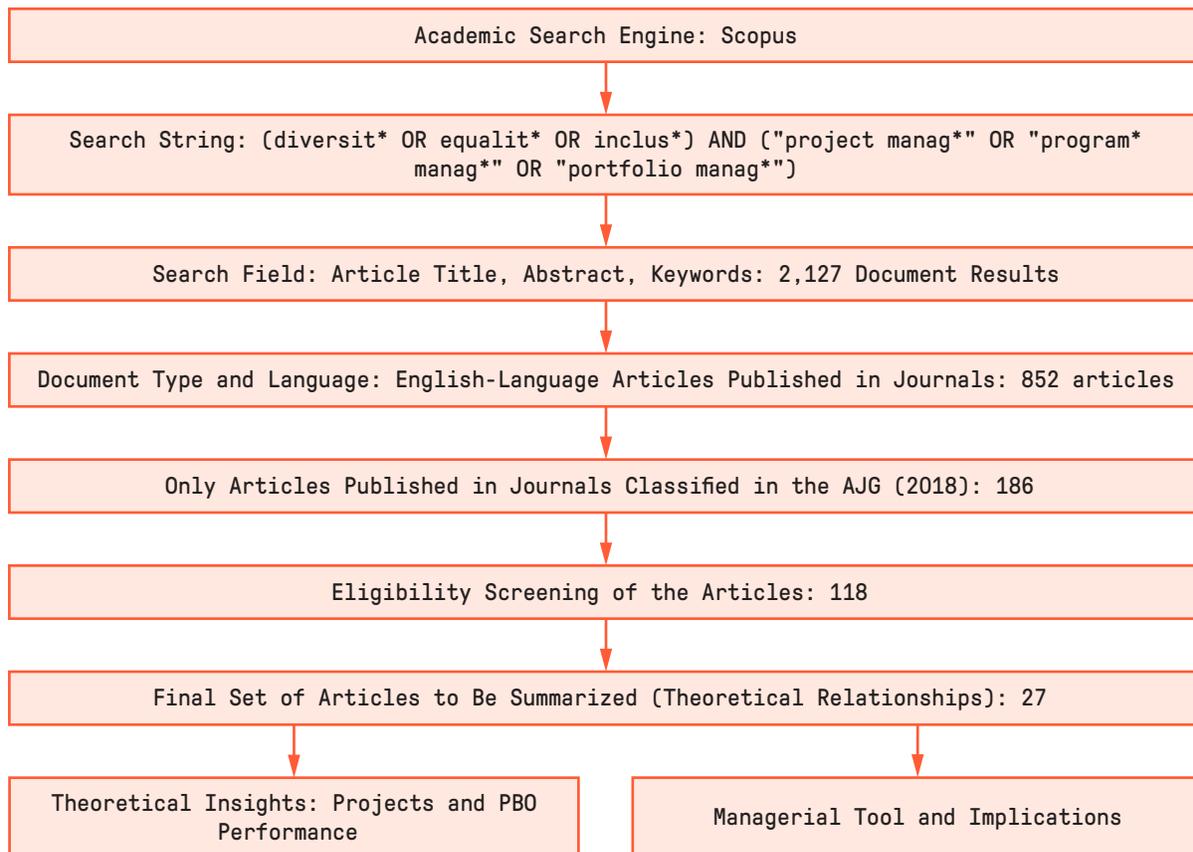


Figure 1: Systematic procedure for collecting and summarizing the literature.

We used NVivo (Version 12) by QSR International and Microsoft’s Excel (Version 2021) (Bandara et al., 2015) to minimize bias and errors in summarizing the literature (Tranfield et al., 2003). We present a word cloud of the 50 most frequently occurring relevant words with a minimum length of four letters to give an immediate visual representation of the research landscape (see Figure 4).

In conclusion, we report (see Figure 5) the type of industry addressed in each of the articles studied. Note

that the information technology (IT) industry was addressed in 11 articles, the construction industry in 10, and various or no specific industry in the six remaining articles.

Our findings are presented in the following sections, beginning with a summary of the multiple definitions and interpretations of the three EDI terms found in the literature. We then delineate the theoretical relationships derived from the literature, while preserving the richness of the original sources.

Table 1. Distribution of Articles by Journal

JOURNAL TITLE (ALPHABETICAL ORDER)	AUTHOR(S) AND YEAR	THOMSON IF 2021
<i>Construction Management and Economics</i>	Wright, 2013	-
<i>Decision Sciences</i>	Chandrasekaran & Linderman, 2015	4.147
<i>Engineering, Construction and Architectural Management</i>	Godfrey Ochieng & Price, 2009; C. Wu et al., 2019; G. Wu et al., 2019	3.531
<i>Environmental Science & Policy</i>	Boon et al., 2014	5.581
<i>IEEE Transactions on Engineering Management</i>	Kruglianskas & Thamhain, 2000; Liang et al., 2010	6.146
<i>Industrial Management & Data Systems</i>	Liang et al., 2007	4.224
<i>Information & Management</i>	Akgün et al., 2008	7.555
<i>International Journal of Project Management</i>	Baker et al., 2019; Di Maddaloni & Davis, 2018, 2017; J. S.-C. Hsu et al., 2017, 2016; Lenferink et al., 2013; Liang et al., 2012; J. Y.-C. Liu et al., 2011; W.-H. Liu & Cross, 2016; Wang et al., 2006	7.172
<i>Journal of Construction Engineering and Management</i>	Allison & Kaminsky, 2017	3.951
<i>Journal of Management in Engineering</i>	Miller et al., 2000	6.853
<i>Journal of Operations Management</i>	Anand et al., 2010	6.970
<i>Production Planning & Control</i>	Zwikael et al., 2021	7.044
<i>Project Management Journal</i> [®]	Eskerod et al., 2015; Hung & Chou, 2013	3.570
<i>Technovation</i>	von Raesfeld et al., 2012	6.606

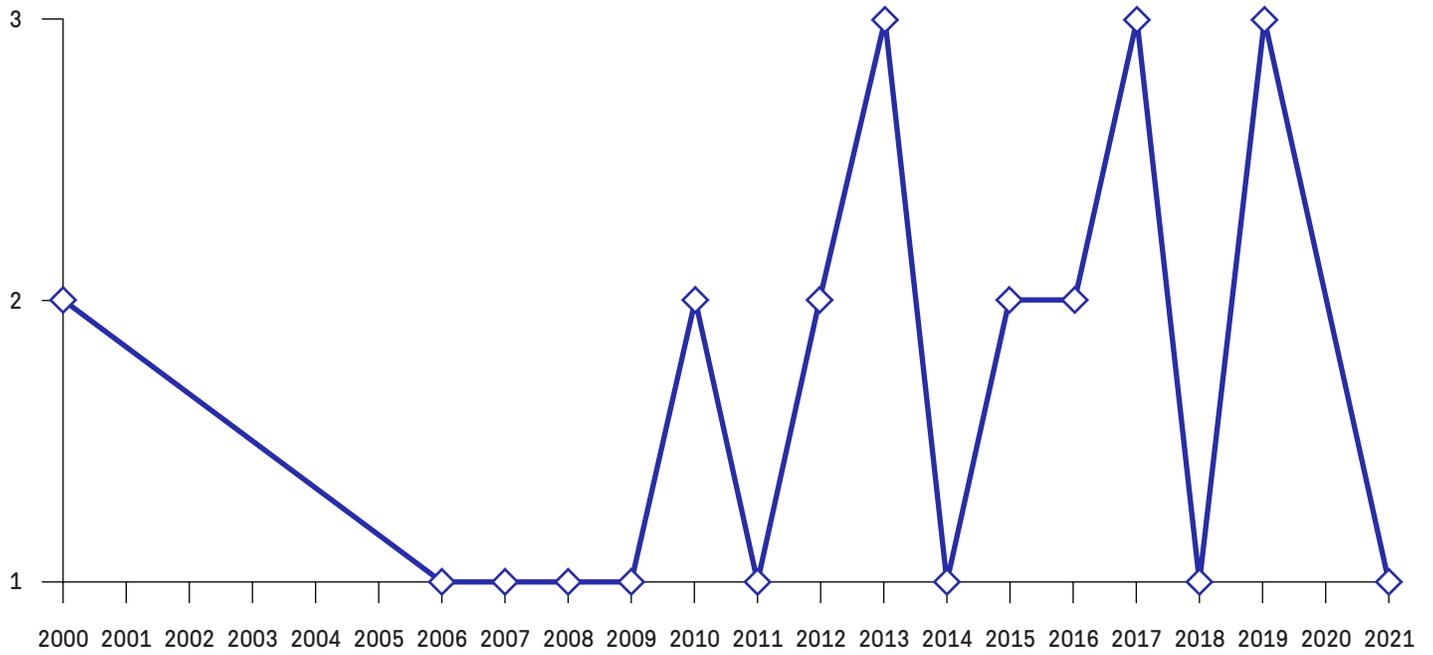


Figure 2: Distribution of articles per year.

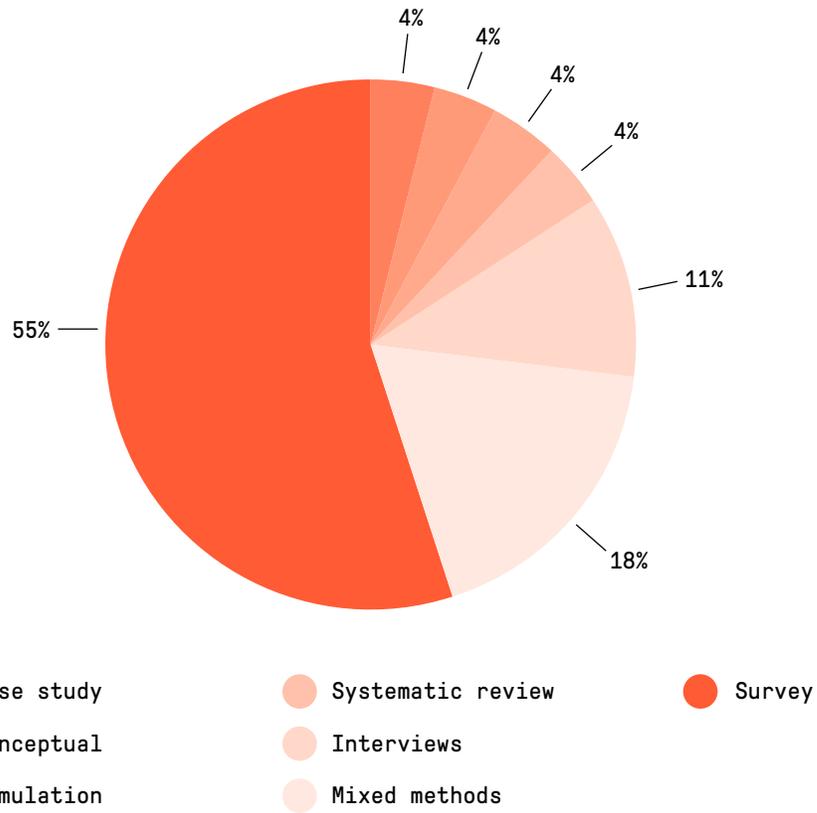


Figure 3: Distribution of articles per type of research.



*Excluded words: Project, projects, management, journal, also, table, used, high, based

Figure 4: Word cloud of the 50 most frequently occurring words in the final set of articles.

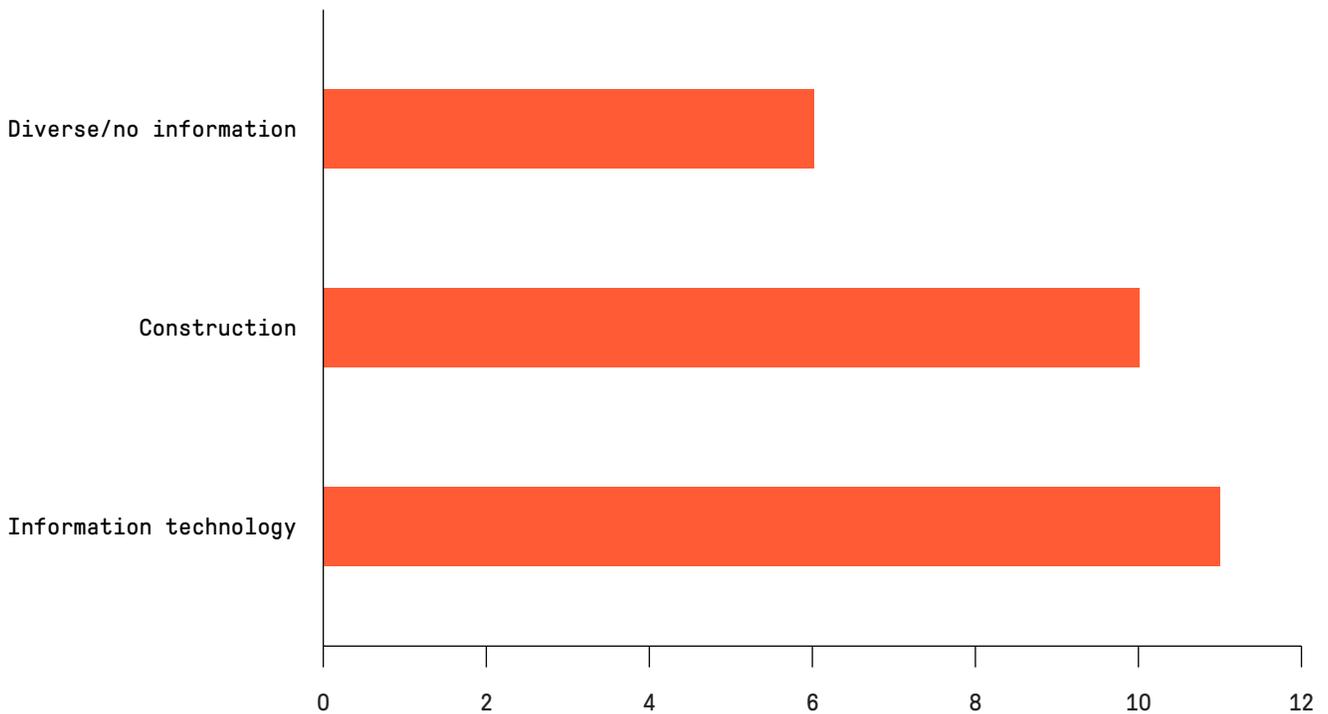


Figure 5: Distribution of articles by type of industry.

EDI Definitions and Interpretations

The articles we studied usually examined only a single EDI construct rather than two or all three. There was also considerable variability in the use of the various EDI terms, with no consensus on the definitions of the terms relating to EDI. Indeed, we noticed that the same construct studied in different articles was used in a variety of contexts, creating a kind of conceptual fuzziness in its interpretation. For example, we discovered 12 terms and interpretations for diversity, three for equality, and four for inclusiveness. Some terms used by their respective authors in different articles had very similar meanings. For example, *team diversity*, *organizational diversity*, and *informational diversity* were all used to refer to the same basic construct: differences in the profile of the team members identified by comparing variables such as

gender, age, experience, and education. Similarly, with reference to equality, the two terms *workplace gender equality* and *organizational gender diversity* also referred to the same construct. It was therefore difficult to obtain clear theoretical insights from the literature studied. In our analysis and synthesis, we decided to include the authors' original definitions and contextual descriptions so as to clearly communicate to the reader the variety of language, meaning, and interpretation we discovered from the literature studied. In a later section, when we address the theoretical relationships discovered in the literature, we also carefully consider these contextual differences so as to avoid making unsupported generalizations or managerial implications. We present all of the definitions of the EDI constructs that we found in the literature studied and attempt to show how they are related to each other.

We begin our discourse on definitions with the term *diversity*. In the set of articles studied, diversity emerged from four different perspectives: (1) team members, (2) users, (3) partners/collaborators, and (4) the project itself. Figure 6 maps the different definitions of diversity we found in the literature.

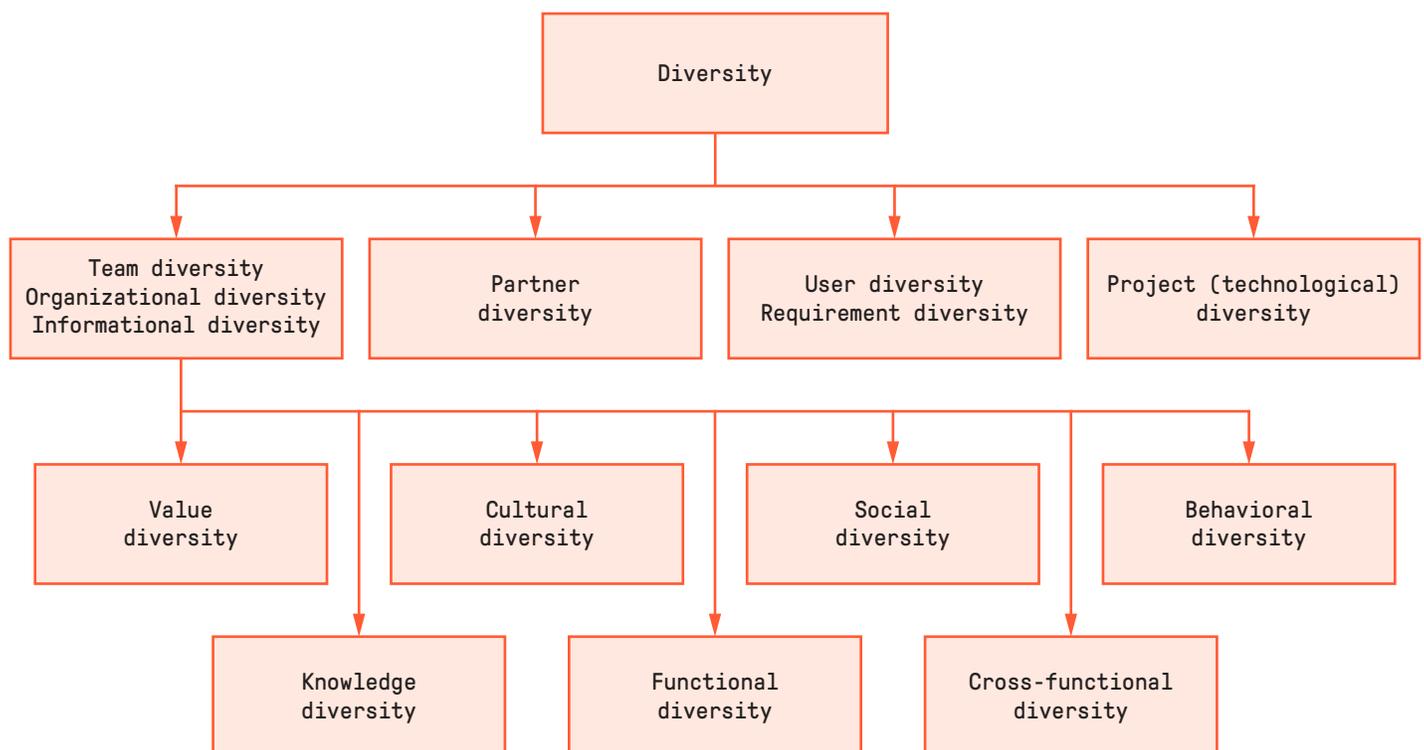


Figure 6: Diagrammatic representation of definitional terms and relationships relating to diversity found in the literature.

Diversity

Team Member Diversity Perspective

Team member diversity, often shortened simply to team diversity in the articles studied, was broadly defined as the diversity of project team members in terms of education, age, functional background, and company tenure (Chandrasekaran & Linderman, 2015; Jehn et al., 1999), although G. Wu et al. (2019) chose a more comprehensive definition of team diversity as any differences between project team members (Jehn et al., 2013). We also found two additional terms describing the same construct. Hung & Chou (2013) used the term organizational diversity to refer to team diversity as the differences between employees in terms of multiple dimensions, including gender, age, training, ethnicity, education, and functional profile. In turn, Liang et al. (2010) and Jehn et al. (1999) used the term informational diversity to signify the differences between team-member profiles in information systems projects.

Within the literature set of the SLR, we discovered seven subcategories of team diversity: value diversity, knowledge diversity, cultural diversity, social diversity, behavioral diversity, functional diversity, and cross-functional diversity. Value diversity as used by Liang et al. (2007, 2012) is defined as how team members in information systems development projects differ in their vision of the team's goal, mission, and principles (Jehn et al., 1997; Liang et al., 2007). J. S.-C. Hsu et al. (2017) shed further light on value diversity in information systems development projects, drawing attention to the level of understanding among team members of the project's purpose, goal, and essential tasks. Eastman and Santoro (2003) have a similar definition of value diversity, while adding differences in the team members' views of the project objectives.

Two further subdimensions of team diversity proposed by Liang et al. (2007) are: knowledge diversity; signifying differences in perspectives and technical knowledge; and social diversity, referring to the team members' differences in terms of demographic characteristics (e.g., gender, income, ethnicity, and nationality). G. Wu et al. (2019) also used the term *knowledge diversity* to signify the differences in the project team members' core knowledge, e.g., differences in education, experience, training, etc.

Another subcategory of team diversity was proposed by S.-C. Hsu et al. (2016), namely functional diversity, which they further divided into three types: homogeneous (selecting people with similar experience and education profiles), heterogeneous (equally distributing the most talented individuals among project teams), and interdependence (selecting people according to their contribution to performance). From another perspective, C. Wu et al. (2019) identified behavioral diversity as uncertainties and dynamics of multitype laborers' behaviors. They state that laborers can be divided into different types according to their personal attributes. In a similar vein, Godfrey Ochieng and Price (2009) shed further light on cultural diversity, viewing it as characterized by the project team members having different cultural backgrounds. Finally, Akgün et al. (2008) referred to cross-functional diversity as the number of project team member functional areas in a team. Interestingly, the same construct was described by W.-H. Liu and Cross (2016), who simply termed it *team diversity* rather than *functional diversity*.

User Diversity Perspective

The second perspective, user diversity, was defined in terms of the differences in expertise, education, and background in the user population of an organization working in information systems development (Wang et al., 2006). We also identified a subcategory of user diversity, namely requirements diversity, referring to how software project users differ in their system requirements (Nidumolu, 1995).

Partner Diversity Perspective

The third perspective, partner diversity, applies to collaborative projects with two or more partners. Partner diversity was defined as the project partners' various disciplinary backgrounds, cognitive distances, corresponding values, norms, goals, views on the science-society nexus, types of organization, and the extent of any previous collaborations between the partners (Boon et al., 2014).

Project Diversity Perspective

Although projects can be classified according to multiple dimensions, only one type of project diversity was included in the literature set, that of technological diversity, defined by von Raesfeld et al. (2012) as the degree to which a project's technology base is diversified.

Equality

For the construct equality, we discovered two distinct definitions: *gender equality* and *workplace gender equality*. Gender equality was defined as female and male workers having equal access to the same information (Allison & Kaminsky, 2017). *Workplace gender equality*, also termed *organizational gender diversity*, was defined as the equal representation of women and men in organizations (Baker et al., 2019).

Inclusiveness

In regard to inclusiveness, we identified four definitions of this term: an inclusive work environment, the inclusion of individuals, inclusiveness of secondary stakeholders, and stakeholder inclusiveness. These are described as:

- 1.** An inclusive work environment referred to workers feeling trusted and free to contribute their ideas (Allison & Kaminsky, 2017).
- 2.** Inclusion of individuals referred to bringing together people from different functions and even partner organizations to regularly interact at team meetings (Anand et al., 2010).
- 3.** Inclusiveness of secondary stakeholders was defined as using formal and informal tools and processes to enhance secondary stakeholder engagement in the project's different phases, such as planning, assessment, and implementation (Di Maddaloni & Davis, 2018; Dooms, 2010).
- 4.** Stakeholder inclusiveness was defined as the embracing of wide-ranging stakeholder groups recognized as necessary for the project regardless of their power or influence on the project (Eskerod et al., 2015).

Theoretical Relationships and Boundary Conditions

This section reports the theoretical relationships discovered, in which at least one of the EDI terms was included (see Table 2).

Table 2. Theoretical Relationships Based on the Literature

DIVERSITY IN THE LITERATURE OF PROJECT MANAGEMENT	REFERENCE	REFERENCE NUMBER
Value diversity >+> task conflict >+> communication >+> project performance	Liang et al., 2012	1
Value diversity >+> task conflict >+> balance of contributions >+> project performance	Liang et al., 2012	2
Value diversity >+> relationship conflict >-> communication >-> project performance	Liang et al., 2012	3
Value diversity >+> relationship conflict >-> software project team performance	Liang et al., 2007	4
Team diversity (value and knowledge diversities) >+> task conflict >+> project performance	G. Wu et al., 2019	5
Team diversity (value and knowledge diversities) >+> relationship conflict >-> project performance	G. Wu et al., 2019	6
Team diversity (value and knowledge diversities) >+> process conflict	G. Wu et al., 2019	7
Knowledge diversity >+> task conflict >+> software project team performance	Liang et al., 2007	8
Social diversity >+> task conflict >+> software project team performance	Liang et al., 2007	9
Social diversity >+> relationship conflict >-> software project team performance	Liang et al., 2007	10
Interpersonal conflicts >+> requirement diversity >-> software project performance	J. Y.-C. Liu et al., 2011	11
Behavioral diversities >+/-> multinational and cross-culture projects performance	C. Wu et al., 2019	12
Team diversity >+> objective knowledge >+> project team performance	Chandrasekaran & Linderman, 2015	13
Team diversity >-> intuitive knowledge >+> project team performance	Chandrasekaran & Linderman, 2015	14

(continued)



**Table 2. Theoretical Relationships Based on the Literature
(continued)**

DIVERSITY IN THE LITERATURE OF PROJECT MANAGEMENT	REFERENCE	REFERENCE NUMBER
Culturally diverse backgrounds >+> fresh ideas and new approaches to problem-solving	Godfrey Ochieng & Price, 2009	15
Culturally diverse backgrounds >-> poor project performance	Godfrey Ochieng & Price, 2009; Kruglianskas & Thamhain, 2000	16
User diversity >+> organizational technology learning >+> information systems development project performance	Wang et al., 2006	17
Technological diversity > U-shaped effect > commercial performance	von Raesfeld et al., 2012	18
Low partner diversity >+> project performance	Boon et al., 2014	19
High partner diversity >-> project performance	Boon et al., 2014	20
Team diversity (functional diversity) >-> technical performance (efficiency)	W.-H. Liu & Cross, 2016	21
Heterogeneous teams (vs. homogeneous teams) >+> team performance (when the economy is not good)	S.-C. Hsu et al., 2016	22
Interdependence-based selection orientation (vs. heterogeneous and homogeneous teams) >+> team performance	S.-C. Hsu et al., 2016	23
Value diversity >-> system quality (partially mediated by effective shared leadership)	J. S.-C. Hsu et al., 2017	24
Value diversity >-> shared leadership (mitigated by the effective vertical leadership)	J. S.-C. Hsu et al., 2017	25
Organizational diversity >+> technology efficiency >+> research performance	Hung & Chou, 2013	26
Organizational diversity >-> economies of scale >-> research performance	Hung & Chou, 2013	27
Informational diversity >+> task conflict >+> team learning >+> software quality	Liang et al., 2010	28
Team diversity >+> innovation and creativity	Miller et al., 2000	29
Cross-functional diversity >+> new product development team intelligence >+> new product creativity	Akgün et al., 2008	30
Cross-functional diversity >+> new product development team intelligence >+> new product success	Akgün et al., 2008	31

(continued)

**Table 2. Theoretical Relationships Based on the Literature
(continued)**

DIVERSITY IN THE LITERATURE OF PROJECT MANAGEMENT	REFERENCE	REFERENCE NUMBER
Equality in the Literature of Project Management		
More women in management >+> organizational financial performance	Baker et al., 2019	32
Gender egalitarianism >-> project management practices' adoption	Zwikaël et al., 2021	33
Sexual orientation (lesbians) >+> sexual harassment in construction projects	Wright, 2013	34
Inclusiveness in the Literature of Project Management		
Inclusive work environment >+> informal safety communication	Allison & Kaminsky, 2017	35
Inclusion of individuals in project teams >+> socialization >+> project success	Anand et al., 2010	36
Inclusiveness of secondary stakeholders >+> performance of MPIC	Di Maddaloni & Davis, 2018, 2017	37
Stakeholder inclusiveness >+> stakeholders' engagement and satisfaction	Eskerod et al., 2015	38
Stakeholder inclusiveness >-> focus on critical stakeholders	Eskerod et al., 2015	39
Stakeholder inclusiveness >+> stakeholders' disappointment	Eskerod et al., 2015	40
Inclusiveness (actor, scope, and time) >+/-> sustainability in DBFM projects	Lenferink et al., 2013	41

Diversity of Project Management in the Literature

The construct of diversity is widespread in the project management literature. Nevertheless, there is no clear consensus about the precise meaning of the term *diversity*, as indicated earlier in this report, where we presented the definitions and interpretations of the three EDI terms from the literature set. Diversity has been studied from many different angles and perspectives.

During the analysis phase of the SLR, we noticed that the different forms of diversity have direct theoretical relationships with three project-related dependent variables in particular: team performance, project performance, and product quality. The following section

reviews these relationships according to the type of diversity. In each case we include pertinent details of the research scope and its key parameters as well as a description of the theoretical relationship discovered. Although we have already provided an overview of the definitions of EDI terms in a previous section, we used definitional details in our analysis when we felt it aided a better understanding of the context represented by each theoretical relationship.

Team Diversity in General

We begin this analysis by looking at research studies that considered team diversity in general, including those that used the terms *organizational diversity* and *informational diversity*, because these terms were used to describe the same construct as team diversity.

In their research, G. Wu et al. (2019) investigated the relationships between team diversity, different types of conflicts, and project performance in the construction industry in China. The authors carried out a survey that collected data from 246 professionals. They found that higher levels of team diversity positively affected task conflict, which positively affected project performance. In the same vein, higher levels of team diversity positively affected relationship conflict which in turn negatively affected project performance. Lastly, higher levels of diversity positively affected process conflict. In other words, although the project team should consider including diverse teams to better accomplish the project tasks and increase its performance, the team must be prepared to control the different conflicts that may arise.

G. Wu et al. (2019) defined *conflicts* as disagreements stemming from the mutual interactions between project teams (G. Wu et al., 2017). Conflicts were classified into: task, process, and relationship conflicts (Chen et al., 2014; Jehn & Bendersky, 2003; Jehn & Mannix, 2001; G. Wu et al., 2018). Task conflict referred to project team disputes arising from differing views, perspectives, and ideas regarding the project's different tasks. Process conflict concerned the perception of controversies about how to proceed with the different aspects of a project. Relationship conflict included project teams' tension stemming from interpersonal incompatibilities. Lastly, project performance was captured according to three measurements: project performance (time, cost, and quality), the project's goals (risk, conflicts, and claims management), and stakeholder satisfaction (Franz et al., 2017). The authors recommended that project managers should encourage diversity among team members and select cooperative partners with similar value orientations. Moreover, they should minimize relationship conflicts referring to relational governance, such as trust and communication, in order to maintain a healthy level of task conflict.

In a separate study, Hung and Chou (2013) investigated research teams in the Taiwan national telecommunication program, using a mixed method of data envelopment analysis and analytical hierarchy process to assess project performance and its relationship to team diversity (referred to as organizational diversity). In their research, team diversity was captured using several variables, e.g., number of new recruits and cross-boundary linkages.

Team diversity was found to impact technology efficiency positively and scale efficiency negatively. In other words, recruiting new talent and diverse sources can lead to more innovation and creativity in research and development projects, which positively affects performance. However, team diversity may simultaneously limit project managers from accomplishing greater economies of scale, thereby reducing performance.

The relationship that team diversity positively contributes to research performance is therefore partially supported. In their study, Hung and Chou (2013) measured research performance using various indicators such as the total number publications in journals and presentations at conferences, research duration, patent citations, etc., where technology efficiency was considered as one indicator of research and development efficacy. Their study has major implications for policy makers who are involved in the research and development industry and for the effectiveness of resource allocation.

From another perspective related to software quality, Liang et al. (2010) conducted a survey that collected data from 75 teams working in development projects (299 participants) in order to test the relationship between team diversity (referred to as informational diversity) and software quality. They demonstrated that team diversity positively impacts task conflict, which positively impacts team learning, which in turn positively impacts software quality. In their study, team diversity was defined as the differences in knowledge and perspectives between team members in information systems projects, e.g., differences in education, experience, backgrounds, etc. (Jehn et al., 1997). Similarly to G. Wu et al. (2019), task conflicts referred to disagreements and disputes related to accomplishing the necessary steps in a project (Jehn, 1995). Team learning was defined as the knowledge acquired by the project team members about key technological aspects. Lastly, software quality was defined as software responsiveness, effectiveness, and flexibility.

Liang et al. (2010) emphasized that managers in software development projects should build and prepare teams to favor team diversity. In other words, they should promote diversity of the team's educational backgrounds and functional areas. However, the authors warned project managers of the negative impact of the

potential conflict from promoting team diversity. In order to mitigate such conflict, a learning culture within organizations through a supportive environment, concrete learning processes, and leadership behaviors should be reinforced.

In another study, Chandrasekaran and Linderman (2015) highlighted a positive effect of team diversity on objective knowledge and a negative impact on intuitive knowledge, using survey data from 110 research and development projects across 34 high-tech business units. Both objective and intuitive types of knowledge, as subconstructs of knowledge creation, were positively associated with project team performance. In their study, team diversity measured the project team members' diversity in education, age, functional background, and company tenure (Jehn et al., 1999). Objective knowledge represented the generalizable, documented, or acquired knowledge created by project teams (Chilton & Bloodgood, 2007), while intuitive knowledge represented the knowledge gained from experience or practice within project teams (Spender, 1993). Lastly, each project leader assessed project team performance in terms of multiple dimensions: schedule, budget, quality, technical performance, and satisfaction (Faraj & Sproull, 2000).

Chandrasekaran & Linderman (2015) advised research and development project managers to develop an appropriate level of diversity to improve knowledge creation. They also recommended project managers to design personal development programs for research and development project teams.

In regard to the impact of team diversity on innovation and creativity, Miller et al. (2000) argued that team diversity and heterogeneous groups, more than teams in which everyone is alike, lead to innovation and creativity in the work environment. However, it is challenging to create bonds among the members of heterogeneous groups. The authors defined a diverse group as a heterogeneous group whose members do not necessarily share the same language, nonverbal cues, beliefs, values, and appearance. The authors suggested various techniques for promoting team diversity, such as applying fundamental human motivators, understanding team members' personalities, understanding group identifications and affiliations, valuing differences between people, understanding common elements, promoting communication, creating a flexible and accommodating system, bringing to bear the power of humor, and eschewing stereotypes.

Knowledge Diversity

In their study, Liang et al. (2007) found that knowledge diversity positively affected task conflict, which improved software project team performance. However, knowledge diversity was found to intensify relationship conflict, which reduced the software project team's performance.

In terms of conflict, interpersonal conflict occurs between team members and can affect both the task at hand and the quality of the relationship between team members. Task conflict refers to disputes among software project team members that may arise from differing viewpoints and perspectives on accomplishing the project tasks. Relationship conflict concerns tensions among the software project team members that give rise to interpersonal incompatibilities and annoyances. Finally, the performance of the software project's team was measured according to three dimensions (Nidumolu, 1995): learning from the project (what the firm learned from the project); process control (assessing whether the development process went over schedule); and interaction quality (looking at the quality of the interactions between the information systems crew and users during software development).

The authors promoted knowledge diversity. They highlighted the paradoxical finding that conflicts stemming from diversity could be constructive and, at the same time, harmful for software development. In order to mitigate the negative effect of conflicts related to diversity, project managers should be aware of the relationship between diversity and project team performance, mediated by potential conflicts on several levels.

Value Diversity

Liang et al. (2012) used a survey collected from 62 Project Management Institute members who worked on projects in information systems development in Taiwan. The authors modeled the impact of value diversity on project performance through two variables: conflict and teamwork quality. In another paradoxical finding, they discovered both positive and negative associations between value diversity and project performance. On the one hand, value diversity was positively associated with task conflict, which was positively associated with communication among the project's team members, which in turn was positively associated with project performance. Value diversity also tended to increase the balance of contributions from project team members

which, like value diversity, was positively associated with project performance. On the other hand, a positive association between value diversity and relationship conflict was found to be detrimental to team communication and the balance of contributions, leading to a negative linkage to project performance.

In their study, task conflict reflected disputes between team members regarding the project content and goals. Relationship conflict captured the disagreements between team members arising from their personality differences. The term *communication* referred to the team members' interactions, such as having meetings and phone conversations, while the balance of contributions measured team members' contributions to the project and how this was seen by the other members (source of conflict, motivation, etc.). Finally, project performance detected whether the project achieved its goals, delivered work efficiently, and maintained the members' morale.

The authors argued that project managers should promote value diversity among team members so as to contribute to task accomplishment and enhance the project outcome. Project managers should therefore embrace value diversity when forming information systems development projects in order to encourage team qualities such as innovation and problem-solving. At the same time, project managers should bear in mind that value diversity is also positively associated with relational conflict and should therefore take precautions to mitigate the risk of detrimental behaviors.

In an earlier study by Liang et al. (2007), value diversity was found to affect relationship conflict positively, which reduced software project team performance. The authors warned managers against the negative impact of value diversity. They considered the effective management of value diversity as fundamental for achieving project success.

In another study on value diversity, J. S.-C. Hsu et al. (2017) found that value diversity among team members in information systems development projects reduced the overall quality of the system developed, because value diversity prevents project team members from adopting shared leadership strategies. The relationship between value diversity and system quality was found to be partially mediated by effective shared leadership. The authors also reported an adverse impact of value diversity on shared leadership of projects in information systems development.

The authors adopted a survey design to collect data and test their research model. The survey was sent to a list of alumni of a prestigious Chinese university who worked on projects in information systems development. A total of 90 valid responses were returned for the analysis. In their study, value diversity tested whether team members had the same or different understanding of their project's purpose, goal, and essential tasks (Jehn et al., 1999). Vertical leadership measured four dimensions: sensemaking, solving problems, supporting social relationships, and providing feedback (Morgeson et al., 2010). Shared leadership captured four dimensions: task-oriented, change-oriented, relation-oriented, and diversity-oriented shared leadership (Fernandez et al., 2010). Lastly, system quality detected the quality of the developed systems and aligned with users' needs and expectations (J. S.-C. Hsu et al., 2014).

To ease the negative impact of value diversity on system quality and shared leadership, J. S.-C. Hsu et al. (2017) emphasized effective communication for sharing and integrating knowledge to complement the project agenda and ensure all team members understand their tasks. In addition, vertical leaders should encourage team members to take up leadership roles when needed. Vertical leaders should also enhance the feeling of ownership and commitment by promoting a climate of shared leadership. Finally, shared leadership has a tangible and positive impact on system quality. The authors explained that vertical leadership should not be excluded and that vertical leaders should maintain a balance between vertical and shared leadership.

Behavioral and Cultural Diversity

C. Wu et al. (2019) carried out a simulation and case study research on a hotel in Algeria to better understand multitype laborers, i.e., laborers who can be divided into different types according to their personal attributes, including behavioral and cultural backgrounds. The research looked at the impact of multitype laborers on the performance of multinational and cross-cultural projects. The authors argued that behavioral diversities, if not adequately taken into account, could severely affect the productivity, work quality, and absenteeism rate of multitype laborers. The study identified behavioral diversity as an uncertain factor in the behavioral dynamics of multitype laborers (Buckley, 2014).

From a cross-border perspective focusing on cultural differences, Godfrey Ochieng and Price (2009) carried

out a literature review and conducted 20 interviews pertaining to heavy engineering projects in the Kenyan and United Kingdom construction industries. On this basis, the authors proposed that project team members from culturally diverse backgrounds yield fresh ideas and new perspectives for solving problems. However, they called into question this very premise because diverse cultural backgrounds could at the same time be a source of conflict, which may lead to poor project performance due to different understandings and expectations. Consistently with the previously mentioned study, Kruglianskas and Thamhain (2000) collected data from 125 Brazilian and 95 American multinational project leaders and team members between 1993 and 1996, and found that diverse managerial and leadership styles in a multicultural environment could explain project managers' difficulties in establishing project processes and frameworks.

On the basis of the eight critical cross-cultural dimensions identified in their framework, Godfrey Ochieng and Price (2009) offered important insights for project managers working with multicultural teams in the construction industry, with a view to improving team performance and productivity. The authors concluded that creating an environment that acknowledges and values cross-cultural complexity is essential for developing effective multicultural project teams.

The authors proposed that project managers should adapt their tools and techniques to local cultures and organizational values without losing consistency, purpose, and managerial integrity when dealing with international teams. In other words, project managers working in international companies should design global project management practices that accommodate both local and multinational team members. This practice is even more effective when senior management is involved. The authors also warned project managers that diverse cultural backgrounds may increase organizational tension, mistrust, and conflict.

Social Diversity

Social diversity was included as a variable of interest in the work of Liang et al. (2007). They found that social diversity positively affected task conflict, thereby increasing the software project team's performance. However, social diversity was also found to adversely affect relationship conflict, reducing the team's performance.

(cross-) Functional Diversity

With regard to functional diversity and technical performance, W.-H. Liu and Cross (2016) used sample data of 133 teams representing various organizations and sectors of industry to develop a comprehensive model of project team technical performance. Unexpectedly, they found there was a negative relationship between functional diversity and technical performance (more precisely, the efficiency dimension). In their study, functional diversity was defined as the team members' differences according to their functional roles (Dayan & Colak, 2008). Several dimensions were used to assess the project's technical performance: effectiveness, efficiency, and innovation. However, efficiency—defined as the project team's ability to meet the project's budget and schedule goals (McComb et al., 2007) and employ its resources well (Y. Kim et al., 1999)—was the only dimension that had a relationship with functional diversity.

W.-H. Liu and Cross (2016) emphasized that organizations should enforce high-quality information flows to improve project team performance. Such improvement can be achieved through a moderate level of functional diversity, stable team composition, and adequate knowledge and skills.

From another perspective on diversity and project teams, S.-C. Hsu et al. (2016) adopted agent-based modeling (ABM) to explore the complex process of selecting project team members. Data were collected from 116 construction projects from 2009 to 2011. On the basis of different economic situations, the authors aimed to study the relationship between a team's functional diversity and its performance. They found that heterogeneous teams with higher functional diversity can improve firms' performance, subject to one condition: The economy needs to be in a downturn. They also found that interdependence-based selection orientation enhanced the project team's performance even more.

S.-C. Hsu et al. (2016) used three team-member-selection orientations to measure the project team's functional diversity: homogeneous, heterogeneous (equality based), and interdependence based. The authors defined homogeneous team member selection as the selection of team members with homogeneous profiles, in other words, selecting people with similar experience and educational backgrounds (Lim & Klein, 2006; Mannix & Neale, 2005). The heterogeneous

orientation involved equally allocating the most talented team members among teams. In this way, teams become a mix of different types of experience, training, and education profiles (Simons & Rowland, 2011). The third, interdependence-based orientation, was derived from the NK model (Kauffman, 1995) and design structure matrix (DSM) tool (Millhiser et al., 2011) in which the selection was based on three components of performance: individual contributions, giving to others, and receiving from others. Lastly, the authors measured the team's overall performance by the profit generated.

Finally, we discuss the relationship between functional diversity and new product development projects. Akgün et al. (2008) examined 207 new product development projects in the United States. They studied the relationship between cross-functional diversity, team intelligence, and new product creativity and success. The project team's functional diversity positively affected new product development team intelligence, which in turn positively affected new product creativity and success. In their study, cross-functional diversity referred to the team members' functional areas and the number of people from different functional departments. New product development team intelligence is a multidimensional construct that included information processing and responsiveness capabilities to handle the complex process of new product development projects. New product creativity referred to the novelty of the proposed products and their capacity to change the market and generate ideas for new products. Lastly, new product success measured the performance of the products launched in the market.

User Diversity

Wang et al. (2006) conducted a survey that collected data in the United States from 212 members of the IEEE computer community and in Taiwan from 643 members of the information service industry and information management associations in order to test the relationship between user diversity and project performance. They found that user diversity positively influenced organizational technology learning, which in turn positively influenced project performance in information systems development projects. User diversity was defined as a wide set of knowledge, experience, and backgrounds in the user population of an organization engaged in an information system development project.

In a study carried out by J. Y.-C. Liu et al. (2011), involving the top 1,600 companies in Taiwan, it was discovered that requirements diversity plays a mediating role between interpersonal conflicts and software project performance. Interpersonal conflicts were found to positively impact requirements diversity, which negatively impacted the software project performance. Interpersonal conflicts referred to disputes and negative emotions between software project users and information systems professionals due to their different objectives (Barki & Hartwick, 2001). Lastly, software project performance referred to the software project's effectiveness, efficiency, and timeliness in development (Henderson & Lee, 1992).

The authors advised software project managers to align the interpretations and responses of all users and related stakeholders in order to control their behaviors and manage interpersonal conflicts impacting software project performance. They also drew up a clear communications management plan to guide stakeholders in understanding their roles and responsibilities. Communicating their requirements minimized the negative impact of varying needs and reduced interpersonal conflict among the project team members.

Partner Diversity

Boon et al. (2014) suggested that partner diversity could significantly influence project performance. However, too much diversity was found to be problematic. In other words, a relatively low level of diversity was beneficial, but a high level resulted in reduced project performance. The authors conducted a document analysis and comparative case study research of 15 projects within the context of a research program on adaptation to climate change. Partner diversity was measured with regard to the project partners' disciplinary backgrounds, cognitive distances, values, norms, goals, and views on the science-society nexus. They measured project performance on two dimensions—satisfaction and effectiveness—focusing on direct outcomes. The authors recognized how challenging it is to balance divergences and convergences of perspectives and disciplines within climate adaptation projects. They advised dealing with this difficulty during the design stage of projects.

Technological Diversity

In another study, von Raesfeld et al. (2012) selected 169 Dutch nanotechnology research projects from 1998 to

2003 to examine the relationships between technological diversity in collaborative public nanotechnology research and commercial performance. It was found that technological diversity has a U-shaped effect on application development and commercial performance in nanotechnology research projects. In other words, technological diversity leads first to a decrease (negative effect), then to an increase (positive effect), on application development and commercial performance in nanotechnology projects. This finding can be explained by an extended learning process or a rapid loss of skills. Note that technological diversity was measured on a scale of eight patent classes, e.g., human necessities and performing operations. Project revenues measured commercial performance. A scale of four elements was used: project failed, no revenue, knowledge exploitation with no revenue, and knowledge exploitation with revenue.

Equality in the Literature of Project Management

We found that there is very little academic literature on equality in project management from a theoretical perspective. From the 27 articles in the SLR set, we found only three with a focus on equality (Baker et al. 2019; Wright 2013; Zwikael et al., 2021). This scarcity of articles hindered our efforts to crystallize categories where we could make a theoretical contribution. Nevertheless, we reviewed the most important findings on equality in the literature studied.

Baker et al. (2019) demonstrated empirically, using a sample of 932 private organizations and a longitudinal research design, that promoting more women to senior management roles improves financial and organizational performance in PBOs. In their study, they measured three variables: (1) Women's representation in the organization, calculated as a percentage of the total number of employees at two levels – (i) managerial, including positions such as executives, senior managers, and other managers; and (ii) nonmanagerial, including professionals, technicians, sales, and administrative staff. (2) Organizational performance, measured using multiple measures to reflect the organization's effectiveness (van Veen-Dirks, 2010). (3) Performance measurement based solely on financial representation including return on assets (ROA) and earnings before interest, taxes, depreciation, and amortization (EBITDA).

In demonstrating the benefits of gender equality in PBOs, Baker et al. (2019) provided functional and human resource managers with valuable insights. The authors explained that emphasizing women's management and designing workplace gender equality strategies and policies can achieve clear business objectives and improve competitiveness and performance.

In another study on gender egalitarianism, Zwikael et al. (2021) conducted a survey that collected data from 1,166 project managers from seven culturally varied countries. In this study, *gender egalitarianism* was defined as the degree to which a society diminishes gender inequality. Surprisingly, the authors found that low gender egalitarianism (as a cultural diversity dimension) positively impacts the adoption of project management practices. The authors explain that this is because a society with strong masculinity and low gender egalitarianism will favor assertiveness and therefore be more driven by project success. Accordingly, managers will be stricter in adopting project management practices seen as objective and directly linked to project success. In their study, project management practices were measured using two conceptual project perspectives (Andersen, 2016), namely task perspective (delivering the project within the budget and time frame, with sound quality) and organizational perspective (creating value for the project).

In their recommendations, Zwikael et al. (2021) encouraged project managers to use different management practices and align them according to their team members' mix of cultural profiles. Thus for countries with low gender egalitarianism, the authors advised project managers to adopt management practices that stress success, competition, and achievement. In contrast, for countries with high gender egalitarianism, they suggested that project managers promote interdepartment project groups, human resource management, appropriate project manager assignment, and formal project procedures. In this way, project teams can be better supported to overcome the negative impact of gender-based cultural differences in projects.

Finally, Wright (2013) drew on 22 interviews and a focus group with heterosexual women and lesbians in the construction industry in the United Kingdom. The construction industry is known to be largely dominated by males. The author reported that lesbians who fail to display certain forms of femininity or do not engage in

heterosexual relationships are more likely to face harassment, mainly from heterosexual women. It was also reported that employers remain passive in their response to homophobic harassment. Focusing on the construction industry, the author maintains that sexual diversity should be enforced by legislators in many countries.

Inclusiveness in the Project Management Literature

As with equality, the academic literature on inclusiveness in project management is very limited from a theoretical perspective. Consequently, we were unable to create categories of theoretical contributions. However, in the following paragraphs we review the most important findings on inclusiveness in the literature.

Inclusive Work Environment

Allison and Kaminsky (2017) empirically found that males working in the United States on transportation construction projects are advantaged in terms of receiving informal safety information. The authors argued that project managers and executive directors in this industry should create an inclusive work environment where crew workers of both genders feel trusted and free to contribute their ideas. A similar argument was put forward with regard to equalizing the informal safety connections between males and females in mixed-gender workshops (Shore et al., 2011). In their study, formal safety communication was defined as establishing formal channels designed for exchanging safety information, including the delivery of formal, written reports from upper management about safety issues. In contrast, informal safety communication constituted all informal information exchanges between workers about safety concerns on avoiding accidents (Alsamadani et al., 2013).

The authors advised safety professionals to share safety information when the project members are present in order to promote and exchange experience within teams where all crew members feel included, listened to, and trusted.

Inclusion of Individuals

With regard to the inclusion of individuals in project teams, Anand et al. (2010) argued that individuals in companies that deploy Six Sigma in the United States from across different functions and partner

organizations enhance socialization between these individuals, leading to project success. In their study, socialization referred to internal and external discussions with customers or suppliers. Project success was defined as the degree to which the project's desired results were achieved. However, the relationship between the inclusion of individuals in project teams and different types of socialization was not examined in this empirical study.

Inclusion of Secondary Stakeholders

With regard to the inclusiveness of secondary stakeholders, Di Maddaloni and Davis (2018) suggested, on the basis of 19 interviews with communication, project, and senior managers in the construction industry, that broader inclusiveness of secondary stakeholders is required to improve the overall performance of major public infrastructure and construction projects (MPIC). In their study, project performance referred to improvement in the project's time, cost, and quality. Secondary stakeholders included community and environmental groups, lobbyists, and nongovernmental organizations (Aaltonen et al., 2008). Stakeholder inclusion referred to the formal and informal use of tools and processes to enhance stakeholder engagement in a project's planning, assessment, and implementation phases (Dooms, 2010). Secondary stakeholders have an informal or indirect relationship with projects (Eesley & Lenox, 2006). However, they had an effect that cannot be ignored (Clarkson, 1995). These findings are consistent with the SLR conducted by Di Maddaloni and Davis (2017) on the influence of stakeholders in MPIC projects.

The authors advised adopting an inclusive stakeholder management approach to achieve the smoother completion of construction projects. After the initiation phase, projects should include local community groups in order to avoid extra managerial effort in terms of time and resources. To achieve a practical inclusion approach, project managers should also advocate trust, which helps them recognize the needs and expectations of different stakeholders.

Stakeholder Inclusiveness

From a broader perspective, Eskerod et al. (2015) carried out a longitudinal single case study and offered many proposals relating to stakeholder inclusiveness in a project context. The authors comprehensively defined stakeholder inclusiveness as the embracement of

wide-ranging stakeholder groups, in which all stakeholders are recognized by the focal organization as essential, regardless of their power or influence on the project. The authors proposed that stakeholder inclusiveness in a project is likely to engage stakeholders, thereby leading to greater satisfaction. However, stakeholder inclusiveness may make the lead company lose focus on the main stakeholders, who possess critical resources and significantly influence the project. Stakeholder inclusiveness may also result in a series of disappointments, due to the stakeholders' wide range of expectations, requirements, wishes, and potential conflicts.

Inclusiveness and Sustainability

In conclusion, Lenferink et al. (2013) conducted in-depth interviews and analyzed studies carried out by the Dutch Ministry of Infrastructure and the Environment and consultancy agencies to investigate the effects of inclusiveness on sustainability in Dutch Design-Build-Finance-Maintain (DBFM) projects. Inclusiveness in the DBFM projects comprised three dimensions: actor, scope, and time. The actor dimension comprised the interactions between stakeholders and shareholders of

the projects concerned, and line organizations. The scope dimension investigated relationships between spatial and adjacent functions at the project level. The time dimension concerned the way information is exchanged between contract stages over time. The authors listed both the positive and negative effects of inclusiveness on sustainability in DBFM projects.

To shift toward inclusive and more sustainable infrastructure development, the authors recommend that project managers pay attention to green procurement, strategic asset management, and relational contracting. Green procurement guarantees and encourages sustainable construction in drawing up contracts, leading to the exceeding of standard project preconditions. Strategic asset management concerns a business process and a decision-making framework covering an extended time horizon and a broad range of assets. The authors argue that long-term contracts should include open-ended terms so as to renegotiate commitments regarding the actor dimension. Therefore, these contracts should be collaborative and based on trust so that project management becomes more adaptive and resilient.

Concluding Remarks and Implications

We conducted an SLR on the impact of EDI on performance and creativity in the workplace in PBOs. Most of the literature selected concerned diversity, with considerably less published research on equality and inclusiveness. Another overall observation was that the number of terms related to EDI in the literature base showed a lack of consistency and no particular consensus. In some cases, we came across various terms denoting the same construct.

The majority of the articles were situated in the construction and IT sectors and used a quantitative survey-based methodology (see Figure 3). In total, we identified 31 theoretical relationships in diversity, three in equality, and seven in inclusiveness.

The relationships in diversity were mainly discovered from studies looking at the impact of diversity on team performance, project performance, and product quality. We found that quite often there were paradoxical findings where an increase in team diversity was linked to an increase in one mediating variable, resulting in an increase in the team or project performance, and another mediating variable resulting in a decrease in performance. The full table of relationships can be seen in Table 2. How to address and respond to these apparent paradoxes is described in the next section on managerial implications.

The findings on equality reveal some interesting results, with gender equality having a positive impact on organizational financial performance but, conversely, an increase in gender egalitarianism leading to a reduction in the adoption of project management practices. In terms of inclusiveness, several studies focused on stakeholders and secondary stakeholders. Once again, the results were somewhat paradoxical in that the benefits reported from increasing stakeholder engagement came with caveats that could simultaneously reduce project performance. These findings call for managerial attention and are covered in more detail in the managerial implications section.

The next section considers in more detail some of the main managerial implications of the research and is also a prelude to our thoughts about a managerial tool that could help organizations assess EDI parameters and devise action plans to improve team and project performance.

Managerial Implications

The SLR and its analysis revealed numerous theoretical relationships. Nevertheless, interpreting these relationships and ascertaining their managerial implications is not an easy task given the unique contextual background of each research study and the frequently paradoxical findings reported, which call for caution and suggest balance is a prerequisite for managers trying to improve their project key performance indicators (KPIs) whenever they are based on EDI characteristics. We must also advise caution as the studies in our SLR set were often based on very specific industries and the findings may not translate well to other contexts. Further research in new contexts is one of the recommendations in the final section on a future research agenda.

In this section, we consider the main managerial implications and suggestions based on the EDI research studied. At the end of the managerial suggestions, we include a framework for creating a managerial tool that could help project managers develop an EDI profile of their organization and develop it in a positive way.

From the SLR, we found that team diversity tends to increase task conflict, which in turn improves team learning, leading to higher product quality. There is also evidence that increasing team diversity increases team performance. On the other hand, we note that higher team diversity increases the challenges and uncertainties in projects, which in turn leads to more interpersonal disputes and conflicts, resulting in lower team performance. In addition, disputes are harder to resolve in highly diverse teams. The managerial challenge is thus how to increase team diversity while reducing the incidence of relationship conflict and finding more effective ways to resolve disputes. The answer seems to be that PBOs should adopt policies that favor diversity and use new digital technologies to help avoid or reduce relationship conflicts. Developing a learning culture in the organization may also help.

The Project Management Institute asked us to consider what provocative questions we could raise in the light of our findings. One good question is whether we can find a way to use team diversity that increases task conflict and decreases relationship conflict. A way to approach this would be to look to the application of automation, artificial intelligence (AI), augmented intelligence, and smart contracts. Automation is not new to project management, but it still has a long way to go. We suggest that by automating some of the processes in project management, the amount of human-to-human communication in the project can be decreased. Less communication means reduced potential for relationship conflict. At the same time, technologies (e.g., smart contracts) with AI can be applied to allow more diverse inputs to the process and AI can be used to help manage and benefit from diversity.

Higher diversity has been shown to increase knowledge creation. This finding supports innovation and creativity in the workplace. Organizations that encourage personal development plans for teams can enhance the potential of diverse teams to be creative. Teams having culturally diverse backgrounds are often able to benefit from fresh ideas and new perspectives for solving problems. The benefits of culturally diverse teams, however, are offset by the increase in organizational tension, mistrust, and conflict, all of which lower project performance. The answer seems to be that where teams have culturally diverse backgrounds, they can be assisted by appropriate management of the cultural environment. By acknowledging and valuing cross-cultural complexity, organizations can ensure these teams are more likely to thrive. In this way, the project exists in an environment that recognizes and exploits local cultural differences while preserving certain international norms, giving rise to a “glocal” context (i.e., characterized by both local and global considerations) to the project.

In general, we find that team diversity in its many forms brings advantages to projects and their organizations. We suggest that organizations should promote diversity in the workplace while at the same time adopt measures to offset the dysfunctions of high diversity. The latter tend to be associated with the relationships in projects and, specifically, the incidence of relationship conflict. By adopting policies that help to avoid relationship conflict or prepare people to be better able to manage relationship conflict, they can reduce the downside of higher team diversity.

Value diversity also has both positive and negative implications for projects. Research has shown that greater value diversity can lead to better task accomplishment, which in turn promotes innovation and problem-solving. However, it also increases relationship conflict, which will lower team performance and product quality. The way to manage this conundrum is to support value diversity while building into the organization effective communication strategies for sharing and integrating knowledge. Moving away from pure hierarchical leadership structures to more shared leadership can help alleviate the challenges of value diversity, because it increases ownership across the team members.

The research on transdisciplinary research teams shows that multiple partners should have some, but not too much, cognitive distance and diversity between them. Too little or too much partner diversity reduces project performance. Finding a balance is the key to success.

With regard to gender, the research shows that increasing gender equality, which means having more women in the organization and project teams, increases the financial performance of the organization. The message here is clear: Recruit more women into the organization and project teams.

On the other hand, increasing gender egalitarianism, in fact, reduces the adoption of project management practices, according to the research reported in the SLR set. This surprising finding suggests that project management policies in organizations should reflect the level of gender egalitarianism in the organization.

Finally, research into stakeholder inclusiveness shows that increasing the involvement of a wider set of stakeholders has both positive and negative consequences. Some research shows that including secondary stakeholders increases project performance. Greater stakeholder involvement can increase the engagement and satisfaction of stakeholders. However, it can also lead to greater stakeholder disappointment, because competing values and agendas among stakeholders mean that some will view themselves as losers and others as winners. There is evidence that benefits are seen up to a point, but beyond that the risk of creating disadvantages increases.

A managerial tool needs to account for the apparently paradoxical findings from this SLR and be wary of pointing to simple linear solutions based on only one or

two metrics. Conversely, a complex tool that is overly time-consuming to use and navigate will be unlikely to fulfill its intended purpose. Perhaps the main managerial implication of our findings is that there is no silver bullet when it comes to creating EDI policies for organizations and projects. Nevertheless, we believe the theoretical relationships discovered show that EDI is an area that managers should be aware of and monitor. We suggest that a managerial tool could serve several purposes:

1. Assist in developing an EDI profile of the organization.
2. Increase knowledge among project workers about the importance of equality, diversity, and inclusiveness in the workplace and their impact on performance and creativity.
3. Increase the transparency of an organization with regard to these phenomena and provide insights into which EDI characteristics an organization regards as more or less important, and how well they are currently aligned with that perspective.
4. Increase the opportunity for members of the organization to be involved in reshaping organizational norms and policies in order to reflect EDI goals.
5. Help alleviate fears or anxieties around diversity, equality, and inclusiveness and give individuals and groups the opportunity to change and adapt themselves through directed training, personal development, and growth strategies.

In brief, a managerial tool can be an aid for managers or stakeholders to take action regarding one or more aspects of EDI. Our tool (see Appendix) is a starting template that captures the EDI phenomena revealed in our research in the form of a structured table with questions to be answered. The tool encourages the organization to consider who can contribute to each term and what is the potential value of doing so. It is not prescriptive, but is intended to educate and enlighten organization members to be more proactive in designing their teams and policies so as to integrate EDI characteristics into the performance improvement map or dashboard. Project managers and organization managers would then be better informed for making decisions for projects, stakeholders, and individuals on a case-by-case basis in order to benefit project and organizational goals and objectives and people's job satisfaction in the short and longer term.

Future Research Agenda

We recommend that future research be carried out in other industries and contexts, given that many of the research studies in the SLR set were based on the construction and IT sectors. Future research in other industries and contexts would broaden the understanding of EDI in the workplace. We also suggest that further research should use a more diverse methodological approach. Most of the studies in the SLR set were based on surveys. We would like to see more qualitative research studies, which can provide a deeper, more detailed view of EDI phenomena and relationships.

Within the SLR literature, Di Maddaloni and Davis (2018, 2017) conducted their research on major public infrastructure and construction projects. They revealed that current project stakeholder management mechanisms are reactive rather than proactive, forcing stakeholders to comply with project needs. We suggest that more research is needed on alternative stakeholder models.

Eslerod et al. (2015) suggest that future research should compare the inclusion of stakeholders at each phase of project management and analyze how their inclusion affects the interactions between internal actors within the project management. Such research would provide a deeper understanding of the impact of stakeholder inclusion.

As shown in the present study, much research focused on project performance, where diversity has played a significant role. For example, monitoring diversity at the organizational level can be achieved through recruitment. Eslerod et al. (2015) demonstrated that focusing on interdependencies between job applicants and their future colleagues could be more important than simply focusing on skills and talents. The authors also pointed out that an extension of knowledge diversity increases the complexity of managing the interdependencies between team members. They urged future research to investigate a hiring process that would maximize team diversity and minimize interdependent disruption. They believe that this would help recruiters and managers to improve the relationship between recruiting and performance. We believe that research into the application of automation and AI in these areas can also contribute to higher levels of performance.

W.-H. Liu and Cross (2016) defined an integrated model combining system dynamics and agent-based modeling (ABM) to monitor the uncertainties and dynamics stemming from behavioral diversities leading to project deviations. The authors highlighted the need to better understand the impact of team diversity on innovation and efficiency.

There remain unanswered questions on the effect of value diversity on system quality. For example, J. S.-C. Hsu et al. (2017) examined the mediation role of shared and vertical leadership in managing value diversity within information systems development projects. They demonstrated that effective vertical leadership can mitigate the adverse impact of value diversity on shared

leadership. The authors advocated that the value diversity literature should study in depth the effect of value diversity on system quality through leadership.

Finally, it has been demonstrated that organizations with equal gender representation perform better. In their research, Baker et al. (2019) look at the impact of women on organizational performance in project-based and non-project-based organizations. They show that leveraging female talent can create a competitive advantage and lead to positive organizational outcomes. The authors advocate future research to demonstrate the relationship between women's representation and performance through a wider set of metrics, including financial and nonfinancial measures.

References

- Aaltonen, K., Jaakko, K., & Tuomas, O. (2008). Stakeholder salience in global projects. *International Journal of Project Management*, 26(5), 509–516. <https://doi.org/10.1016/j.ijproman.2008.05.004>
- Akgün, A. E., Dayan, M., & Di Benedetto, A. (2008). New product development team intelligence: Antecedents and consequences. *Information & Management*, 45(4), 221–226. <https://doi.org/10.1016/j.im.2008.02.004>
- Alkhudary, R., & Gardiner, P. (2021). Stages in project managers' careers: Learning and growth opportunities. *International Journal of Project Management*, 39(5), 536–545. <https://doi.org/10.1016/j.ijproman.2021.03.006>
- Allison, L., & Kaminsky, J. (2017). Safety communication networks: Females in small work crews. *Journal of Construction Engineering and Management*, 143(8), 04017050. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001344](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001344)
- Alsamadani, R., Hallowell, M., & Javernick-Will, A. N. (2013). Measuring and modelling safety communication in small work crews in the US using social network analysis. *Construction Management and Economics*, 31(6), 568–579. <https://doi.org/10.1080/01446193.2012.685486>
- Anand, G., Ward, P. T., & Tatikonda, M. V. (2010). Role of explicit and tacit knowledge in Six Sigma projects: An empirical examination of differential project success. *Journal of Operations Management*, 28(4), 303–315. <https://doi.org/10.1016/j.jom.2009.10.003>
- Andersen, E. S. (2016). Do project managers have different perspectives on project management? *International Journal of Project Management*, 34(1), 58–65. <https://doi.org/10.1016/j.ijproman.2015.09.007>
- Arditi, D., & Balci, G. (2009). Managerial competencies of female and male construction managers. *Journal of Construction Engineering and Management*, 135(11), 1275–1278. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0000100](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000100)
- Baker, M., Ali, M., & French, E. (2019). The impact of women's representation on performance in project-based and non-project-based organizations. *International Journal of Project Management*, 37(7), 872–883. <https://doi.org/10.1016/j.ijproman.2019.06.001>
- Bandara, W., Furtmueller, E., Gorbacheva, E., Miskon, S., & Beekhuyzen, J. (2015). Achieving rigor in literature reviews: Insights from qualitative data analysis and tool-support. *CAIS*, 37. <https://doi.org/10.17705/1CAIS.03708>
- Barki, H., & Hartwick, J. (2001). Interpersonal conflict and its management in information system development. *MIS Quarterly*, 25(2), 195. <https://doi.org/10.2307/3250929>
- Boon, W. P. C., Chappin, M. M. H., & Perenboom, J. (2014). Balancing divergence and convergence in transdisciplinary research teams. *Environmental Science & Policy*, 40, 57–68. <https://doi.org/10.1016/j.envsci.2014.04.005>
- Buckley, M. (2014). On the work of urbanization: Migration, construction labor, and the commodity moment. *Annals of the Association of American Geographers*, 104(2), 338–347. <https://doi.org/10.1080/00045608.2013.858572>
- Chandrasekaran, A., & Linderman, K. (2015). Managing knowledge creation in high-tech R&D projects: A multimethod study. *Decision Sciences*, 46(2), 267–300. <https://doi.org/10.1111/dec.12129>
- Chen, Y. Q., Zhang, Y. B., & Zhang, S. J. (2014). Impacts of different types of owner-contractor conflict on cost performance in construction projects. *Journal of Construction Engineering and Management*, 140(6), 04014017. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0000852](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000852)
- Chilton, M. A., & Bloodgood, J. M. (2007, January 3–6). The dimensions of tacit and explicit knowledge: A description and measure. In *2007 40th Annual Hawaii International Conference on System Sciences (HICSS'07)* [Symposium]. IEEE 40th Annual Hawaii International Conference on System Sciences, Waikoloa, HI, United States. <https://doi.org/10.1109/HICSS.2007.524>
- Clarkson, M. B. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *The Academy of Management Review*, 20(1), 92. <https://doi.org/10.2307/258888>
- Cook, D. J. (1997). Systematic reviews: Synthesis of best evidence for clinical decisions. *Annals of Internal Medicine*, 126(5), 376. <https://doi.org/10.7326/0003-4819-126-5-199703010-00006>
- Dayan, M., & Colak, M. (2008). The role of procedural justice in the new product development process. *European Journal of Innovation Management*, 11(2), 199–218. <https://doi.org/10.1108/14601060810869866>

- Di Maddaloni, F., & Davis, K. (2018). Project manager's perception of the local communities' stakeholder in megaprojects. An empirical investigation in the UK. *International Journal of Project Management*, 36(3), 542-565. <https://doi.org/10.1016/j.ijproman.2017.11.003>
- Di Maddaloni, F., & Davis, K. (2017). The influence of local community stakeholders in megaprojects: Rethinking their inclusiveness to improve project performance. *International Journal of Project Management*, 35(8), 1537-1556. <https://doi.org/10.1016/j.ijproman.2017.08.011>
- Dooms, M. (2010). *Crafting the integrative value proposition for large scale transport infrastructure hubs: A stakeholder management approach*. VUB Press.
- Eastman, W., & Santoro, M. (2003). The Importance of value diversity in corporate life. *Business Ethics Quarterly*, 13(4), 433-452. <https://doi.org/10.5840/beq200313431>
- Eesley, C., & Lenox, M. J. (2006). Firm responses to secondary stakeholder action. *Strategic Management Journal*, 27(8), 765-781. <https://doi.org/10.1002/smj.536>
- Eskerod, P., Huemann, M., & Ringhofer, C. (2015). Stakeholder inclusiveness: Enriching project management with general stakeholder theory. *Project Management Journal*, 46(6), 42-53. <https://doi.org/10.1002/pmj.21546>
- Faraj, S., & Sproull, L. (2000). Coordinating expertise in software development teams. *Management Science*, 46(12), 1554-1568. <https://doi.org/10.1287/mnsc.46.12.1554.12072>
- Fernandez, S., Cho, Y. J., & Perry, J. L. (2010). Exploring the link between integrated leadership and public sector performance. *The Leadership Quarterly*, 21(2), 308-323. <https://doi.org/10.1016/j.leaqua.2010.01.009>
- Franz, B., Leicht, R., Molenaar, K., & Messner, J. (2017). Impact of team integration and group cohesion on project delivery performance. *Journal of Construction Engineering and Management*, 143(1), 04016088. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001219](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001219)
- Godfrey Ochieng, E., & Price, A. D. (2009). Framework for managing multicultural project teams. *Engineering Construction and Architectural Management*, 16(6), 527-543. <https://doi.org/10.1108/09699980911002557>
- Henderson, J. C., & Lee, S. (1992). Managing I/S design teams: A control theories perspective. *Management Science*, 38(6), 757-777. <https://doi.org/10.1287/mnsc.38.6.757>
- Hsu, J. S.-C., Chu, T.-H., Lin, T.-C., & Lo, C.-F. (2014). Coping knowledge boundaries between information system and business disciplines: An intellectual capital perspective. *Information & Management*, 51(2), 283-295. <https://doi.org/10.1016/j.im.2013.12.005>
- Hsu, J. S.-C., Li, Y., & Sun, H. (2017). Exploring the interaction between vertical and shared leadership in information systems development projects. *International Journal of Project Management*, 35(8), 1557-1572. <https://doi.org/10.1016/j.ijproman.2017.08.009>
- Hsu, S.-C., Weng, K.-W., Cui, Q., & Rand, W. (2016). Understanding the complexity of project team member selection through agent-based modeling. *International Journal of Project Management*, 34(1), 82-93. <https://doi.org/10.1016/j.ijproman.2015.10.001>
- Hung, C.-L., & Chou, J. C.-L. (2013). Resource commitment, organizational diversity, and research performance: A case of the national telecommunication program in Taiwan. *Project Management Journal*, 44(3), 32-47. <https://doi.org/10.1002/pmj.21340>
- Jehn, K., Rispens, S., Jonsen, K., & Greer, L. (2013). Conflict contagion: A temporal perspective on the development of conflict within teams. *International Journal of Conflict Management*, 24(4), 352-373. <https://doi.org/10.1108/IJCM-05-2011-0039>
- Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, 40(2), 256. <https://doi.org/10.2307/2393638>
- Jehn, K. A., & Bendersky, C. (2003). Intragroup conflict in organizations: A contingency perspective on the conflict-outcome relationship. *Research in Organizational Behavior*, 25, 187-242. [https://doi.org/10.1016/S0191-3085\(03\)25005-X](https://doi.org/10.1016/S0191-3085(03)25005-X)
- Jehn, K. A., Chadwick, C., & Thatcher, S. M. B. (1997). To agree or not to agree: The effects of value congruence, individual demographic dissimilarity, and conflict on workgroup outcomes. *International Journal of Conflict Management*, 8(4), 287-305. <https://doi.org/10.1108/eb022799>

- Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of Management Journal*, 44(2), 238-251. <https://doi.org/10.2307/3069453>
- Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict, and performance in workgroups. *Administrative Science Quarterly*, 44(4), 741. <https://doi.org/10.2307/2667054>
- Kauffman, S. (1995). *At home in the universe: The search for laws of self-organization and complexity*. Oxford University Press.
- Kidwell, R. E. (2003). Helping older workers cope with continuous quality improvement. *Journal of Management Development*, 22(10), 890-905. <https://doi.org/10.1108/02621710310505485>
- Kim, A., & Arditi, D. (2010). Performance of minority firms providing construction management services in the US transportation sector. *Construction Management and Economics*, 28(8), 839-851. <https://doi.org/10.1080/01446193.2010.483331>
- Kim, Y., Min, B., & Cha, J. (1999). The roles of R&D team leaders in Korea: A contingent approach. *R&D Management*, 29(2), 153-166. <https://doi.org/10.1111/1467-9310.00126>
- Kruglianskas, I., & Thamhain, H. J. (2000). Managing technology-based projects in multinational environments. *IEEE Transactions on Engineering Management*, 47(1), 55-64. <https://doi.org/10.1109/17.820725>
- Lenferink, S., Tillema, T., & Arts, J. (2013). Towards sustainable infrastructure development through integrated contracts: Experiences with inclusiveness in Dutch infrastructure projects. *International Journal of Project Management*, 31(4), 615-627. <https://doi.org/10.1016/j.ijproman.2012.09.014>
- Liang, T.-P., Jiang, J., Klein, G. S., & Liu, J. Y.-C. (2010). Software quality as influenced by informational diversity, task conflict, and learning in project teams. *IEEE Transactions on Engineering Management*, 57(3), 477-487. <https://doi.org/10.1109/TEM.2009.2033049>
- Liang, T.-P., Liu, C., Lin, T., & Lin, B. (2007). Effect of team diversity on software project performance. *Industrial Management and Data Systems*, 107(5), 636-653. <https://doi.org/10.1108/02635570710750408>
- Liang, T.-P., Wu, J. C.-H., Jiang, J. J., & Klein, G. (2012). The impact of value diversity on information system development projects. *International Journal of Project Management*, 30(6), 731-739. <https://doi.org/10.1016/j.ijproman.2011.11.006>
- Lim, B.-C., & Klein, K. J. (2006). Team mental models and team performance: A field study of the effects of team mental model similarity and accuracy. *Journal of Organizational Behavior*, 27(4), 403-418. <https://doi.org/10.1002/job.387>
- Liu, J. Y.-C., Chen, H.-G., Chen, C. C., & Sheu, T. S. (2011). Relationships among interpersonal conflict, requirements uncertainty, and software project performance. *International Journal of Project Management*, 29(5), 547-556. <https://doi.org/10.1016/j.ijproman.2010.04.007>
- Liu, W.-H., & Cross, J. A. (2016). A comprehensive model of project team technical performance. *International Journal of Project Management*, 34(7), 1150-1166. <https://doi.org/10.1016/j.ijproman.2016.05.011>
- Loosemore, M., & Muslmani, H. S. Al. (1999). Construction project management in the Persian Gulf: Inter-cultural communication. *International Journal of Project Management*, 17(2), 95-100. [https://doi.org/10.1016/S0263-7863\(98\)00030-1](https://doi.org/10.1016/S0263-7863(98)00030-1)
- Mannix, E., & Neale, M. A. (2005). What differences make a difference?: The promise and reality of diverse teams in organizations. *Psychological Science in the Public Interest*, 6(2), 31-55. <https://doi.org/10.1111/j.1529-1006.2005.00022.x>
- McComb, S. A., Green, S. G., & Dale Compton, W. (2007). Team flexibility's relationship to staffing and performance in complex projects: An empirical analysis. *Journal of Engineering and Technology Management*, 24(4), 293-313. <https://doi.org/10.1016/j.jengtecman.2007.09.004>
- Miller, D. M., Fields, R., Kumar, A., & Ortiz, R. (2000). Leadership and organizational vision in managing a multiethnic and multicultural project team. *Journal of Management in Engineering*, 16(6), 18-22. [https://doi.org/10.1061/\(ASCE\)0742-597X\(2000\)16:6\(18\)](https://doi.org/10.1061/(ASCE)0742-597X(2000)16:6(18))
- Millhiser, W. P., Coen, C. A., & Solow, D. (2011). Understanding the role of worker interdependence in team selection. *Organization Science*, 22(3), 541-815. <https://doi.org/10.1287/orsc.1100.0549>

- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & the PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLOS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management*, 36(1), 5–39. <https://doi.org/10.1177/0149206309347376>
- Nidumolu, S. (1995). The effect of coordination and uncertainty on software project performance: Residual performance risk as an intervening variable. *Information Systems Research*, 6(3), 191–219. <https://doi.org/10.1287/isre.6.3.191>
- Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *CAIS*, 37. <https://doi.org/10.17705/1CAIS.03743>
- Payne, J. (2012). Fronting up to skills utilisation: What can we learn from Scotland's skills utilisation projects? *Policy Studies*, 33(5), 419–438. <https://doi.org/10.1080/01442872.2012.709093>
- Ratcheva, V. (2009). Integrating diverse knowledge through boundary spanning processes – The case of multidisciplinary project teams. *International Journal of Project Management*, 27(3), 206–215. <https://doi.org/10.1016/j.ijproman.2008.02.008>
- Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Holcombe Ehrhart, K., & Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management*, 37(4), 1262–1289. <https://doi.org/10.1177/0149206310385943>
- Simons, S. M., & Rowland, K. N. (2011). Diversity and its impact on organizational performance: The influence of diversity constructions on expectations and outcomes. *Journal of Technology Management & Innovation*, 6(3), 171–183. <https://doi.org/10.4067/S0718-27242011000300013>
- Spender, J. C. (1993). Competitive advantage from tacit knowledge? Unpacking the concept and its strategic implications. *AMPROC*, 1993(1), 37–41. <https://doi.org/10.5465/ambpp.1993.10315222>
- Swarup, L., Korkmaz, S., & Riley, D. (2011). Project delivery metrics for sustainable, high-performance buildings. *Journal of Construction Engineering and Management*, 137(12), 1043–1051. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0000379](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000379)
- Thomé, A. M. T., Scavarda, L. F., & Scavarda, A. J. (2016). Conducting systematic literature review in operations management. *Production Planning & Control*, 27(5), 408–420. <https://doi.org/10.1080/09537287.2015.1129464>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
- van Veen-Dirks, P. (2010). Different uses of performance measures: The evaluation versus reward of production managers. *Accounting, Organizations and Society*, 35(2), 141–164. <https://doi.org/10.1016/j.aos.2009.02.002>
- von Raesfeld, A., Geurts, P., Jansen, M., Boshuizen, J., & Lutge, R. (2012). Influence of partner diversity on collaborative public R&D project outcomes: A study of application and commercialization of nanotechnologies in the Netherlands. *Technovation*, 32(3–4), 227–233. <https://doi.org/10.1016/j.technovation.2011.12.001>
- Wang, E. T. G., Wei, H.-L., Jiang, J. J., & Klein, G. (2006). User diversity impact on project performance in an environment with organizational technology learning and management review processes. *International Journal of Project Management*, 24(5), 405–411. <https://doi.org/10.1016/j.ijproman.2006.01.004>
- Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, 26(2), xiii–xxiii. <https://www.jstor.org/stable/4132319>
- Wong, K., Unsal, H., Taylor, J. E., & Levitt, R. E. (2010). Global dimension of robust project network design. *Journal of Construction Engineering and Management*, 136(4), 442–451. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0000143](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000143)
- Wright, T. (2013). Uncovering sexuality and gender: An intersectional examination of women's experience in UK construction. *Construction Management and Economics*, 31(8), 832–844. <https://doi.org/10.1080/01446193.2013.794297>
- Wu, C., Chen, C., Jiang, R., Wu, P., Xu, B., & Wang, J. (2019). Understanding laborers' behavioral diversities in multinational construction projects using integrated simulation approach. *ECAM*, 26(9), 2120–2146. <https://doi.org/10.1108/ECAM-07-2018-0281>

- Wu, G., Liu, C., Zhao, X., & Zuo, J. (2017). Investigating the relationship between communication-conflict interaction and project success among construction project teams. *International Journal of Project Management*, 35(8), 1466-1482. <https://doi.org/10.1016/j.ijproman.2017.08.006>
- Wu, G., Zhao, X., Zuo, J., & Zillante, G. (2018). Effects of contractual flexibility on conflict and project success in megaprojects. *IJCMA*, 29(2), 253-278. <https://doi.org/10.1108/IJCMA-06-2017-0051>
- Wu, G., Zhao, X., Zuo, J., & Zillante, G. (2019). Effects of team diversity on project performance in construction projects. *ECAM*, 26(3), 408-423. <https://doi.org/10.1108/ECAM-05-2018-0220>
- Zhang, Y., Sun, J., Yang, Z., & Wang, Y. (2018). Mobile social media in inter-organizational projects: Aligning tool, task and team for virtual collaboration effectiveness. *International Journal of Project Management*, 36(8), 1096-1108. <https://doi.org/10.1016/j.ijproman.2018.09.003>
- Zwikael, O., Pathak, R. D., Ling, F. Y. Y., Titov, S., Husain, Z., Sharma, B., Tay, C. Y., & Samson, D. (2021). Variation in project management practices across borders. *Production Planning & Control*, 1-13. <https://doi.org/10.1080/09537287.2020.1858362>

Author Biographies

Paul Gardiner, PhD, is professor of project management at SKEMA Business School where he is the director of the DBA in Project and Programme Management and the MSc in Project & Programme Management and Business Development, a PMI GAC-accredited MSc program. He gained experience in the manufacturing and oil and gas industries before receiving his doctoral degree from the University of Durham. He has held appointments at Heriot-Watt University, Edinburgh, and the British University in Dubai, UAE. With a strong record of accomplishment in program design and development, he was the lead academic in a European consortium winning €5 million to launch an Erasmus Mundus Masters. Other assignments have been held at Politecnico di Milano, Edinburgh Business School, the University of Edinburgh, Bristol Business School, Nottingham Trent University, ICN Business School, Nancy, University of Fribourg, Universitas Pelita Harapan (UPH), Jakarta, and the University of Manchester. He has held several external examinerships in the United Kingdom. His research interests are in project-organization interfaces, learning for business value, project management for competitive advantage, career development of project managers, and IT applications in project management. He has authored over 70 scholarly articles and an international textbook. He is a reviewer for several international journals.

Email: paul.gardiner@skema.edu

LinkedIn: <https://www.linkedin.com/in/paul37g/>

Rami Alkhudary, PhD, is a research and teaching assistant at Paris-Panthéon-Assas University, where he recently earned his doctoral degree in management science. His research has been recognized by several international conferences (Best Research Paper at PROLOG 2019) and published with Springer, *International Journal of Project Management*, *European Business Review*, and *Harvard Business Review France*. He also serves as a reviewer for several international journals and conferences, including the *International Journal of Production Research*, *International Journal of Operations & Production Management*, *Supply Chain Management: An International Journal*, *European Business Review*, PROLOG 2021, and APMS 2021.

Email: rami.alkhudary@u-paris2.fr

ResearchGate: <https://www.researchgate.net/profile/Rami-Alkhudary-2>

Sensitive to equality, diversity, and inclusion, Marie Druon contributed to the writing of this article. She has an MSc in Project & Programme Management and Business Development from Skema Business School and this article is part of the diploma. Marie is also a consultant in digital transformation for a French consulting group and advocates for equality, diversity, and inclusion, at her workplace.

Email: marie.druon@skema.edu

LinkedIn: <https://www.linkedin.com/in/marie-druon>

Appendix

Table X1. Novel Framework as a Tool to Help Managers Develop Their Awareness of EDI

EDI TERMS	RELATIONSHIP (TABLE 2)	INSIGHTFUL QUESTIONS	WHO IS INVOLVED?	PERFORMANCE NOTES
Unique EDI terms derived from the SLR.	Theoretical relationship reference number	Suggested questions to learn about the EDI terms and the organization's current position on each.	Where can you find this information? Who can you ask?	Comment on the efficacy of the organization's rules, policies and practices in this area. Can you suggest improvements?
Team diversity	5, 6, 7, 13, 14, 26, 27, 28, 29	What do you know about the organization's policy regarding team diversity?	To be completed by project managers	To be completed by project managers
		How is team diversity measured and monitored in the organization?	To be completed by project managers	To be completed by project managers
		What steps does the organization take to promote team diversity?	To be completed by project managers	To be completed by project managers
		What steps does the organization take to reduce relationship conflict in project teams?	To be completed by project managers	To be completed by project managers
Value diversity	1, 2, 3, 4, 24, 25	Does the organization recognise and measure value diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers
Cultural diversity	15, 16	Does the organization recognise and measure cultural diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers
Social diversity	9, 10	Does the organization recognise and measure social diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers
Behavioral diversity	12	Does the organization recognise and measure behavioral diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers

(continued)

Table X1. Novel Framework as a Tool to Help Managers Develop Their Awareness of EDI (continued)

EDI TERMS	RELATIONSHIP (TABLE 2)	INSIGHTFUL QUESTIONS	WHO IS INVOLVED?	PERFORMANCE NOTES
Unique EDI terms derived from the SLR.	Theoretical relationship reference number	Suggested questions to learn about the EDI terms and the organization's current position on each.	Where can you find this information? Who can you ask?	Comment on the efficacy of the organization's rules, policies and practices in this area. Can you suggest improvements?
Knowledge diversity	8	Does the organization recognise and measure knowledge diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers
Functional diversity	21, 22, 23	Does the organization recognise and measure different types of functional diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers
Cross-functional diversity	30, 31	Does the organization recognise and measure cross-functional diversity in project teams? If so, how?	To be completed by project managers	To be completed by project managers
User diversity	17	Does the organization recognise and measure user diversity in projects? If so, how?	To be completed by project managers	To be completed by project managers
Requirements diversity	11	Does the organization recognise and measure requirements diversity in projects? If so, how?	To be completed by project managers	To be completed by project managers
Partner diversity	19, 20	Does the organization recognise and measure partner diversity in projects? If so, how?	To be completed by project managers	To be completed by project managers
Technological diversity	18	Does the organization recognise and measure technological diversity in projects? If so, how?	To be completed by project managers	To be completed by project managers
Gender equality	32, 34	What action does the organization take to achieve gender equality?	To be completed by project managers	To be completed by project managers

(continued)

Table X1. Novel Framework as a Tool to Help Managers Develop Their Awareness of EDI (continued)

EDI TERMS	RELATIONSHIP (TABLE 2)	INSIGHTFUL QUESTIONS	WHO IS INVOLVED?	PERFORMANCE NOTES
Unique EDI terms derived from the SLR.	Theoretical relationship reference number	Suggested questions to learn about the EDI terms and the organization's current position on each.	Where can you find this information? Who can you ask?	Comment on the efficacy of the organization's rules, policies and practices in this area. Can you suggest improvements?
Workplace gender equality	33	Does the organization recognise and monitor gender egalitarianism? If so, how?	To be completed by project managers	To be completed by project managers
		To what extent does the organization try to match project management practices with the level of gender egalitarianism?	To be completed by project managers	To be completed by project managers
Inclusion of individuals	36	What is the level and impact of individual inclusiveness in projects?	To be completed by project managers	To be completed by project managers
Inclusive work environment	35	What is the level and impact of inclusivity of the work environment in projects?	To be completed by project managers	To be completed by project managers
Stakeholder inclusiveness	38, 39, 40, 41	How are the relationships with stakeholders defined, monitored and managed in projects?	To be completed by project managers	To be completed by project managers
Inclusiveness of secondary stakeholders	37	What effort is made to include and involve secondary stakeholders in projects?	To be completed by project managers	To be completed by project managers