Dynamic Relationships Management Journal

CONTENTS

Volume 13, Number 1, May 2024

Aims & Scope

The Dynamic Relationships Management Journal is an international, double blind peer-reviewed bi-annual publication of academics' and practitioners' research analyses and perspectives on relationships management and organizational themes and topics. The focus of the journal is on management, organization, corporate governance and neighboring areas (including, but not limited to, organizational behavior, human resource management, sociology, organizational psychology, industrial economics etc.). Within these fields, the topical focus of the journal is above all on the establishment, development, maintenance and improvement of dynamic relationships, connections, interactions, patterns of behavior, structures and networks in social entities like firms, non-profit institutions and public administration units within and beyond individual entity boundaries. Thus, the main emphasis is on formal and informal relationships, structures and processes within and across individual, group and organizational levels.

DRMJ articles test, extend, or build theory and contribute to management and organizational practice using a variety of empirical methods (e.g., quantitative, qualitative, field, laboratory, meta-analytic, and combination). Articles format should include, but are not restricted to, traditional academic research articles, case studies, literature reviews, methodological advances, approaches to teaching, learning and management development, and interviews with prominent executives and scholars.

Material disclaimer

Responsibility for (1) the accuracy of statements of fact, (2) the authenticity of scientific findings or observations, (3) expressions of scientific or other opinion and (4) any other material published in the journal rests solely with the author(s). The Journal, its owners, publishers, editors, reviewers and staff take no responsibility for these matters.

Information for Readers

Dynamic Relationships Management Journal (ISSN 2232-5867 - printed version & ISSN 2350-367X - on-line version, available in (full text) at the DRMJ website) is published in 2 issues per year. For ordering the printed version, please contact the editor at matej.cerne@ef.uni-lj.si.

Call for papers

The Dynamic Relationships Management Journal (DRMJ) is inviting contributions for upcoming issues. The manuscript can be submitted per e-mail to the editor (matej.cerne@ef.uni-lj.si). Before the submission, authors should consult Author Guidelines. There is no submission or publication fee.

Open Access statement

Copyright / licensing conditions

FROM THE PRESIDENT OF THE SLOVENIAN ACADEMY OF MANAGEMENT (2020-2024)

Assis. Prof. Dr. Jože Kropivšek
University of Ljubljana, Biotechnical Faculty

Dear reader,

Four years ago, in Spring of 2020, the new executive board of the Slovenian Academy of Management began to lead the Academy's activities. The beginnings coincided exactly with the time of the first wave of the Covid-19 pandemic under special circumstances, which made our incipient activities special. The members of the Executive Committee at that time were Professor Dr Matej Černe from the School of Economics and Business at the University of Ljubljana, Assistant Professor Dr Nina Tomaževič from the Faculty of Administration at the University of Ljubljana, Professor Dr Polona Šprajc from the Faculty of Organisational Sciences, University of Maribor, Rebeka Koncilja Žgalin from the School of Economics and Business, University of Ljubljana, and myself, Assistant Professor Dr Jože Kropivšek from the Biotechnical Faculty, University of Ljubljana, as President of the Academy.

During our four-year mandate, we have continued activities that had previously been successful: publishing journals, organising discussion evenings and scientific conferences, and taking care of terminology in the field of management and organisation. Let me briefly present the most important achievements of the Academy's individual activities during this period.

In terms of journals, the Academy publishes the international academic journal "Dynamic Relationships Management Journal" and a more practice-orientated journal entitled "Izzivi managementu" (Management Challenges). In the Dynamic Relationships Management Journal (DRMJ), for which Professor Dr Matej Černe serves as editor-in-chief, we have consistently pursued activities to raise the journal to an even higher level. In particular, we focus on research into management and organisation in the context of dynamic relationships between stakeholders (employees, organisations and companies). The quality of the journal is evidenced by its inclusion in the Scopus database. In recent years, we have received an increasing number of manuscripts from all over the world. We pride ourselves on our responsive editorial process (authors receive initial feedback from the editor within one day) and our efficient editorial procedures. In addition, there is a clear trend towards more and more article citations, which increases the journal's influence in the research field. However, the challenges related to the introduction of the online editorial process, including online submission, remain unresolved. To solve this problem, we plan to link the journal's publication with the University of Ljubljana Press in the near future. This strategic move will further enhance the journal's reputation and visibility.

The Slovenian journal "Izzivi managementu" (Management Challenges) has a new editor-in-chief, Professor Dr Zlatko Nedelko from the Faculty of Economics and Business of the University of Maribor, who took over from the former editor, Assistant Professor Dr Lidija Breznik, in 2022. The journal continues to be practice-oriented and is primarily intended to help managers in their daily work, but also academics who want to learn more about the practical aspects of management and related fields.

Both journals have also been recognised as being of high quality by the Slovenian Research and Innovation Agency (ARIS), which co-finances the publication of the journals.

One of the Academy's main activities is also the organisation of scientific conferences, both international and local. The main purpose of international scientific conferences is to present the latest scientific findings in a particular field of management, to exchange opinions and to establish contacts between participants. The purpose of the Slovenian scientific conferences is to connect the Slovenian professional public with researchers, i.e. to transfer knowledge into practise, which is the fundamental goal of the Academy. In 2021, we organised a scientific conference on "Organisational adaptation and management during the COVID-19 epidemic" in a virtual format. The conference was chaired by Assoc. Prof. Dr Melita Balas Rant. In 2022, we successfully organised an international conference entitled "Integrating Organisational Research: Individual, Team, Organisational, and Multilevel Perspectives". The conference was originally planned for 2020, but was postponed due to the pandemic. It was organised by the Slovenian Academy of Management in cooperation with the Faculty of Economics of the University of Ljubljana and the Faculty of Economics of the University of Zagreb and with the support of CEEMAN. The conference took place at the Faculty of Economics of the University of Ljubljana and in hybrid form via the Zoom platform. Prof. Dr Tomislav Hernaus was the chairman of the programme committee, while Assoc. Prof. Dr Aleša Saša Sitar headed the organising committee. This year we are planning to organise the 7th International Scientific Conference on 20-21 June 2024 in Belgrade, in cooperation with the School of Economics and Business of the University of Ljubljana and the Faculty of Economics and Business of the University of Belgrade. The theme of the conference is "Managing paradoxes in and across organizations". One of the keynote speakers at the conference is Arnold Bakker, one of the most cited researchers in the field of organisational behaviour/organisational psychology. In addition, two other top researchers in the field of organisational paradoxes will contribute to the conference in line with the overarching theme of the conference. Importantly, the conference will be held with the institutional support and active participation of the global association, the Academy of Management, which is a great honour and recognition for the work of the Academy.

Another activity of the Academy are the "Discussion Evenings" organised by Assistant Professor Dr Nina Tomaževič. The purpose of these evenings is to organise more forms of social gathering focusing on formal and less formal debates and/or exchange of opinions, knowledge and experiences. In the early days of our mandate, it was a challenge to organise our meetings online due to the restrictions imposed by the pandemic. I must say that our contacts via the new media were very successful and never broke off. The topics have always been very attractive and reflect the current challenges. The last event, for example, was about artificial intelligence and its impact on management, which was very successful and well received by the large audience.

The final, but no less important, activity of the Academy is taking care of terminology, in which our members meticulously study Slovenian technical terms related to management and organisation (e.g. corporate social responsibility, digitalisation and management in the digital age, creativity and innovation, and contemporary leadership theories). The group is compiling a dictionary that also includes recommended translations. This resource will help both the academic and professional community to express themselves in the Slovenian language, which is undoubtedly one of the most important tasks of the Academy. These activities are led by Assoc. Prof. Dr Judita Peterlin and Assist. Prof. Dr Dubravka Celinšek.

In terms of organisation, content and finances, we are handing over the Academy to the new leadership in good shape. Nevertheless, challenges remain, including increasing the (international) recognition of the Academy and active membership, especially among young people. As of this month, the Academy will be led by the following individuals: Professor Dr Metka Tekavčič from the School of Economics and Business at the University of Ljubljana, Professor Dr Nada Zupan from the School of Economics and Business at the University of Ljubljana, Assistant Professor Dr Nina Tomaževič from the Faculty of Administration at the University of Ljubljana,

Assistant Professor Dr Dubravka Celinšek from the Faculty of Management at the University of Primorska and Rebeka Koncilja Žgalin.

Allow me to express my gratitude to the individual members of the Academy for their dedicated work in the realisation of all activities! With a strong desire to collaborate within the Academy and contribute to new content for the Dynamic Relationships Management Journal, I wish you many fresh scientific and professional insights.

Assis. Prof. Dr. Jože Kropivšek

Vol. 13, No. 1, 5-18
doi:10.17708/DRMJ.2024.v13n01a01

Dynamic Relationships Management Journal

KEY SUCCESS FACTORS OF IMPLEMENTATION OF BUILDING INFORMATION MODELING IN SLOVENIAN ORGANIZATIONS

Bojan Gorenc
Faculty of Organization Studies in Novo mesto Slovenia

Andrej Dobrovoljc
Faculty of Organization Studies in Novo mesto, Slovenia
andrej.dobrovoljc@fos-unm.si

Abstract

The purpose of this research is to identify the main enablers and barriers to Building Information Modeling (BIM) implementation in Slovenia. The study involved a quantitative survey with an online questionnaire, covering a broad sample of Slovenian construction companies. The research revealed that the most significant enabler of BIM implementation in Slovenia is the awareness that BIM improves project documentation coordination and construction processes. It was also found that legislative support for BIM adoption in Slovenia is not crucial. Earlier adoption of relevant legislation would be helpful but is not essential for the BIM adoption. The most important factors for BIM adoption in Slovenia are those that address the improvement of productivity and efficiency. The study also confirmed that the high cost of BIM implementation is not an important barrier to BIM adoption in Slovenia. By using the exploratory analysis, we uncovered that the two most important enablers of BIM adoption in Slovenia are the awareness that BIM increases efficiency and that this can be achieved by empowering people to work in a BIM environment. At the same time, we must overcome the biggest obstacle, which is the misunderstanding of the BIM concept.

Keywords: *building information modelling, critical success factors, BIM enablers, BIM barriers, BIM implementation*

1 INTRODUCTION

In the age of widespread digitization and the evolution of Industry 4.0, the integration of information modeling into the construction sector is becoming increasingly important. It is known under the acronym BIM (Building Information Modelling). BIM is not only information technology but also a work process that requires significant changes in the way of work (Abbasnejad et al., 2020). Despite the many advantages offered by BIM, its potential is still far from being exploited.

Construction is a strategically important area of the economy. The European construction sector represents 9% of GDP (gross social product) and employs more than 18 million people. 95% of these people are employed in small and medium-sized enterprises. Compared to other sectors, it is the least digitized.

Industry reports consistently highlight issues within the construction sector, including challenges in fostering collaboration and insufficient investments in technology, research, and development. The consequences are manifested in the inefficient use of public money and greater financial risks. A 10% improvement in productivity would generate 130 billion € in savings (EUBIM Taskgroup, 2016).

Governments and public sector organizations are taking proactive measures to achieve better re-

sults for all stakeholders (clients, contractors, users). Working groups are being created within countries as well as at the European Union (EU) level. They promote the use of BIM by preparing strategic documents, legislation, manuals, active programs, and recommendations. The key goal is to create a uniform framework for BIM adoption in the construction sector, fostering the use of technology to unlock benefits across the supply chain (EUBIM Taskgroup, 2016). Due to the different levels of BIM implementation, cross-border project cooperation between countries is difficult. Latecomers face greater challenges in implementing BIM and adhering to the same standards than early adopters (Bakogiannis et al., 2020; Charef et al., 2019).

According to the existing literature, it is not entirely clear what state the Slovenian construction industry is in regarding the introduction of BIM. In research conducted by Charef et al., Slovenia is classified in a group of very late adopters in the EU, with the conclusion that it does not even have a plan for the introduction of BIM at the national level, according to which the use of BIM would be mandatory (Charef et al., 2019). Meanwhile, another survey finds that the level of awareness of the importance of BIM in Slovenia is at a high level and compares it with the United Kingdom, which is a leader in the field of BIM implementation. Among the respondents, 75% were already BIM users, but they pointed out the need for a more active role of the government (Kiraly & Stare, 2019).

The present research aims to explore the status of BIM implementation in Slovenia with a focus on identifying the primary enablers and barriers encountered by organizations in the country. Professional and scientific literature extensively discusses the issue of BIM implementation and identifies some common factors and best practices. However, there are no uniform answers as to which factors have a decisive influence on the adoption of BIM in a specific country since there are differences in market size and maturity, regulations, technological development of the field, cultures, the number of construction companies, etc.

2 LITERATURE REVIEW

2.1 Building Information Modelling

Construction projects encompass a wide variety of contractors, professions, skills, and processes, which can result in substantial information fragmentation. Many of these challenges can be mitigated through effective digitization. In the construction sector, this kind of digital transformation can be achieved through BIM implementation, since information technology is one of the key building blocks of BIM. BIM connects several work areas and processes. It is used in the development, modeling, construction, maintenance, learning, and use of buildings. BIM can also be described as a process of creating and managing information about the object throughout its entire life cycle (Kiraly & Stare, 2019; Turk & Istenič Starčič, 2020; Wang et al., 2022). Consequently, it is a comprehensive database of the building (Hamil, 2022; Turk, 2016).

BIM became a major industry trend around 2007. It introduced new approaches to the design and construction process, thereby enabling the creation of higher added value than traditional Computer Aided Design (CAD) (Kiraly & Stare, 2019; Koutamanis, 2020; Zomer et al., 2020). BIM can be implemented in any construction company regardless of its size. Companies primarily adopt BIM to stay competitive in the face of rising building complexity, tighter construction schedules, and cost constraints. BIM also improves communication between project participants, which contributes to easier and higher quality decisions and fewer design errors. With an accurate model of the object, we can enable better process planning and reduce the causes of conflicts (Muñoz-La Rivera et al., 2019; Sacks et al., 2018).

2.2 Enablers and barriers of BIM implementation

The implementation of BIM represents a major challenge for the entire organization. Individual and team learning is required. It is necessary to change the way of work, which may face resistance from employees and can influence the cooperation with other stakeholders on projects (Hardin & McCool, 2015). This challenge is even greater if stakeholders use different tools and data formats (Ahmed, 2018;

Ariyachandra et al., 2022; Chan et al., 2018) or come from different professional fields (Oraee et al., 2019). Even clients are not always in favor of changes, which represents an additional obstacle in BIM implementation (Lindblad & Karrbom Gustavsson, 2021).

In projects conducted through partnership cooperation, legal concerns may arise regarding data ownership within the model, licensing rights to information, and the assignment of responsibility for errors throughout the project (Ghaffarianhoseini et al., 2017; Liao & Ai Lin Teo, 2018; Ma et al., 2018). Besides, due to the high level of technological uncertainty and demanding communication, the participating companies must adapt their approaches in a coordinated manner (Mirhosseini et al., 2020). Therefore, it is of utmost importance to select the companies that will be included in the BIM implementation project group (Mahamadu et al., 2020).

To summarize, the success of BIM implementation depends on numerous and various factors. They are categorized into enablers and barriers (Abbasnejad et al., 2020; Amuda-Yusuf, 2018; Macloughlin & Hayes, 2019). By studying these factors, we can anticipate and mitigate risks as well as identify opportunities arising from BIM implementation (Liao & Ai Lin Teo, 2018). The primary focus of our research is on factors that consistently appear in various research studies or are recognized as critical through multiple research methods. To date, the literature has described and studied over 40 such factors (Abbasnejad et al., 2020; Antwi-Afari et al., 2018; Ozorhon & Karahan, 2017; Sinoh et al., 2020; Ugwu & Kumaraswamy, 2007).

Based on a systematic review of scientific literature, Abbasnejad et al. created a framework to help determine the role and importance of positive key success factors in BIM implementation. It is a comprehensive overview of the key enablers, which are divided into seven groups: strategic initiatives, learning capacity, cultural readiness, knowledge sharing, mutual relations, change management, process, and performance management (Abbasnejad et al., 2020). A similar framework, which systematically shows the key barriers to BIM implementation, separates the following five categories of factors: process barriers, contextual barriers, actor obstacles, team barriers, and obstacles arising from tasks (Oraee et al., 2019).

2.3 Research questions

There are significant differences between countries that adopt BIM as well as different circumstances at the time of BIM adoption. Consequently, the importance of some factors can vary between countries (Hochscheid & Halin, 2019). Our goal is to study what the main influencing factors on BIM adoption in Slovenia are.

Slovenia is ranked among the late adopters of BIM, mainly because the use of BIM is not yet legally mandatory for public projects (Charef et al., 2019). Besides, in the survey by Kiraly et al., as many as 59% of respondents highlighted the lack of national guidelines in Slovenia (Kiraly & Stare, 2019). The question is therefore whether Slovenian legislation and guidelines provide adequate support for the introduction of BIM.

The adoption of BIM is associated with high costs (costs refer to both infrastructure and services), which are often cited as an important factor in the literature. We are interested in how big this influence is in the case of Slovenia. In Slovenia, there are mostly small and medium-sized construction companies (MGRT, 2019). Research shows that this factor is more important in smaller companies (Amuda-Yusuf, 2018). In our study, we will check if high costs are a barrier to BIM adoption in Slovenia.

Slovenia is indeed late with legislation regarding the mandatory usage of BIM. However, it encourages the use of BIM in other ways. In its guidelines and action plan for the introduction of BIM, it mainly highlights the increase in productivity and efficiency. The question is how this affects the adoption of BIM (MGRT, 2019).

Therefore, we set the following research questions:

RQ1: Does the lack of legislation in Slovenia represent the barrier for BIM adoption?

RQ2: Is the high cost of BIM implementation a barrier in Slovenia?

RQ3: Which are the most important factors for BIM adoption in Slovenia?

3 METHODS

In the first step of the study, we sought a relevant collection of studied enablers and barriers of BIM implementation and reviewed the findings from these studies. Subsequently, we made an online questionnaire, which was divided into two sections: a professional section and a general section. The professional segment of the questionnaire was built upon the framework of barriers mentioned earlier, which categorizes risk factors into five groups (Oraee et al., 2019). We incorporated three of these categories (procedural, contextual, and team barriers) into the questionnaire, focusing on the ones most frequently discussed in existing literature.

Following our research objectives, we supplemented the three described categories of BIM barriers with two extra sets of questions that addressed enablers of BIM implementation and legislation regarding BIM. We formulated the questions using the research articles, the action plan (MGRT, 2019), and the BIM implementation manual (EUBIM Taskgroup, 2016).

For professional questions, we used a five-point Likert scale to assess respondents' attitudes, with the following values: 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, and 5 - Strongly agree. If the factor is rated with a value greater than 3, it has an impact on BIM adoption. We also included a general section with socio-demographic questions to gain deeper insights. The data were collected from a sample of professionals in the architectural and engineering profession. To ensure a representative sample, we gathered data from publicly available sources, such as directories of architectural and engineering firms in Slovenia. Before launching the survey, we conducted a pilot study to improve question clarity. We also made some general questions multiple-choice.

Table 1 provides an overview of all the critical success factors for BIM implementation used in our survey, totaling 32 factors. They follow a naming pattern: *CSF-Pn*

The meaning of the pattern is as follows:

- CSF - abbreviation for critical success factor (CSF - critical success factor)
- Pn - sequential designation of the CSFs of the respective group – P: Process barriers, K: Contextual barriers, T: Team barriers, S: Enablers of BIM implementation, Z: Claims related to BIM-legislation.

A higher mean value of a factor means that this factor has a greater influence on the adoption of BIM. Besides, we defined the rule that the group of most important factors consists of factors that are rated with the value 3 or more by the majority of respondents. For a factor to be among the most important, its mean value minus standard deviation must be greater than 3.

To identify key groups of factors and relationships between the observed 32 variables, we also performed an exploratory factor analysis (Varimax rotation with Kaiser normalization, 7 factors, 50 iterations). With this analysis, we get additional insight into what the key factors influencing the introduction of BIM in Slovenia are.

We gathered data through the online survey tool 1KA and analyzed it using the Microsoft Excel spreadsheet program. We first performed some basic statistical calculations on the collected data (average, standard deviation). For later comparison with other studies, we also calculated the BIM comparative index and ranked these values from the largest to the smallest. According to the definition, the BIM Comparative Index BIM_{pi} is calculated using the equation (1) (Amuda-Yusuf, 2018):

$$BIM_{pi} = \frac{\sum W}{AN}, (0 < BIM_{pi} < 1) \quad (1)$$

In the equation (1):

W – represents the weight assigned to each variable by the individual respondent, with values ranging from 1 (Strongly disagree) to 5 (Strongly agree).

A – The highest possible score, which is 5 in our case.

N – Total number of respondents.

The internal consistency of the questionnaire was assessed using the Cronbach alpha coefficient, resulting in a value of 0.69. This value indicates the acceptable questionnaire reliability. The coefficient calculation covered all sets of questions evaluated on a five-point Likert scale, with only socio-demographic questions excluded.

Table 1: Overview of critical success factors analyzed in our study

Label	CSF-related statements from the questionnaire
CSF-P1	BIM tools do not work as advertised by manufacturers.
CSF-P2	There are too few guidelines and standards that explain the processes in BIM.
CSF-P3	Privacy and security concerns of BIM models shared in the cloud.
CSF-P4	There is not enough attention from management for BIM training of employees.
CSF-P5	Upon first employment, graduates are not sufficiently qualified to work on BIM projects.
CSF-P6	The cost of implementing BIM is very high and therefore only available to the largest organizations.
CSF-K1	The dynamics of BIM and the fragmentation of the construction industry hinder the cooperation of BIM teams.
CSF-K2	Members of BIM teams come from different organizations, with different organizational structures and hierarchies.
CSF-K3	The varying level of understanding of BIM within the team hinders collaboration.
CSF-K4	The different level of understanding of BIM between individual project teams hinders collaboration.
CSF-K5	If project team members are of different nationalities and cultures, this hinders cooperation.
CSF-K6	The dispersion of BIM team members across different offices and locations hinders collaboration.
CSF-K7	Individual team members in BIM projects do not share information.
CSF-K8	Communication still takes place outside the BIM environment (telephone conversations, e-mails...).
CSF-T1	The composition of BIM teams is mostly structured in unsuitable traditional form.
CSF-T2	Teams participating in BIM projects operate in a closed manner and only care about their interests.
CSF-T3	BIM project teams are reluctant to share their models with others due to restrictions related to intellectual property and ownership of the model.
CSF-T4	BIM designers are reluctant to share models in the early design phase or before the final approval of models.
CSF-T5	In many BIM projects, the entire BIM process is still managed by traditional project managers instead of dedicated managers/coordinators.
CSF-T6	Due to the nature of a BIM project, which relies heavily on software tools and equipment, there are conflicts between project managers, IT managers, and BIM managers.
CSF-S1	Requests for the introduction of BIM come from project clients.
CSF-S2	The use of BIM on public projects creates a greater demand for these services in the market and thus encourages the adoption of BIM.
CSF-S3	The implementation of BIM provides a competitive advantage and enables development.
CSF-S4	The implementation of BIM increases the cost efficiency of design and implementation.
CSF-S5	The implementation of BIM improves the coordination of project documentation and implementation.
CSF-S6	The implementation of BIM reduces project errors and construction costs.
CSF-S7	The implementation of BIM improves predictability and traceability in planning.
CSF-Z1	I know the BIM legislation in Slovenia well.
CSF-Z2	The action plan for the introduction of digitization in the field of the built environment in the Republic of Slovenia is coordinated and considers all the key objectives of BIM introduction.
CSF-Z3	The newly adopted BIM legislation is excessive and difficult to implement in practice.
CSF-Z4	BIM laws and guidelines are inadequate or not adopted.
CSF-Z5	Ownership of the BIM model and copyright are legally and materially properly regulated.

4 RESULTS

The results were obtained through voluntary participation in the survey, stating that the survey was anonymous and that the collected data would be treated confidentially and analyzed in general rather than the natural responses of the individual.

A total of 108 respondents completed the survey, with 82.4% being male and 17.6% female participants. The largest age group consisted of individuals aged 40 to 49 (42%), followed by the 30 to 39 age group at 24%. Other groups are smaller (Figure 1).

The majority (56%) of survey participants had a 2nd Bologna level or SOK8 education, followed by a 1st Bologna level (26%) or SOK7 education (Figure 2). Almost 70% of respondents had at least 2 years of experience with BIM (Figure 3). The most respondents (56%) came from design companies (Figure 4). Regarding their professions, 31% of respondents worked in the field of construction, while 22% were in electrical installations, 21% in architecture, 15% in mechanical installations, and 10% in other professions (Figure 5). Notably, none of the respondents indicated a profession related to geodesy.

Figure 1: The share of respondents by age group

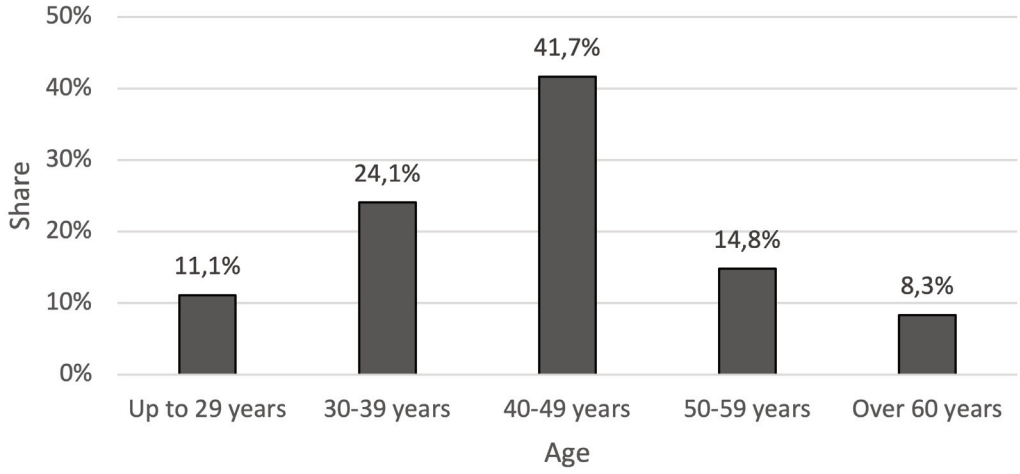


Figure 2: The share of respondents by level of education

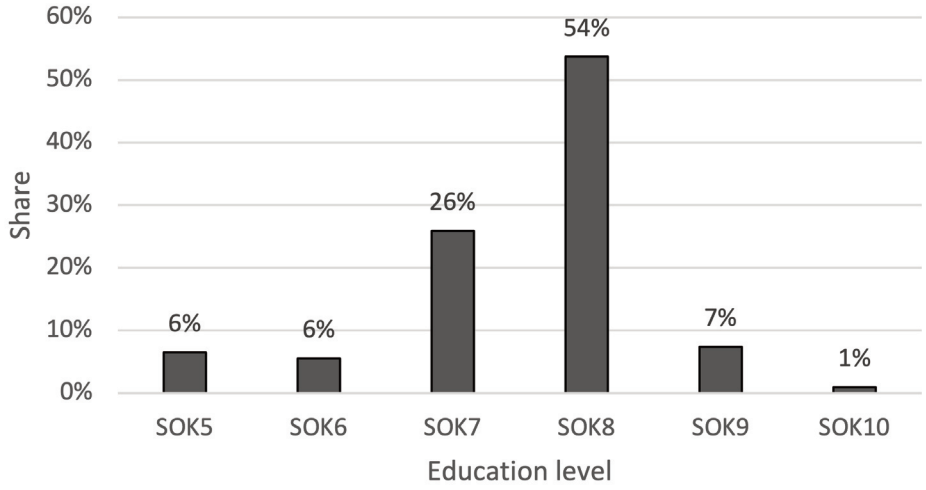


Figure 3: The share of respondents by duration of BIM usage

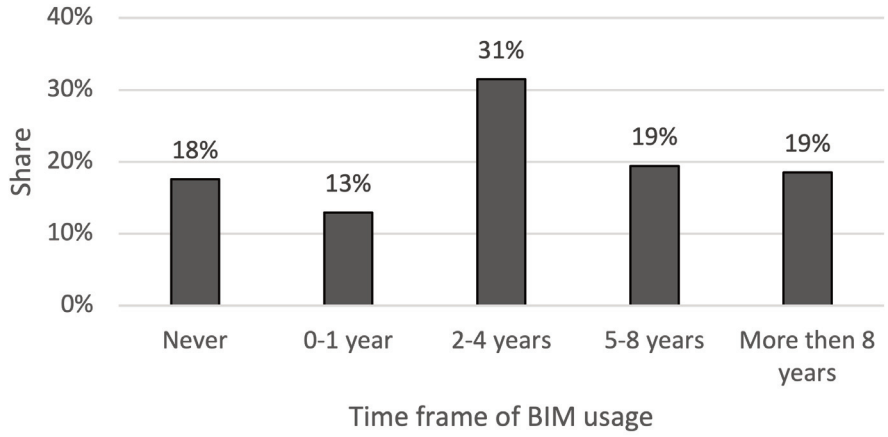


Figure 4: The share of respondents by type of company

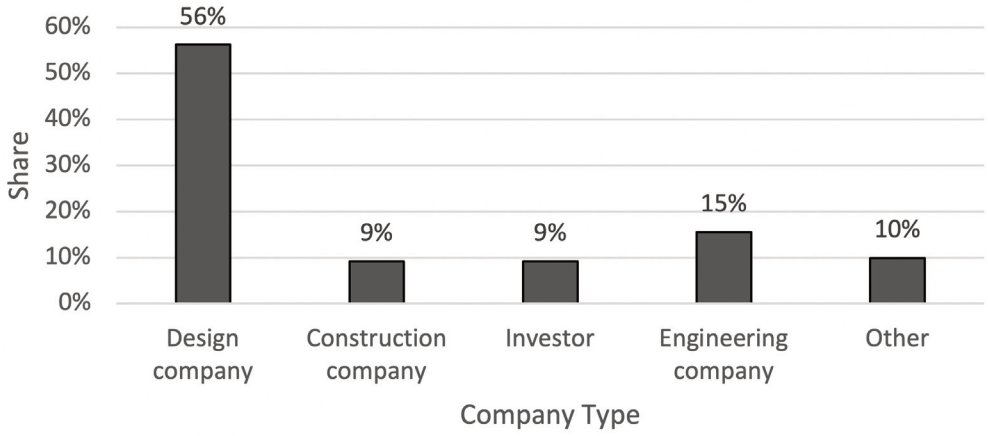


Figure 5: The share of respondents by profession

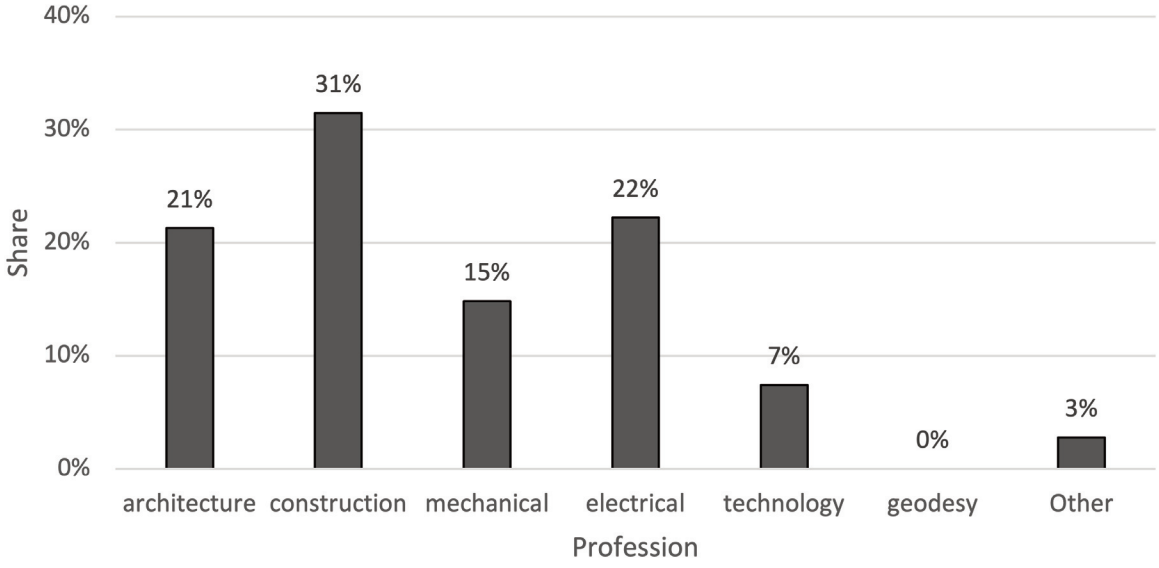


Table 2 presents the results of all 32 measured factors. In addition to the label and description of the factor, data on the average value, standard deviation, average value – standard deviation, BIM index, and rank of the factor are given. The latter is determined according to the BIM index. The results show that among the 32 measured factors, 7 factors are classified as important factors by our definition (ranks 1 to 7 where *Mean – StdDev > 3*). For easier comparison of results, in Figure 6, we depicted the measured BIM indexes of all factors.

Table 2: Results and basic statistics of all observed factors

ID	CSF Description	Mean	StdDev	Mean - StdDev	BIMpi	Rank
CSF-S5	The implementation of BIM improves the coordination of project documentation and implementation.	4.06	0.70	3.36	0.81	1
CSF-S7	The implementation of BIM improves predictability and traceability in planning.	4.02	0.67	3.35	0.80	2
CSF-S3	The implementation of BIM provides a competitive advantage and development.	3.94	0.82	3.12	0.79	3
CSF-S6	The implementation of BIM reduces project errors and construction costs.	3.94	0.88	3.06	0.79	3
CSF-K2	Members of BIM teams come from different organizations, with different organizational structures and hierarchies.	3.86	0.77	3.09	0.77	5
CSF-S2	The use of BIM on public projects creates a greater demand for these services in the market and thus encourages the adoption of BIM.	3.84	0.81	3.03	0.77	6
CSF-K8	Communication still takes place outside the BIM environment (telephone conversations, e-mails...).	3.82	0.76	3.06	0.76	7
CSF-P5	Upon first employment, graduates are not sufficiently qualified to work on BIM projects.	3.75	1.02	2.73	0.75	8
CSF-S4	The implementation of BIM increases the cost efficiency of design and implementation.	3.55	1.03	2.52	0.71	9
CSF-S1	Requests for the introduction of BIM come from project clients.	3.47	0.95	2.52	0.69	10
CSF-K4	The different level of understanding of BIM between individual project teams hinders collaboration.	3.46	0.93	2.53	0.69	11
CSF-P2	There are too few guidelines and standards that explain the processes in BIM.	3.45	0.94	2.51	0.69	12
CSF-Z4	BIM laws and guidelines are inadequate or not adopted.	3.44	0.70	2.74	0.69	13
CSF-K3	The varying level of understanding of BIM within the team hinders collaboration.	3.34	1.02	2.32	0.67	14
CSF-T4	BIM designers are reluctant to share models in the early design phase or before final approval of models.	3.31	1.01	2.30	0.66	15
CSF-T5	In many BIM projects, the entire BIM process is still managed by traditional project managers instead of dedicated managers/coordinators.	3.31	0.94	2.37	0.66	15
CSF-K1	The dynamics of BIM and the fragmentation of the construction industry hinder the cooperation of BIM teams.	3.22	0.98	2.24	0.64	17
CSF-P6	The cost of implementing BIM is very high and therefore only available to the largest organizations.	3.22	1.06	2.16	0.64	17
CSF-T3	BIM project teams are reluctant to share their models with others due to restrictions related to intellectual property and ownership of the model.	3.20	1.03	2.17	0.64	19
CSF-Z3	The newly adopted BIM legislation is excessive and difficult to implement in practice.	3.17	0.86	2.31	0.63	20
CSF-T1	The composition of BIM teams is mostly structured in unsuitable traditional form.	3.04	0.86	2.18	0.61	21
CSF-P1	BIM tools do not work as advertised by manufacturers.	2.94	0.97	1.97	0.59	22
CSF-T6	Due to the nature of a BIM project, which relies heavily on software tools and equipment, there are conflicts between project managers, IT managers and BIM managers.	2.94	0.93	2.01	0.59	22
CSF-Z1	I know the BIM legislation in Slovenia well.	2.94	0.95	1.99	0.59	24
CSF-P3	Privacy and security concerns of BIM models shared in the cloud.	2.84	1.02	1.82	0.57	25
CSF-P4	There is not enough attention from management for BIM training of employees.	2.81	1.19	1.62	0.56	26
CSF-K7	Individual team members in BIM projects do not share information.	2.80	0.90	1.90	0.56	27

CSF-Z2	The action plan for the introduction of digitization in the field of the built environment in the Republic of Slovenia is coordinated and takes into account all the key objectives of the introduction of BIM.	2.80	0.67	2.13	0.56	27
CSF-Z5	Ownership of the BIM model and copyright are legally and materially properly regulated.	2.74	0.69	2.05	0.55	29
CSF-T2	Teams participating in BIM projects operate in a closed manner and only care about their own interests.	2.71	0.88	1.83	0.54	30
CSF-K6	The dispersion of BIM team members across different offices and locations hinders collaboration.	2.19	0.92	1.27	0.44	31
CSF-K5	If project team members are of different nationalities and cultures, this hinders cooperation.	2.16	0.94	1.22	0.43	32

Figure 6: Results of all critical success factors (BIM index)

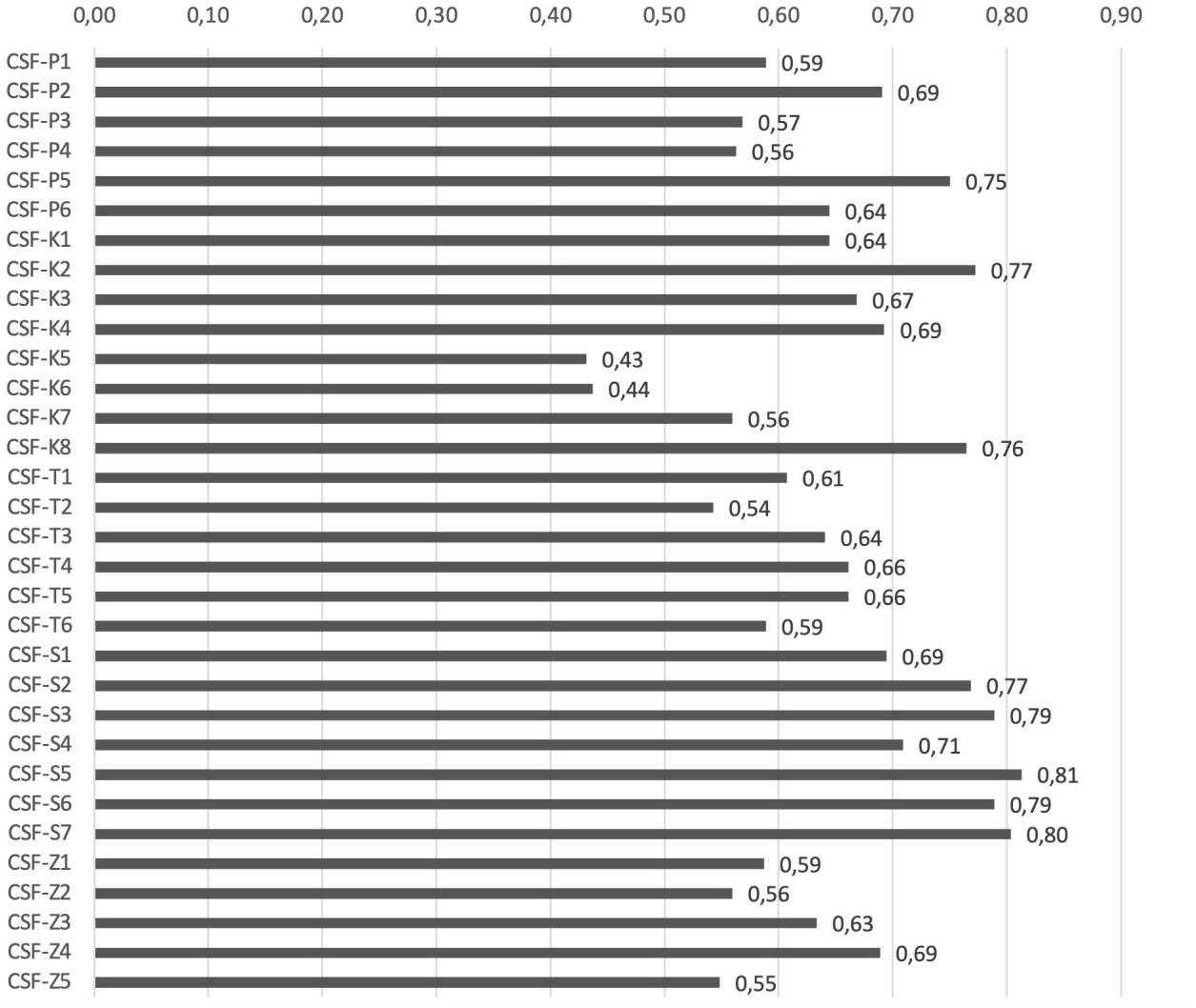


Table 3 shows the results of the exploratory factor analysis. Seven groups of factors were identified. The names of the groups were determined according to the content of the factors connected to the groups. They are ordered from the most to the least important.

Table 3: Results of an exploratory factor analysis

ID	D1	MISUNDERSTANDING THE BIM CONCEPT
CSF-K3	0.79	The varying level of understanding of BIM within the team hinders collaboration.
CSF-K4	0.67	The different level of understanding of BIM between individual project teams hinders collaboration.
CSF-T1	0.58	The composition of BIM teams is mostly structured in unsuitable traditional form.
CSF-T5	0.51	In many BIM projects, the entire BIM process is still managed by traditional project managers instead of dedicated managers/coordinators.
CSF-T6	0.51	Due to the nature of a BIM project, which relies heavily on software tools and equipment, there are conflicts between project managers, IT managers and BIM managers.
CSF-P6	0.50	The cost of implementing BIM is very high and therefore only available to the largest organizations.
CSF-K1	0.45	The dynamics of BIM and the fragmentation of the construction industry hinder the cooperation of BIM teams.
CSF-K8	0.44	Communication still takes place outside the BIM environment (telephone conversations, e-mails...).
CSF-Z3	0.39	The newly adopted BIM legislation is excessive and difficult to implement in practice.
ID	D2	EFFICIENCY
CSF-S6	0.78	The implementation of BIM reduces project errors and construction costs.
CSF-S5	0.76	The implementation of BIM improves the coordination of project documentation and implementation.
CSF-S7	0.73	The implementation of BIM improves predictability and traceability in planning.
CSF-S3	0.66	The implementation of BIM provides a competitive advantage and development.
CSF-S4	0.56	The implementation of BIM increases the cost efficiency of design and implementation.
CSF-K6	-0.46	The dispersion of BIM team members across different offices and locations hinders collaboration.
ID	D3	TRUST
CSF-Z1	0.68	I know the BIM legislation in Slovenia well.
CSF-K5	-0.34	If project team members are of different nationalities and cultures, this hinders cooperation.
CSF-Z5	-0.68	Ownership of the BIM model and copyright are legally and materially properly regulated.
ID	D4	EMPOWERMENT
CSF-T3	0.82	BIM project teams are reluctant to share their models with others due to restrictions related to intellectual property and ownership of the model.
CSF-T4	0.66	BIM designers are reluctant to share models in the early design phase or before final approval of models.
CSF-T2	0.45	Teams participating in BIM projects operate in a closed manner and only care about their own interests.
CSF-P4	0.34	There is not enough attention from management for BIM training of employees.
CSF-K2	-0.33	Members of BIM teams come from different organizations, with different organizational structures and hierarchies.
CSF-Z2	-0.39	The action plan for the introduction of digitization in the field of the built environment in the Republic of Slovenia is coordinated and takes into account all the key objectives of the introduction of BIM.
ID	D5	DEMAND
CSF-S2	0.71	The use of BIM on public projects creates a greater demand for these services in the market and thus encourages the adoption of BIM.
CSF-S1	0.49	Requests for the introduction of BIM come from project clients.
ID	D6	QUALIFICATION
CSF-K7	0.79	Individual team members in BIM projects do not share information.
CSF-P5	-0.44	Upon first employment, graduates are not sufficiently qualified to work on BIM projects.
ID	D7	TECHNOLOGY and STANDARDS
CSF-P2	0.39	There are too few guidelines and standards that explain the processes in BIM.
CSF-P1	0.31	BIM tools do not work as advertised by manufacturers.
CSF-P3	-0.50	Privacy and security concerns of BIM models shared in the cloud.

5 DISCUSSION

Our first research question was whether the lack of legislation in Slovenia represents the barrier for BIM adoption or not. The question was based on the findings of research conducted by Charef et al., where Slovenia was recognized as a late BIM adopter, and the survey of Kiraly et al., which claims that 59% of users feel the lack of national guidelines in Slovenia (Charef et al., 2019; Kiraly & Stare, 2019). In our research, two factors are directly related to this question. The first one is "The newly adopted BIM legislation is excessive and difficult to implement in practice." (CSF-Z3) is ranked 20th (BIM_{pi} = 0.63) and the second one, "BIM laws and guidelines are inadequate or not adopted.", is ranked 13th (CSF-Z4, BIM_{pi} = 0.69). None of these factors meet the criteria to be classified as important factors. Therefore, we conclude that the lack of legislation in Slovenia does not represent the barrier for BIM adoption.

In Slovenia, the use of BIM will become mandatory from 2024. In the United Kingdom, which is an early BIM adopter, it became mandatory in 2016. However, back in 2012, more than 70% of respondents believed that BIM would become mandatory and over 50% already used it in the UK. In 2018 in Slovenia, there were 45% of such respondents and more than 70% of BIM users (Kiraly & Stare, 2019). We cannot claim that the awareness of future mandatory usage of BIM will accelerate its adoption, but this is very likely the case. If the use of BIM is not yet mandatory, it does not mean that the country is a late adopter of BIM. In addition, users apparently do not perceive the lack of legislation as a key barrier, as many have successfully implemented BIM without the legislation making it mandatory. Similarly, some studies conducted in developing countries prove that legislation and government schemes are among the less important factors for BIM adoption. In Nigeria, a similar factor was ranked 16th among 28 factors with a slightly higher index (BIM_{pi} = 0.82) (Darwish et al., 2020; Ozorhon & Karahan, 2017).

The second research question is about the costs of BIM implementation. According to the conclusions of other research, this can be a barrier for small and middle-sized companies (Amuda-Yusuf, 2018). The fact is that in Slovenia there are mainly smaller companies. The assertion in our questionnaire that measures the impact of high costs on BIM implementation in Slovenia is CSF-P6: "The cost of implementing BIM is very high and therefore only available to the largest organizations.". It is ranked 17th with the BIM_{pi} value 0.64. According to our criteria, it is also not classified among important factors. We conclude that the high cost of BIM implementation is not an important factor (barrier) for BIM adoption in Slovenia. In a similar study in Nigeria, the factor with the same meaning was ranked 2nd with the BIM_{pi} value 0.91. One of the reasons for the big difference may be that Slovenia belongs to more developed countries and has greater purchasing power than Nigeria.

With the third research question, we want to check which are the most important factors for BIM adoption in Slovenia. In its key documents, Slovenia highlights the advantages of the implementation, namely efficiency and productivity (MGRT, 2019). In the survey questionnaire, we had several items with which we checked factors related to productivity and efficiency (CSF-S3, CSF-S4, CSF-S5, CSF-S6, and CSF-S7). From the results in Table 2, we can conclude that as many as four out of five factors are at the top of the list, with ranks from 1 to 4. Only one is ranked lower, namely in 9th place. Factors with ranks from 1 to 4 meet the importance criterion and belong to the group of important factors. We conclude that the most important enablers for BIM adoption in Slovenia are those that address the improvement of productivity and efficiency. In its guidelines and action plan, Slovenia highlights the right things and thus influences the adoption of BIM in the right way. However, the situation would be better if Slovenia had been faster in adopting legislation and would not be exposed in the EU as a late adopter of BIM.

According to the respondents, the most important enabler for BIM adoption in Slovenia (rank 1) is the fact that the implementation of BIM improves the coordination of project documentation and implementation (BIM_{pi} = 0.81). In a 2018 survey in Slovenia, a significant 91% of respondents agreed with the statement that BIM enhances the coordination of project documentation (Kiraly & Stare, 2019). A bit different, in Nigeria, the most important factor was obtaining a standard platform for inte-

gration and communication (BIM_{pi} = 0.92). However, a similar factor, which addresses the coordination of project documentation and implementation, is also ranked as high as 4th (BIM_{pi} = 0.88).

Let's take a look at the remaining 3 factors from the group of important factors. "The use of BIM on public projects encourages the adoption of BIM" is ranked 6th. This is additional evidence that faster adoption of legislation would be beneficial for Slovenia. The other two factors are barriers to BIM adoption. The assertion "members of BIM teams come from different organizations, with different organizational structures and hierarchies" is ranked 5th, and "communication still takes place outside the BIM environment (telephone conversations, e-mail ...)" is ranked 7th.

It is also important to know the factors that do not have a particular impact on the adoption of BIM. In the case of Slovenia, it does not represent a barrier to BIM adoption if team members are of different nationalities or cultures or if the team is dispersed across different offices and locations.

With the help of exploratory factor analysis, we also checked the connections or correlations between the factors. Table 3 lists seven groups of factors ordered from more to less important. In the first group are all factors with a negative impact on BIM adoption (barriers). Based on the meaning and content of these factors, we named the group "Misunderstanding of the BIM concept". The large differences in the perception of the BIM concept have already been confirmed by research (Kiraly & Stare, 2019). Many people think that the essence of BIM is the software. In the second group are mainly positive factors (enablers). According to their meaning, we named this factor group "Efficiency". The analysis of individual factors has already shown how important efficiency is as a factor. The next group is named "Trust" and consists of just a few factors connected to legislation and cultural differences. The last big factor group is named "Empowerment". It combines factors related to cooperation, management, knowledge, and communication. The defined factors encompass all those concepts that are necessary for the BIM process to be properly established. The remaining less important factor groups that influence BIM adoption in Slovenia are "Demand", "Qualifications", and "Technology and Standards".

A frequency analysis of critical success factors in the literature spanning from 2005 to 2015 highlights the absence of a consistent set of critical success factors that could serve as a comprehensive guide for scholars and professionals in BIM implementation (Antwi-Afari et al., 2018). In previous studies, the most frequently recognized critical success factor for BIM adoption was the active involvement of stakeholders in design, construction, engineering, and facility management. This was followed by "Early and precise 3D planning visualization". The third most common factor was "Improved information sharing and knowledge management". Other most frequently exposed factors talk about the coordination between all project participants, the training and development of staff, and the level of awareness of BIM importance (Darwish et al., 2020; Ozorhon & Karahan, 2017; Sinoh et al., 2020). These factors relate to our "Empowerment" factor group, which means that Slovenia is not different in this regard. Based on this analysis, we conclude that the two most important enablers of BIM adoption in Slovenia are the awareness that BIM increases efficiency and that this can be achieved by empowering people to work in a BIM environment. At the same time, we must overcome the biggest obstacle, which is the misunderstanding of the BIM concept. Earlier adoption of relevant legislation would be helpful but is not essential for BIM adoption.

6 CONCLUSION

Slovenia is considered a late adopter in the implementation of BIM because BIM is still not mandatory for public projects. In any case, Slovenia carries out many activities that accelerate BIM adoption. Past research also confirms that BIM is already being introduced in Slovenia. In the study, we asked ourselves what the current situation is in this area and what the key success factors for BIM adoption are.

We conclude that legislative support for BIM adoption in Slovenia is not crucial. If the use of BIM is not yet mandatory, it does not mean that the country is a late adopter of BIM. Earlier adoption of relevant legislation would be helpful but is not essential for BIM adoption.

The most important factors for BIM adoption in Slovenia are those that address the improvement of productivity and efficiency. Therefore, we can argue that Slovenia highlights the right things in its guidelines and action plan, and thus influences the adoption of BIM in the right way. The single most important factor for BIM adoption in Slovenia is the fact that the implementation of BIM improves the coordination of project documentation and implementation.

The study also confirmed that the high cost of BIM implementation is not an important barrier to BIM adoption in Slovenia. By using the exploratory factor analysis, we uncovered that the two most important enablers of BIM adoption in Slovenia are the awareness that BIM increases efficiency and that this can be achieved by empowering people to work in a BIM environment. At the same time, we must overcome the biggest obstacle, which is the misunderstanding of the BIM concept.

EXTENDED SUMMARY/IZVLEČEK

Namen te raziskave je identificirati glavne spodbujevalce in ovire za informacijsko modeliranje objektov (Building information modeling; BIM) v Sloveniji. Študija je vključevala kvantitativno anketo s spletnim vprašalnikom, ki je zajemala širok vzorec slovenskih gradbenih podjetij. Raziskava je razkrila, da je najpomembnejši spodbujevalec implementacije BIM v Sloveniji zavedanje, da BIM izboljšuje koordinacijo projektne dokumentacije in gradbene procese. Ugotovljeno je bilo tudi, da zakonodajna podpora za sprejetje BIM v Sloveniji ni ključna. Zgodnje sprejetje ustrezne zakonodaje bi bilo koristno, vendar ni nujno za sprejetje BIM. Najpomembnejši dejavniki za sprejetje BIM v Sloveniji so tisti, ki naslavljajo izboljšanje produktivnosti in učinkovitosti. Študija je potrdila tudi, da visoki stroški implementacije BIM niso pomembna ovira za sprejetje BIM v Sloveniji. Z uporabo eksploratorne analize smo odkrili, da sta dva najpomembnejša spodbujevalca za sprejetje BIM v Sloveniji zavedanje, da BIM povečuje učinkovitost, in to, da se to lahko doseže z opolnomočenjem ljudi za delo v okolju BIM. Hkrati moramo premagati največjo oviro, ki je nerazumevanje koncepta BIM.

REFERENCES:

Abbasnejad, B., Nepal, M. P., Ahankoob, A., Nasirian, A., & Drogemuller, R. (2020). Building Information Modelling (BIM) adoption and implementation enablers in AEC firms: a systematic literature review. *Architectural Engineering and Design Management*, 1–23.

Ahmed, A. (2018). *Evaluating learning management mechanisms and requirements for achieving BIM competencies: an in-depth study of ACE practitioners*. https://www.researchgate.net/publication/324705747

Amuda-Yusuf, G. (2018). Critical Success Factors for Building Information Modelling Implementation. *Construction Economics and Building*, *18*(3), 55–73.

Antwi-Afari, M. F., Li, H., Pärn, E. A., & Edwards, D. J. (2018). Critical success factors for implementing building information modeling (BIM): A longitudinal review. *Automation in Construction*, *91*, 100–110.

Ariyachandra, M. R. M. F., Jayasena, H. S., & Perera, B. A. K. S. (2022). Competencies Expected from an Information Manager Working in BIM Based Projects. *International Journal of Construction Education and Research*, *18*(1), 49–66.

Bakogiannis, E., Papadaki, K., Kyriakidis, C., & Potsiou, C. (2020). How to adopt BIM in the building construction sector across greece? *Applied Sciences (Switzerland)*, *10*(4).

Chan, A. P. C., Ma, X., Yi, W., Zhou, X., & Xiong, F. (2018). Critical review of studies on building information modeling (BIM) in project management. *Frontiers of Engineering Management*, *5*(3), 394–406.

Charef, R., Emmitt, S., Alaka, H., & Fouchal, F. (2019). Building Information Modelling adoption in the European Union: An overview. *Journal of Building Engineering*, *25*.

Darwish, A. M., Tantawy, M. M., & Elbeltagi, E. (2020). Critical Success Factors for BIM Implementation in Construction Projects. *Saudi Journal of Civil Engineering*, *4*(9), 180–191.

EUBIM Taskgroup. (2016). *Priročnik za uvedbo informacijskega modeliranja gradenj v evropskem javnem sektorju, Strateški ukrepi za učinkovitost gradbenega sektorja: spodbujanje vrednosti, inovacij in rasti*. http://www.eubim.eu/wp-content/uploads/-2018/07/GROW-2017-01356-00-00-SL-TRA-00.pdf

Ghaffarianhoseini, A., Tookey, J., Ghaffarianhoseini, A., Naismith, N., Azhar, S., Efimova, O., & Raahemifar, K. (2017). Building Information Modelling (BIM) uptake: Clear benefits, understanding its implementation, risks and challenges. *Renewable and Sustainable Energy Reviews*, *75*, 1046–1053.

Hamil, S. (2022, October 25). *BIM dimensions – 3D, 4D, 5D, 6D BIM explained*. https://www.thenbs.com/knowledge/bim-dimensions-3d-4d-5d-6d-bim-explained

Hardin, B., & McCool, D. (2015). *BIM and Construction Management: Proven Tools, Methods, and Workflows, 2nd Edition*.

Hochscheid, E., & Halin, G. (2019). *Micro BIM Adoption in Design Firms: Guidelines for Doing a BIM Implementation Plan*. 864–871. https://doi.org/10.3311/ccc2019-119

Kiraly, S., & Stare, A. (2019). Analysis of Application of Building Information Modeling (BIM) in Slovenia. *Projektna Mreža Slovenije*, *V*(1).

Koutamanis, A. (2020). Dimensionality in BIM: Why BIM cannot have more than four dimensions? *Automation in Construction*, *114*.

Liao, L., & Ai Lin Teo, E. (2018). Organizational Change Perspective on People Management in BIM Implementation in Building Projects. *Journal of Management in Engineering*, *34*(3).

Lindblad, H., & Karrbom Gustavsson, T. (2021). Public clients ability to drive industry change: the case of implementing BIM. *Construction Management and Economics*, *39*(1), 21–35.

Ma, X., Xiong, F., Olawumi, T. O., Dong, N., & Chan, A. P. C. (2018). Conceptual Framework and Roadmap Approach for Integrating BIM into Lifecycle Project Management. *Journal of Management in Engineering*, *34*(6).

Macloughlin, S., & Hayes, E. (2019). *Overcoming Resistance To BIM: Aligning A Change Management Method with A BIM Implementation Strategy Method with A BIM Implementation Strategy*. https://arrow.tudublin.ie/schmuldistcap/4

Mahamadu, A. M., Manu, P., Mahdjoubi, L., Booth, C., Aigbavboa, C., & Abanda, F. H. (2020). The importance of BIM capability assessment: An evaluation of post-selection performance of organisations on construction projects. *Engineering, Construction and Architectural Management*, *27*(1), 24–48.

MGRT. (2019). *Akcijski načrt uvedbe digitalizacije na področju grajenega okolja v Republiki Sloveniji, REPUBLIKA SLOVENIJA MINISTRSTVO ZA GOSPODARSKI RAZVOJ IN TEHNOLOGIJO*. http://arhiv.izs.si/fileadmin/dokumenti/aktualno/aktualno-leto-2019/Akcijski_nacrt-MGRT-digitalizacija-22-11-19.pdf

Mirhosseini, S. A., Mavi, R. K., Mavi, N. K., Abbasnejad, B., & Rayani, F. (2020). Interrelations among leadership competencies of BIM leaders: A fuzzy DEMATEL-ANP approach. *Sustainability (Switzerland)*, *12*(18), 1–30.

Muñoz-La Rivera, F., Vielma, J. C., Herrera, R. F., & Carvallo, J. (2019). Methodology for Building Information Modeling (BIM) Implementation in Structural Engineering Companies (SECs). *Advances in Civil Engineering*, *2019*, 1–15.

Oraee, M., Hosseini, M. R., Edwards, D. J., Li, H., Papadonikolaki, E., & Cao, D. (2019). Collaboration barriers in BIM-based construction networks: A conceptual model. *International Journal of Project Management*, *37*(6), 839–854.

Ozorhon, B., & Karahan, U. (2017). Critical Success Factors of Building Information Modeling Implementation. *Journal of Management in Engineering*, *33*(3).

Sacks, R., Eastman, C., Lee, G., & Teicholz, P. (2018). *BIM Handbook*. Wiley.

Sinoh, S. S., Othman, F., & Ibrahim, Z. (2020). Critical success factors for BIM implementation: a Malaysian case study. *Engineering, Construction and Architectural Management*, *27*(9), 2737–2765.

Turk, Ž. (2016). Ten questions concerning building information modelling. *Building and Environment*, *107*, 274–284.

Turk, Ž., & Istenič Starčič, A. (2020). Toward deep impacts of BIM on education. *Frontiers of Engineering Management*, *7*(1), 81–88.

Ugwu, O., & Kumaraswamy, M. M. (2007). Critical success factors for construction ICT projects - Some empirical evidence and lessons for emerging economies. *Journal of Information Technology in Construction*, *12*, 231–249.

Wang, Y., Zhu, J., & Wei, B. (2022). Domestic and International Mainstream BIM Software Application and Comparison Study. *Journal of Physics: Conference Series*, *2185*(1), 1–8.

Zomer, T., Neely, A., Sacks, R., & Parlikad, A. (2020). Exploring the influence of socio-historical constructs on BIM implementation: an activity theory perspective. *Construction Management and Economics*, 1–20.

Vol. 12, No. 2, 19-35
doi:10.17708/DRMJ.2023.v12n02a02

Dynamic Relationships Management Journal

IMPACT OF SUBORDINATE ATTACHMENT STYLE ON LEADER–MEMBER EXCHANGE: THE MEDIATING EFFECT OF EMOTIONAL EXPRESSIVITY

Rotumba Arachchige Ishanka Chathurani Karunarathne
Department of Human Resource Management, Faculty of Commerce and Management Studies, University of Kelaniya, Dalugama, 16000, Sri Lanka
ishankac@kln.ac.lk

S.S.Weligamage
Department of Finance, Faculty of Commerce and Management Studies, University of Kelaniya, Delugama, 11600, Sri Lanka
susima@kln.ac.lk

Abstract

Although individuals possess different behaviors, they have coherent and stable patterns of emotion and behavior in close relationships, which can significantly impact their relationships. We extend the theoretical understanding of leader–member exchange (LMX) relationships by offering new insights into why leaders develop different types of relationships with their subordinates. Specifically, we propose how subordinates' attachment styles influence LMX relationships through emotional expressivity. This study is based upon positivism research philosophy, and we followed the deductive research approach. Moreover, we used the survey method as the research strategy. Results from surveying 258 employees revealed that secure and preoccupied attachments are positively related and dismissive attachments are negatively related to emotional expressivity. Furthermore, the results of our study indicate a strong positive association between emotional expressivity and the LMX relationship. In addition, except for the fearful attachment, the mediation analysis results showed that emotional expressivity mediates the association between attachment style and LMX. Furthermore, our results show that individuals with secure and preoccupation attachment styles develop strong positive LMX relationships (in-group relationships), and dismissive individuals are poor in relationship building. Contributions to the literature on LMX and attachment theory are discussed.

Keywords: *Dismissive, Emotional expressivity, Fearful, Leader–member exchange, Preoccupation, Secure*

1 INTRODUCTION

Dyadic relationships between leaders and subordinates have been described as the foundation of individual, group, and organizational success (Bauer & Green, 1996; Gerstner & Day, 1997; Graen & Uhl-Bien, 1995; Liden et al., 1997; Tremblay et al., 2022; Richards, & Schat, 2011; Yukl et al., 2009). Research on the leader–member exchange (LMX) relationship has burgeoned since the inception of the LMX theory by Graen and Cashman (1975). Given the importance of LMX for organizational success, research has focused primarily on identifying the consequences of LMX; Martin et al. (2016) provided a review). For example, the extant research has showed that high-quality leader–member exchange relationships are significantly related to job satisfaction (e.g., Epitropaki & Martin, 2005; Graen et al., 1982; Major et al., 1995; Volmer et al., 2011; Zhang et al., 2012), productivity (e.g., Gerstner & Day, 1997; Graen et al., 1982), satisfaction with supervisors (e.g., Duchon et al., 1986), organizational commit-

ment and organizational citizenship behavior (e.g., Brown et al., 2019; Richards, & Schat, 2011; Tremblay et al., 2022; Zhang et al., 2012), and employee turnover (e.g., Graen et al., 1982; Vecchio, 1985).

LMX theory explains that leaders treat their subordinates differently (Buengeler et al., 2021; Graen & Uhl-Bien, 1995), and different patterns of relationships develop between leaders and their subordinates (Liden et al., 1997; Hinojosa et al.,2014; Černe et al., 2018). Moreover, the theory explains that the quality of relationships is different from one subordinate to another (Dienesch & Liden, 1986; Yukl et al., 2009). Leaders develop high-quality (close) exchange relationships with some subordinates, but develop lower-quality (distant) exchange relationships with other subordinates (Graen & Cashman, 1975; Liden & Maslyn, 1998), and these relationships are characterized by factors such as trust, loyalty, liking, and respect (Buengeler et al., 2021). Moreover, Liden and Graen (1980) showed that leaders form the same type of relationships with their subordinates only about 1-% of the time, and 90% of LMX relationships are different. Although the theory suggests that both leader and subordinate characteristics are intimately linked to interpersonal and group behavior (Graen & Uhl-Bien, 1995; Truckenbrodt, 2000), most prior research (e.g., Bauer & Green, 1996; Dienesch & Leden, 1986; Tran et al., 2020; Wijaya, 2019; Zhang et al., 2012) widely examined the effect of leader's characteristics, such as leadership style, gender, and personality on interpersonal relationships, and significantly ignored the subordinate's perspective in the process (Černe et al., 2018).

In contrast, there is much evidence that attachment style is one of the dispositional features of relational orientation and interpersonal behavior (Kirrane et al., 2019). Attachment styles refer to "relative coherent and stable patterns of emotion and behavior that are exhibited in close relationships" (Shaver et al., 1996, p. 25). Attachment styles are relationship-based attributes that influence an individual's willingness to build emotional bonds and disposition toward others (Richards & Hackett, 2012; Kirrane et al., 2019). Scholars (e.g., Ainsworth et al., 1978; Bowlby, 1982) have illustrated that attachment styles range from secure to insecure; thus, individuals are different in coping with stress, developing interpersonal relationships, and prosocial values (Shaver et at.,2008). For example, individuals with a secure attachment style are more likely to believe in positive intentions of close others, whereas individuals with insecure attachment styles generally have a negative view of others (Russell et al., 2013). Thus, leaders may develop different types of LMX due to the different forms of attachment styles of their subordinates.

Family researchers (e.g., Guerrero et al., 2009; Karney & Bradbury, 1995) have emphasized that people with different attachment styles should vary in expressing emotions and building relationships. Defined as "the extent to which a person outwardly displays emotions regardless of valence or channel" (Burgin et al., 2012, p. 1), emotional expressivity has been identified as an integral part of human relationships (Dobbs et al., 2007). Prior research also has shown that securely attached individuals are more expressive than insecurely attached people (e.g., Feeney, 1995; Guerrero et al., 2009). However, it is not clear how personal disposition influences interpersonal interaction; most extant research is leader-centric (Černe et al., 2018); thus, there is unsolved ambiguity about how subordinate attachment styles influence the quality of LMX relationships. Moreover, in the literature, less attention has been given to the role of emotional expressivity in the relationship between attachment style and LMX. This led us to examine the effect of subordinate attachment style on LMX through emotional expressivity.

This study contributes to the literature in three ways. First, we contribute to attachment theory by examining the effect of subordinate attachment style on the LMX relationship. Attachment theory has been shown to be highly relevant in explaining parent–child attachment. Although prior research has shown the analogy between leaders, in particular, transactional leadership and parents (Popper & Mayseless, 2003), leader–subordinate attachment might vary from parent–child attachment in many ways, such as proximity and the relationship development process. Hence, the study shifts the predominant perspective of attachment theory, i.e., parent–child relationships, to leader–subordinate relationships to navigate how do subordinate attachment style influences the quality of LMX.

Furthermore, most extant research is based on two attachment styles; however, in this study we used a four-dimensional approach to better capture the subordinate attachment style [four-attachment-style model developed by Bartholomew (1990), mainly developed to explain adults' attachment]. Thus, based on attachment theory, this study will help understand why leaders develop different types of relationships with their subordinates.

Second, we contribute to attachment and LMX theories by explaining the role of emotional expressivity in building quality LMX relationships. Prior researchers (e.g., Burgin et al., 2012; Guerrero et al., 2009) proposed that individuals are different in expressing their emotions, and the level of social connectedness depends on the individual's level of emotional expressivity. Given that emotional expressivity as a key feature of a satisfying relationship (Gaelick et al., 1985), we argue that emotional expressivity will mediate the relationship between attachment style and the LMX relationship.

Finally, this study makes a novel contribution to the literature by integrating two different but related theories, i.e., attachment theory and LMX theory, to explain the leader–subordinate relationships. Thus, focusing on subordinate attachment style, this study examines the individual differences in emotional expressivity and LMX relationships.

2 LITERATURE REVIEW

2.1 Attachment Theory

Attachment theory (Ainsworth et al., 1978; Bowlby, 1969, 1973, 1982) initially was developed to explain the patterns of interpersonal relationships, particularly mother–child attachment (Ravitz et al., 2010). However, a large body of subsequent research has generated and provided a framework to understand adults' attachment. The experience with the attachment figure (e.g., parents, caregivers, and partners) shapes interpersonal relationships and their working models (Oldmeadow et al., 2013). The theory explains different attachment styles (sometimes called attachment orientation), which help to understand one's relational expectations, and how an individual's experience responds to and regulates negative affect (Fraley & Shaver, 2000; Guerrero et al., 2009). Initially, scholars proposed that attachment styles can be measured through two orthogonal dimensions, i.e., attachment-related anxiety, and avoidance (Ainsworth et al., 1978). However, Bartholomew (1990) developed a four-category model of attachment styles to explain adults' attachment in particular. This new operationalization of attachment styles has broadened the previous classification of an individual's attachment; in particular, it dichotomized an individual's abstracted image of the self and others as positive and negative (Bartholomew & Horowitz, 1991). This categorization helps to better understand the individual differences in emotion regulation because it combines the positive vs. negative image of self and others. Moreover, this model was validated across different samples, and the results were comparable with the original understanding (e.g., Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994).

The four attachment styles are secure, preoccupied, dismissive, and fearful. Individuals with a secure (worthiness or lovability) attachment style are comfortable with self and intimacy. Preoccupied (unlovability or unworthiness) individuals have a negative sense of self and a positive sense of others. Dismissive people have a positive sense of self but a negative sense of others. Thus, these individuals are highly independent and less likely to believe and trust others. Finally, fearful individuals have a negative sense of self as well as others. These individuals avoid close relationships because of fear of rejection (Bartholomew & Horowitz, 1991).

2.2 Leader–Member Exchange Theory

Although there is some criticism of the conceptualization and measurement of the construct of LMX (Gottfredson et al., 2020), LMX theory helps to explain the dyadic interplay between the leader and the subordinate, which addresses the main limitations of other leadership theories, i.e., most other leadership theories focus only on the leader characteristics (Graen & Uhl-Bien, 1995). LMX theory is rooted in social exchange theory (Blau, 1964), which is guided by the norm of reciprocity. The theory mainly has emphasized the importance of focusing on the leader and subordinate characteristics in relationship building (Cogliser et al., 2009; Graen &

Uhl-Bien, 1995). As the theory states, the leader's relationship with the individual subordinate is different (Yukl et al., 2009).

The theory discusses two types of relationships, in-group relationships, and out-group relationships. In-group relationships are high-quality relationships in which a high level of mutual trust, loyalty, respect, and link are essential characteristics of LMX relationships (Buengeler et al., 2021; Cogliser et al., 2009). In contrast, out-group relationships are low-quality relationships in which the leader and followers of these relationships are shown low trust, respect, and loyalty (Cogliser et al., 2009). Thus, understanding the leader's subordinate characteristics is essential in developing leader–member relationships. Drawing from attachment and LMX theories, we developed a conceptual model. We propose that the subordinate attachment style influences LMX relationships through emotional expressivity. The proposed model is depicted in Figure 1.

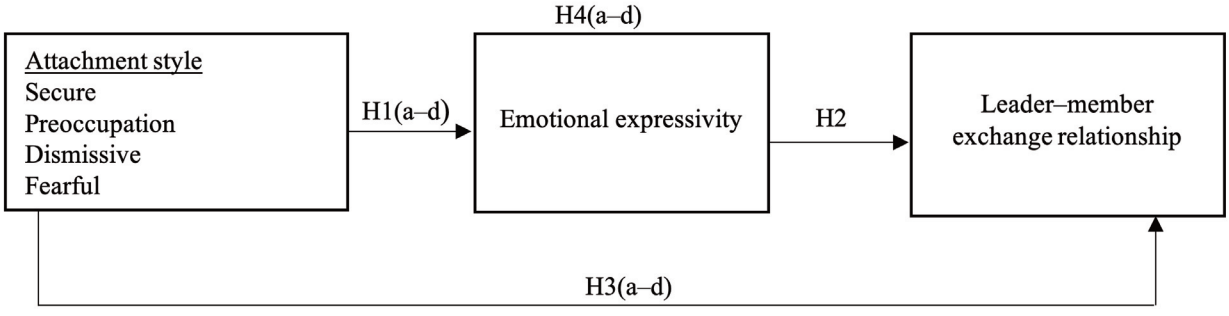
2.3 Attachment Style and Emotional Expressivity

Based upon attachment theory, we propose that subordinate attachment style significantly influences emotional expressivity. The theory explains that individuals differ in expressing emotions and in their level of dependency on others (Guerrero et al., 2009). Attachment theory describes four main attachment styles (Bartholomew & Horowitz, 1991) which help to understand how people express their emotions.

Secure individuals have self-confidence, trust others, and are better able to regulate negative affect (Hazan & Shaver, 1987). Moreover, securely attached individuals prefer to engage in constructive responses (Guerrero et al., 2009, p. 490). When secure individuals have distress or an issue, they feel comfortable communicating and seeking support from others in a close relationship. Individuals share their feelings or concerns only with the people they believe in and trust. Accordingly, when subordinates feel they can trust a leader, they share their feelings without reservation. Furthermore, research has shown that secure individuals generally are more expressive than individuals with other attachment styles, such as dismissive (e.g., Guerrero, 1996; Guerrero et al., 2009). They are more likely to disclose personal information to others because they believe that self-disclosure encourages emotional closeness.

Attachment theory explains that preoccupied individuals have a positive evaluation of others and a negative image of self; thus, they overly rely on others (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Korver-Nieberg et al., 2015). These individuals are more likely to trust others, and the individual's self-worth depends on the extent to which others accept them (Bartholomew & Horowitz, 1991). However, these individuals have a fear of losing the relationship. Thus, constant caregiving is required to keep the relationship secure (Bartholomew & Horowitz, 1991). Because preoccupied attachment relationships highly value the company of others, they are more socially and emotionally expressive than other attachment styles, i.e., dismissive and fearful (Guerrero et al., 2009). Thus, subordinates with preoccupied attachment styles are more likely to express their emotions with their leaders.

Figure 1: Conceptual framework



Dismissive individuals have a favorable view of self and a negative view of others; thus, they rarely trust and get closer to others (Bartholomew & Horowitz, 1991). These individuals perceive their partners (or close others in a relationship) to be unavailable and untrustworthy; hence, they do not seek emotional or physical support from others (Bartholomew & Horowitz, 1991). Individuals with a dismissive attachment style value physical and emotional freedom. To avoid rejection, these individuals avoid close involvement with others (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2012). Thus, these individuals are hesitant to disclose personal information as they believe self-disclosure can harm their privacy (Mikulincer & Shaver, 2012). Accordingly, we believe that dismissive individuals are less emotionally expressive than those with other attachment styles. Subordinates with a dismissive leadership style may have limited self-disclosure with their leaders.

Fearful individuals have a negative view of self and a lack of trust in others (Bartholomew & Horowitz, 1991). Thus, they do not keep close relationships because they have a fear of rejection. These individuals avoid discussing issues and expressing their feelings with close others (Guerrero et al., 2009). Moreover, fearful individuals are less expressive and are uncomfortable with closeness (Bartholomew & Horowitz, 1991). Thus, we assume that subordinates with fearful attachment styles do not express their emotions to their leaders. Given the differences in attachment styles in emotional expressivity, we postulate that

H1: Attachment style has a significant impact on emotional expressivity, such that (a) secure and (b) preoccupied attachments have a significant positive impact whereas (c) dismissive and (d) fearful attachments have a significant negative impact on emotional expressivity.

2.3.1 Emotional Expressivity and LMX Relationship

Emotional expressivity is a primary function of social relationships (Burgin et al., 2012). Family researchers have shown that emotional expressivity help partners to remain close (e.g., Burgin et al., 2012; Guerrero et al., 2009). Individuals with high emotional expressivity are better able to develop social interactions (Kring et al., 1994). Moreover, prior research on LMX found that communication between subordinates and a leader has a beneficial effect on building high-quality LMX and aggravates the negative effect of low-quality LMX (Antonakis & Atwater, 2002; Gajendran & Joshi, 2012). Thus, we believe that when subordinates express their emotions, they are more likely to maintain a satisfying relationship with their leaders. This leads to the following hypothesis:

H2: Emotional expressivity is significantly related to the LMX relationship.

2.3.2 Attachment Style and the LMX Relationship

Attachment theory demonstrates that individuals develop internal working models of self and others based on their interaction with the members of a close relationship (Bowlby, 1982). As the theory explains, the attachment system functions when the attachment figure is available, supportive, and responsive (Bowlby, 1973). One of the main characteristics of secure attachment is maintaining a close emotional connectedness. Secure individuals trust others and expect emotional support from their partners or close others. As a result, they have the capacity to maintain close relationships (Bartholomew & Horowitz, 1991). Thus, they are more likely to have a happy and satisfying relationship.

Similarly, preoccupied individuals tend to be self-disclosed, to exhibit affiliative behaviors (Bartholomew & Horowitz, 1991; Mikulincer & Nachshon, 1991), and to be highly engaged in close relationships. Researchers (e. g., Kohn et al., 2012; Guerrero et al., 2009) found that securely attached individuals experienced higher satisfaction with their intimates. Thus, we believe that subordinates with secure and preoccupied attachment styles are better able to develop strong positive relationships with their leaders (in-group LMX relationships).

In contrast, individuals with dismissive and fearful attachment styles are more likely to maintain emotional distance and keep interactions minimal with members in a close relationship. These individuals have negative expectations of others

(Bartholomew, 1993; Guerrero et al., 2009) and tend to avoid affection in order to minimize rejection. In particular, dismissive individuals underplay the importance of close relationships because they do not trust others. Thus, they are more independent (Bartholomew, 1993). Furthermore, fearful individuals avoid close relationships because they have a fear of rejection and have personal insecurity (Bartholomew & Horowitz, 1991). Hence, they are reluctant to disclose their personal information and to get closer to others (Mikulincer & Shaver, 2012). Kohn et al. (2012) provided evidence that highly anxious individuals have lower satisfaction when they feel that their partner is less supportive.

Moreover, prior research on LMX and attachment (e.g., Richards & Hackett, 2012; Maslyn et al., 2017) has shown that relationship quality, in particular that of the LMX relationship, depends on the individual's attachment style. For example, Kirrane et al. (2019) found that anxiety and avoidance attachment styles are negatively related to LMX. Hence, we believe that subordinates who possess dismissive and fearful attachments tend to develop a negative relationship with their leaders, which thus can be characterized as out-group LMX relationships. Therefore, it is hypothesized that

H3: Subordinate attachment style has a significant impact on the LMX relationship, such that (a) secure and (b) preoccupation styles are positively related to LMX (in-group relationship), whereas (c) dismissive and (d) fearful styles are negatively related to LMX (out-group relationship).

2.3.3 Emotional Expressivity as a Mediator

Based upon attachment and LMX theories, we argue that emotional expressivity mediates the relationship between attachment and LMX relationship. As attachment theory explains, attachment style determines the extent to which people like to express their emotions (Mikulincer & Shaver, 2012). For example, securely attached individuals carefully encode and decode their messages, which helps them to build harmony and cooperation in their relationships. As the theory explains, secure individuals are highly emotionally expressive; thus, they can easily build good relationships. Moreover, secure individuals can control their negative emotions and express them constructively, promoting relationship satisfaction and harmony (Guerrero et al., 2009).

Furthermore, preoccupied individuals are uncertain about their self-view but overly trust others. Thus, they are more expressive and are highly dependent on close others. In contrast, dismissive and fearful individuals tend to focus on their emotions, and are less likely to trust other people in a relationship. Thus, they find it challenging to maintain mutual satisfaction and happiness in the relationship (Mikulincer & Shaver, 2012). As another example, Freeny et al. (1994) found that female partners are satisfied with their relationship when the male partner has a secure attachment style.

In contrast, fearful individuals are less expressive, and thus find it difficult to build happy relationships. Based on these theoretical insights, we argue that emotional expressivity is essential for building high-quality relationships. Specifically, leaders would be able to develop a high-quality relationship with their subordinates only if subordinates possess secure and preoccupied attachment styles, because they are more likely to express their emotions and tend to have strong personal interactions.

In support of this view, prior research has reported the mediation effect of communication between attachment and relationship satisfaction. For example, scholars (e. g., Guerrero et al., 2009; Freeny et al., 1994) reported a mediation effect of communication between attachment style and relational satisfaction. Given this theoretical logics and empirical evidence, we believe that emotional expressivity is an important variable that links attachment and the quality of relationships. Thus, we propose

H4(a–d): Emotional expressivity mediates the association between attachment styles—(a) secure, (b) preoccupation, (c) dismissive, and (d) fearful—and the LMX relationship.

3 METHODOLOGY

In this study, we followed the positivist research philosophy, and the research approach was deductive. We used a quantitative research model. Moreover, we followed the survey method as our research strategy.

To test the hypotheses, we collected data using an online survey. The survey participants of the study were found through the database of a part-time (weekend) Master of Business Administration program at a state university in Sri Lanka (students who registered for the program during 2016–2020). Along with the survey, we sent out a cover letter to explain the study's purpose. Participation in the survey was entirely voluntary, and respondents were guaranteed confidentiality of data and information. To ensure their active employment (whether they currently were employed) and that all the survey participants were working under a leader, we included two screening questions at the beginning of the survey:

(1) Are you currently employed? (Answer options were yes and no.)

(2) Are you working under a leader? (Answer options were yes and no).

Thus, this survey was continued only if respondents met both requirements. Initially, we sent out 613 survey invitations. However, 14 emails were returned, and we checked for updated emails. We were able to find only six successful updated emails through alumni. We sent a reminder email 1 week after the first invitation. Three days after the first reminder, we sent another reminder. We received 264 surveys back. However, we rejected six due to incompleteness. Thus, the final sample size was 258, which equates to a response rate of 42.1%.

In terms of demography, the sample was composed of 53.5% females. Sample members had at least a bachelor's degree or higher qualifications. The average age in years was 33.54 [standard deviation (SD) = 7.00 years]. The average length of stay with the current supervisor was 2.69, and on average, participants had 20.03 hours of direct contact with the immediate supervisor per week. Of the total survey participants, 59.7% worked in private-sector organizations.

3.1 Measures

Attachment Style: We measured attachment style using the scale developed by Feeney et al. (1994). Instead of using two attachment styles, i.e., avoidance and anxiety, in line with Guerrero et al. (2009), we used four attachment styles to assess the subordinate attachment style. In addition, we assessed subordinate attachment style in general without considering the context.

Secure: Secure was measured using five items. Example items are "I sometimes worry that I do not really fit in with other people," and "I am confident that others will accept me." For each item, participants responded on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha for the scale was 0.92.

Preoccupation: Preoccupation was measured using six items (ranging from 1 = strongly disagree to 7 = strongly agree) to understand how people depend on and worry about their relationships. Example items are "Intimate relationships are the most central part of my life" and "I feel a very strong need to have close relationships." Cronbach's alpha for the scale was 0.91.

Fearful: Fearful was measured using five items (ranging from 1 = strongly disagree to 7 = strongly agree), and example items include "I would like to trust others, but I have a hard time doing so" and "I worry about getting hurt if I allow myself to get too close to others." The scale's Cronbach's alpha was 0.97.

Dismissiveness: Dismissive was measured using five items. Example items are "Achieving personal goals is more important to me than building relationships" and "If something needs to be done, I prefer to rely on myself rather than others." The scale's Cronbach's alpha was 0.96.

Leader–member exchange: The dependent variable, leader–member exchange, was measured using the seven-item scale developed by Scandura and Graen (1984). However, following a similar method as Bauer and Green (1996), we slightly revised the items. We split one item (do you usually feel that you know where you stand … do you usually know how satisfied your immediate supervisor is with what you do?) into two separate items, i.e., "I usually know where I stand with my manager" and "I usually know how satisfied my manager is with me" to increase the participants' understanding. We tested the validity of this modification through confirmatory factor analysis (CFA), and the factor loadings were 0.83 and 0.76, respectively,

which are well above the common threshold (≥0.40) of Brown and Moore (2012). The participants rated their responses on a scale of strongly disagree (1) to agree (7) strongly. Example items are "My immediate supervisor understands my problems and needs" and "My immediate supervisor recognizes my potential." Cronbach's alpha for the scale was 0.96.

Emotional expressivity: Emotional expressivity was measured using the social skills inventory (SSI) Riggio, 1986, used only the emotional expressivity out of three dimensions of the social skill inventory. Considering the original scale's length, we used a short scale from Oldmeadow et al. (2013). Accordingly, we measured emotional expressivity using the four items to capture respondents' ability to communicate (verbally and non-verbally). The participants' responses rated from strongly disagree (1) to strongly agree (7). Example items are "I usually feel uncomfortable touching other people" and "sometimes I have trouble making my friends and family realize how angry or upset I am with them." Cronbach's alpha for the scale was 0.95.

Control variables: In line with prior research, we controlled for several variables that have been shown to influence the quality of leader–member exchange. In addition, we controlled for some demographic variables of the participants that can influence the quality of leader–member exchange (Liden et al., 1993; Turban & Jones, 1988). Accordingly, we controlled for participant's gender (coded 0 = male, 1 = female), the number of years with the current supervisor (measured in years), and dyadic contact hours (how many direct contact hours with the immediate supervisor per week) (e.g., Bauer & Green, 1996; Judge & Ferris, 1993). However, we did not control for the participant's age and education, because all the participants were students of an MBA program (they all had similar education qualifications and mostly were of similar ages).

3.2 Data Analysis

3.2.1 Preliminary Analysis

Before testing the hypotheses, we conducted confirmatory factor analysis to test the scales' validity. All the variables were reflective and were conceptualized as first-order structures. Due to high content overlap, we had to add one error-term correlation in secure, preoccupation, dismissive, and emotional expressivity. All items loaded on their respective factor significantly, with loadings higher than 0.40. According to the common threshold proposed by Brown and Moore (2012), Finney and DiStefano (2013), and Hu and Bentler (1999), a model has a reasonably good fit if (1) RMSEA values are ≤0.06 and (2) CFI and TLI values are ≥0.95, and SRMR values are ≤0.08. The results from CFA (six-factor model) indicated that the measurement model fit the data well (χ^2 = 909.81; DF = 54; p < 0.001; CMIN/DF = 1.68; CFI = 0.96; TLI = 0.96; RMSEA = 0.05; SRMR = 0.05). Furthermore, the average variance extracted (AVE) by each factor was greater than 0.5 for all constructs, which suggests discriminant validity (Fornell & Larcker, 1981). We performed Harman's single-factor test to examine if common method variance (CMV) was distorting our data (Podsakoff et al., 2003). The results indicated that the first factor accounted only for 28.49% of the variance, which is well below the threshold of 50%. Furthermore, we standardized all predicting variables before analyses to lessen the risk of multicollinearity. Mean, standard deviation, and inter-item correlations are presented in Table 1.

3.2.2 Hypotheses Testing

We analyzed hypotheses using hierarchical linear regression and used Hayes' PROCESS (V.3.5.3) with a 5,000-sample, bias-corrected bootstrap procedure (Hayes, 2018). We ran four separate models: Model 1 had the secure attachment style, Model 2 had the preoccupation attachment style, Model 3 had the dismissive attachment style, and Model 4 had the fearful attachment style. H1 hypothesizes that attachment style significantly impacts emotional expressivity. The results of H1a showed that there was a significant positive effect of the secure attachment style on emotional expressivity (β = 0.30, p < 0.01, 95% CI [0.13, 0.46]). Thus, H1a is supported. H1b is accepted (β = 0.37, p < 0.01, 95% CI [0.15, 0.59]) by showing the positive association between preoccupation and emotional expressivity. The results of H1c showed that there was a significant negative effect of dismissive on emotional ex-

Table 1: Mean, standard deviation, and inter-item correlation (n = 258)

	Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1	Gender	1.50	0.50									
2	Length of stay with supervisor	2.79	2.64	−0.17**								
3	Direct supervisor contact hours	20.03	19.11	−0.02	−0.12							
4	Secure	4.56	0.97	−0.09	−0.08	0.20**						
5	Preoccupation	4.55	0.71	−0.08	0.02	0.05	0.14*					
6	Dismissive	3.94	0.97	−0.06	0.11	0.01	−0.07	0.01				
7	Fearful avoidance	4.27	1.21	−0.15*	0.13*	−0.04	−0.27**	0.35**	−0.02			
8	Emotional expressivity	4.68	1.29	−0.10	−0.01	0.13*	0.25**	0.22**	−0.17**	−0.04		
9	Leader–member exchange	5.05	1.10	−0.06	0.02	0.26**	0.27**	0.23**	−0.13*	0.03	0.21**	0.60**
	**. Correlation is significant at the 0.01 level (two-tailed).											
	*. Correlation is significant at the 0.05 level (two-tailed).											

pressivity (β = −0.24, p < 0.01, 95% CI [−0.40, −0.08]). Thus, H1c is accepted. However, the results showed that there is a negative impact of fearful on emotional expressivity (β = −0.05, p = 0.40, 95% CI [−.19, 0.08]), but it is not significant. Thus, H1d is rejected. The results are reported in Table 2.

H2 hypothesizes that emotional expressivity positively influences LMX. We tested these hypotheses with all four models, and the results were comparable. This hypothesis was supported for Model 1 (secure) (β = 0.11, SE = 0.05, p = 0.03, 95% CI [0.01, 0.21]), Model 2 (preoccupation) (β = 0.11, SE = 0.05, p = 0.02, 95% CI [0.01, 0.21]), Model 3 (dismissive) (β = 0.13, SE = 0.05, p = 0.01, 95% CI [0.03, 0.23]), and Model 4 (fearful) (β = 0.15, SE = 0.05, p < 0.01, 95% CI [0.05, 0.25]). We hypothesized H3 to understand the direct effect of attachment style on LMX. Accordingly, the results show that secure (β = 0.26, SE = 0.07, p < .01, 95% CI [0.12, 0.39]) and preoccupation (β = 0.33, SE = 0.09, p < .01, 95% CI [0.15, 0.51]) have significant a positive effect on LMX. Thus, H3a and H3b are supported. Moreover, results showed a signif-

Table 2: Results of regression analysis (Hypotheses 1a–1d)

Variables	Emotional expressivity							
	Model 1		Model 2		Model 3		Model 4	
	Coefficient	p	Coefficient	p	Coefficient	p	Coefficient	p
1. Gender	−0.21(0.16)	0.18	−0.22(0.16)	0.16	−0.29(0.16)	0.07	−0.28(0.16)	0.08
2. Time with supervisor	0.01 (0.01)	0.15	0.01(0.00)	0.05	0.01(0.00)	0.03	−0.01(0.00)	0.04
3. Direct contact hours	0.01(0.03)	0.88	0.01(0.03)	0.87	−0.01(0.03)	0.85	−0.00(0.00)	0.98
4. Secure	0.30 (0.08)	0.00						
5. Preoccupation			0.37 (0.11)	0.00				
6. Dismissive					−0.24(0.08)	0.00		
7. Fearful							0.05(0.07)	0.40
R^2	7.53%		6.97%		5.98%		3.10%	
Notes: n = 258. Standard error values are reported in parentheses.								

icant negative effect between dismissive attachment style and LMX (β = −0.16, SE = 0.07, p = 0.02, 95% CI [−0.29, −0.02]). Thus H3c is supported. However, H3d is rejected (β = 0.03, SE = 0.06, p = 0.63, 95% CI [−0.08, 0.14]). The results are reported in Table 3.

Finally, we examined H4a–H4d), which hypothesize that emotional expressivity functions as a mediator in the relationship between attachment style and LMX. The results of our analysis support H4a [secure (β = 0.03, SE = 0.02, 95% CI [0.01, 0.08])], H4b [preoccupation (β = 0.04, SE = 0.03, 95% CI [0.01, 0.11]), and H4c dismissive (β = −0.03, SE = 0.02, 95% CI [−0.08, −0.01]). However, H4d is rejected (β = −0.01, SE = 0.01, 95% CI [−0.03, 0.01]); thus, there was no mediation effect of emotional expressivity in the relationship between fearful and LMX. The results are presented in Table 4.

4 DISCUSSION AND RECOMMENDATIONS

The primary objective of this study was to extend the previous understanding of individual attachment and relationship satisfaction (non-work) into the work domain, i.e., subordinate–leader dyadic relationships. Based on attachment theory (Bowlby, 1969; Shaver & Mikulincer, 2002; Shaver et al., 2000), LMX theory (Graen & Cashman, 1975) and prior research on adults' attachment (e.g., Guerrero et al., 2009; Russell et al., 2013), we explored the effect of subordinate attachment style on LMX through emotional expressivity.

Table 3: Results of regression analysis (leader–member exchange, Hypotheses 2 and 3a–3d)

Variables	Leader–member exchange							
	Model 1		Model 2		Model 3		Model 4	
	Coefficient	*p*	Coefficient	*p*	Coefficient	*p*	Coefficient	*p*
1. Gender	-0.03(0.13)	0.83	−0.04(0.13)	0.79	−0.07(0.13)	0.57	−0.04(0.13)	0.73
2. Time with supervisor	0.01 (0.00)	0.00	0.01(0.00)	0.00	0.01 (0.00)	0.00	0.01(0.00)	0.00
3. Direct contact hours	0.02(0.02)	0.34	0.02(0.02)	0.51	0.02(0.03)	0.38	0.02(0.03)	0.53
4. Secure	0.26 (0.07)	0.00						
5. Preoccupation			0.33 (0.09)	0.00				
6. Dismissive					−0.16(0.07)	0.02		
7. Fearful							0.03(0.06)	0.63
8. Emotional expressivity	0.26(0.07)	0.00	0.33(0.09)	0.00	−0.16(0.07)	0.02	0.03(0.06)	0.63
R^2	13.78%		13.40%		11.37%		10.35%	
Notes: n = 258. Standard error values are reported in parentheses.								

Table 4: Results of regression analysis (indirect effect, Hypotheses 4a–4d)

Variables	Coefficient	SE	95% CI	
Secure -> emotional expressivity -> LMX	0.03	0.02	0.01	0.08
Preoccupation -> emotional expressivity -> LMX	0.04	0.03	0.01	0.11
Dismissive -> emotional expressivity -> LMX	−0.03	0.02	−0.08	−0.01
Fearful -> emotional expressivity -> LMX	−0.01	0.01	−0.03	0.01
Notes: n = 258. Standard error values are reported in parentheses.				

Our findings that subordinate attachment styles are associated with LMX through emotional expressivity (e.g., secure and preoccupation attachment styles are related positively and dismissive attachment style is related negatively) are in line with those of previous studies that found that secure attachment styles influence an individual's ability and willingness to build LMX relationships (e.g., Kirrane, et al., 2019; Maslyn et al., 2017; Richards & Hackett, 2012; Popper et al., 2000). Moreover, our empirical findings are consistent with attachment theory (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Bowlby, 1973) which emphasizes that individuals' abstracted images of self and others range from positive to negative (image of self: high self-worth vs. low self-worth; image of others: trustworthy and reliable vs. unreliable and rejecting). Specifically, individuals with secure and preoccupied attachment styles are trustworthy and reliable; thus, they can build healthy relationships with others. However, dismissive and fearful individuals are highly avoidant, thus manifesting discomfort in relationship building, because they have a negative disposition toward others (Bartholomew & Horowitz, 1991; Holmes & Johnson, 2009). However, our results do not support the hypothesis that a subordinate's fearful attachment is negatively associated with emotional expressivity and LMX relationship. A possible reason for this finding is that these subordinates have a negative view of themselves and a lack of trust in others. Thus, subordinates with fearful attachment styles are unwilling to build emotional connectedness with their leaders.

Additionally, our findings lend support to LMX theory, showing that subordinates' attachment styles and emotional expressivity are associated with the LMX relationship. These findings are consistent with those of prior research suggesting that emotional communication increased LMX (Antonakis & Atwater, 2002; Gajendran & Joshi, 2012) and that subordinate attachment style influences the quality of LMX relationships (Kirrane et al., 2019). Because LMX theory is rooted in social exchange theory, which emphasizes reciprocity as the foundation of interpersonal relationships (Graen & Scandura, 1987; Gouldner, 1960), the perceived quality of the LMX relationship depends on the transactional exchange between the subordinate and the leader (Estel et al., 2019; Kirrane et al., 2019; Richards & Hackett, 2012). Thus, subordinates' positive perceptions of leaders, high trust, open communication, respect, and loyalty may persuade leaders to decide that these subordinates belong in their in-group. In contrast, when leaders sense that their subordinates are uncommunicative and show less respect and trust, they decide that such subordinates do not belong in their group (out-group relationship) (Anand et al., 2016; Estel et al., 2019; Erdogan & Bauer, 2016). Thus, our results confirmed the previous understanding of attachment styles, emotional expressivity, and LMX relationships.

4.1 Theoretical Implications

This study has several theoretical implications. First, this study contributes to attachment theory by empirically examining the effect of adults' attachment styles on emotional expressivity and LMX. Most of the extant research on attachment theory focused on the family domain, and less attention was given to the work domain, which is the main limitation of research on adults' attachment. This study addressed this limitation by deviating from the family domain to the work domain to understand how subordinate attachment style influences LMX. In line with attachment theory, our study highlights the importance of understanding subordinate attachment styles to build successful leader–member relationships. Thus, our findings help enrich the conceptualization of adult attachment (Bartholomew, 1990; Hazan & Shaver, 1987), particularly in the work domain.

Second, our study examined four prototypes of attachment styles instead of two. Although Bartholomew & Horowitz (1991) conceptualized a four-category model, except for a few studies, most research has focused on two attachment styles, i.e., anxiety and avoidant. However, the two-attachment style model is much more appropriate for understanding child attachment, and captures only self-image (Bartholomew & Horowitz, 1991). The four-category model addressed this limitation by incorporating the self-image as well as the image of others. Thus, this study elucidates adult attachment in the work domain.

Third, this study contributes to attachment theory by examining the intervening role of emotional expressivity. Although scholars consistently have examined the direct effect of attachment style on social exchange relationships (Kirrane et al., 2019), the effect of attachment styles on LMX through emotional expressivity has yet to be fully understood. Hence, we postulated that attachment style influences LMX through emotional expressivity. Attachment theory discusses that individuals differ in expressing their emotions and feelings (Bartholomew & Horowitz, 1991; Guerrero, 2009). For example, a dismissive prototype is characterized by emotional restriction and a lack of credibility in discussing issues. Thus, individuals are different in expressing their emotions. Our findings indicate that emotional expressivity mediates the association between attachment style and LMX. Therefore, our findings complement attachment theory (Bartholomew & Horowitz, 1991).

Finally, we contribute to the existing literature by examining two different but related theories, i.e., attachment theory and LMX theory. Although this study was based mainly on attachment theory, we used LMX theory to conceptualize LMX. LMX theory highlighted the importance of leadership qualities and characteristics in building relationships. However, our study adds to the literature on the importance of subordinate characteristics, particularly subordinate attachment style, in building quality leader–member relationships. Although we did not examine the effect of leaders' attachment styles on LMX relationships, this study informs us that individual attachment styles play a significant role in relationship building.

4.2 Managerial Implications

This study provides important implications for managers. First, the results of this study emphasize the importance of understanding subordinate attachment styles in developing LMX relationships. Thus, we recommend that managers make a serious effort to understand their subordinates' attachment styles, i.e., relationship dynamics, and deal with their subordinates accordingly. Moreover, we recommend that managers assess the individual's attachment style when they hire people. An initial understanding of subordinate emotion regulation's complexity and dynamics will help managers minimize interpersonal conflicts and develop effective coping strategies (Kirrane et al., 2019). Thus, it also is necessary to develop leaders' capabilities, in particular, interpersonal skills, coaching, and emotional management skills, which help them understand subordinate attachment styles and cope with them effectively. To address this need, we recommend that organizations conduct workshops led by qualified professionals to make leaders aware of different attachment styles, which impact leader–member relationship success and dealing with them.

Second, our results show that individuals with dismissive and fearful attachment styles have poor emotional expressivity, eventually leading to poor LMX. Fearful prototypes are characterized as poor in relying on self and others. Thus, these individuals need support and guidance to develop their self-efficacy and build trust with others. Furthermore, dismissive individuals trust others less in a relationship. Thus, managers should provide coaching and counseling to improve their negative perceptions of others and to control their habitual reactions. These individuals then will be able to develop their attachment style from insecure to secure, which will help them develop in-group LMX relationships. We believe that this eventually will generate favorable outcomes, such as effective conflict management, reduced grievances, and improved employee satisfaction and overall performance.

4.3 Limitations and Avenues for Future Research

Although the study makes a significant contribution to attachment theory and LMX theory, the findings of the study need to be interpreted in light of its limitations. First, we collected data only from subordinates, which may do not reflect the leaders' perceptions. In particular, LMX is a self-reported measure, and we assessed this measure from subordinates only. To better capture the interpersonal nature of the LMX relationship, future research needs to collect dyadic data from both the subordinates and leaders. Moreover, we collected data at only one point in time, which does not help to explain the longitudinal effect. Thus, the findings of this study might be influenced by common method bias. Future studies are advised to collect data from multiple sources and at multiple time points to improve the study's design.

Second, this study focused only on the subordinates' attachment styles, and did not test the effect of a leader's attachment style on the LMX relationship. However, previous scholars (e.g., Wijaya, 2019; Zhang et al., 2012) have shown that leader characters also are significant predictors of the LMX relationship. Due to the dyadic nature of LMX relationships and attachment styles (Kirrane, et al., 2019), the relationship quality is influenced by both leader and subordinate characteristics (Dulebohn et al., 2012; Černe et al., 2018). Assessing the process from only the subordinates' perspective and excluding the leader's attachment styles does not reflect both leader and member involvements in the exchange relationship. Thus, examining both leader and subordinate attachment styles will help to better understand the LMX relationship. Accordingly, future researchers are encouraged to examine the (in)congruence between the leader and the subordinate attachment styles that may influence the LMX relationship. We recommend that future research collect data on both subordinate and leader attachment and test how the (in)congruence of leader–subordinate attachment influences the LMX relationship.

Third, although we controlled for the effect of subordinate gender, we did not integrate the leader's gender into the model. The findings may vary depending on leader–subordinate gender, i.e., same gender or opposite gender. Although there is no consistency in the literature about leader–member gender match and LMX relationship, prior research (Adebayo & Udegbe, 2004; Milner et al., 2007) evidenced that the LMX relationship is firm when both leader and subordinate belong to the same gender. Thus, we recommend that future researchers examine leader and subordinate gender as a moderator. Finally, we did not test the boundary conditions of the proposed relationship. The findings of this study may vary with situational factors such as stress. Thus, we recommend that future researchers test our research model with boundary conditions which will help to better understand the association between attachment and LMX.

5 CONCLUSION

By extending the understanding of LMX, our study adds to the antecedents of LMX. This study mainly contributes to attachment theory, in particular, adult attachment. We changed the previous focus of attachment theory from the family domain to the work domain to better capture adult attachment in a different context. The results demonstrate that a subordinate's attachment style significantly affects emotional expressivity and LMX relationships. Thus, the findings of this study primarily help to understand why leader–subordinate relationships are different across subordinates.

EXTENDED SUMMARY/IZVLEČEK

Čeprav se posamezniki v različnih situacijah različno vedejo, imajo koherentne in stabilne vzorce čustvovanja in vedenja v tesnih razmerjih, ki lahko pomembno vplivajo na njihove odnose. Razširili smo teoretično razumevanje izmenjave med vodjo in podrejenim z nudenjem novih vpogledov v razloge, zakaj vodje razvijajo različne tipe odnosov s svojimi podrejenimi. Posebej predlagamo, kako stil navezanosti podrejenih vpliva na razvoj izmenjave med vodjo in podrejenim preko čustvene izraznosti. Ta študija temelji na pozitivistični filozofiji raziskovanja, pri čemer smo sledili deduktivnemu pristopu raziskovanju. Kot strategijo raziskovanja smo uporabili metodo ankete. Rezultati ankete med 258 zaposlenimi so razkrili, da so varni in preobremenjeni stili navezanosti pozitivno povezani, medtem ko so zavračajoči stili navezanosti negativno povezani s čustveno izraznostjo. Poleg tega rezultati naše študije kažejo močno pozitivno povezavo med čustveno izraznostjo in izmenjavo vodja-sledilec. Dodatno, razen za prestrašen stil navezanosti, rezultati analize mediacije kažejo, da čustvena izraznost mediira povezavo med stilom navezanosti in izmenjavo vodja-sledilec. Poleg tega naši rezultati kažejo, da posamezniki z varnimi in preobremenjenimi stili navezanosti razvijajo močne pozitivne odnose izmenjave (odnosi znotraj skupine), medtem ko so posamezniki, ki so zavračajoči, slabi v gradnji odnosov. Podani so prispevki k literaturi o izmenjavi med vodji in sledilci in teoriji navezanosti.

REFERENCES

Adebayo, D.O., & Udegbe, I.B. (2004). Gender in the boss-subordinate relationship: A Nigerian study. *Journal of Organizational behavior*, *25*(4), 515-525. https://doi.org/10.1002/job.255

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). Patterns of attachment: Assessed in the strange situation and at home. Hillsdale, NJ: Erlbaum.

Anand, S., Vidyarthi, P. R., & Park, H. S. (2016). *LMX differentiation: Understanding relational leadership at individual and group levels.* In T. N. Bauer & B. Erdogan (Eds.), The Oxford handbook of leader-member exchange (pp. 263–291). Oxford University Press

Antonakis, J., & Atwater, L. (2002). Leader distance: A review and a proposed theory. *Leadership Quarterly, 13,* 673–704. https://doi:10.1016/ S1048-9843(02)00155-8.

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7*(2), 147–178. https://doi.org/10.1177/0265407590072001

Bartholomew, K. (1993). From childhood to adult relationships: Attachment theory and research. In S. Duck (Ed.), *Learning about relationships* (pp. 30–62). Sage Publications, Inc.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*(2), 226–244. https://doi.org/10.1037/0022-3514.61.2.226

Bauer, T. N., & Green, S. G. (1996). Development of leader–member exchange: A longitudinal test. *Academy of Management Journal, 39*(6), 1538-1567. https://doi.org/10.2307/257068

Blau, P. M. (1964). *Exchange and Power in Social Life*. John Wiley & Sons. https://doi.org/10.1111/j.1475-682X.1964.tb00583.x

Bowlby, J. (1969). *Attachment and loss. Vol.1. Attachment.* Basic Book. https://mindsplain.com/wpcontent/uploads/2020/08/ATTACHMENT_AND_LOSS_VOLUME_I_ATTACHMENT.

Bowlby, J. (1973). *Attachment and loss. Vol.2. Separation: Anxiety and anger.* Basic Book. https://abebe.zohosites.com/files/John-Bowlby-Separation-Anxiety-And-Anger-Attachment-and-Loss-Vol-2-1976.pdf

Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American journal of Orthopsychiatry, 52*(4), 664-678. https://doi.org/10.1111/j.1939-0025.1982.tb01456.x

Brown, O., Paz-Aparicio, C., & Revilla, A. J. (2019). Leader's communication style, LMX and organizational commitment: A study of employee perceptions in Peru. *Leadership & Organization Development Journal, 40*(2), 230-258. https://doi.org/10.1108/LODJ-03-2018-0129

Brown, T. A., & Moore, M. T. (2012). Confirmatory factor analysis. In R. H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 361-379). New York: Guilford Press.

Burgin, C. J., Brown, L. H., Royal, A., Silvia, P. J., Barrantes-Vidal, N., & Kwapil, T. R. (2012). Being with others and feeling happy: Emotional expressivity in everyday life. *Personality and Individual Differences, 63,* 185–190. https://doi: 10.1016/j.paid.2012.03.006

Buengeler, C., Piccolo, R. F., & Locklear, L. R. (2021). LMX Differentiation and Group Outcomes: A Framework and Review Drawing on Group Diversity Insights. *Journal of Management*, *47*(1), 260–287. https://doi.org/10.1177/0149206320930813

Černe, M., Batistič, S., & Kenda, R. (2018). HR systems, attachment styles with leaders, and the creativity–innovation nexus. *Human Resource Management Review, 28*(3), 271-288. https://doi.org/10.1016/j.hrmr.2018.02.004

Cogliser, C.C., Schriesheim, C.A., Scandura, T.A. and Gardner, W.L. (2009) Balance in Leader and Follower Perceptions of Leader-Member Exchange: Relationships with Performance and Work Attitudes. *Leadership Quarterly*, *20*(3), 452-465. https://doi.org/10.1016/j.leaqua.2009.03.010

Dienesch, R. M., & Liden, R. C. (1986). Leader–member exchange model of leadership: A critique and further development. *The Academy of Management Review, 11*(3), 618–634. https://doi.org/10.2307/258314

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past with an eye toward the future. *Journal of Management, 38*(6), 1715–1759. https://doi.org/10.1177/014920631141528

Dobbs, J. L., Sloan, D. M., & Karpinski, A. (2007). A psychometric investigation of two self-report measures of emotional expressivity. *Personality and Individual Differences, 43*(4), 693–702. https://doi.org/10.1016/j.paid.2007.01.010

Duchon, D., Green, S. G., & Taber, T. D. (1986). Vertical dyad linkage: A longitudinal assessment of antecedents, measures, and consequences. *Journal of Applied Psychology, 71*(1), 56–60. https://doi.org/10.1037/0021-9010.71.1.56

Estel, V., Schulte, E., Spurk, D., & Kauffeld, S. (2019) LMX differentiation is good for some and bad for others: A multilevel analysis of effects of LMX differentiation in innovation teams, *Cogent Psychology, 6*(1), https://doi.org/10.1080/23311908.2019.1614306

Epitropaki, O., & Martin, R. (2005). From Ideal to Real: A Longitudinal Study of the Role of Implicit Leadership Theories on Leader-Member Exchanges and Employee Outcomes. *Journal of Applied Psychology, 90*(4), 659–676. https://doi.org/10.1037/0021-9010.90.4.659

Erdogan, B., & Bauer, T. N. (2016). *LMX Theory: A glimpse into the future*. In T. N. Bauer & B. Erdogan (Eds.), The Oxford handbook of leader-member exchange (pp. 413–421)). Oxford University Press.

Feeney, J. A. (1995). Adult attachment and emotional control. *Personal Relationships, 2*(2), 143–159. https://doi.org/10.1111/j.1475-6811.1995.tb00082.x

Feeney, J., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M. B. Sperling, & W. H. Berman (Eds.), Attachment in adults (pp. 128-151). New York: The Guilford Press.

Finney, S. J., & DiStefano, C. (2013). *Nonnormal and Categorical Data in Structural Equation Modeling*. In G.R. Hancock & R.O. Mueller (Eds.).

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39-50. https:/ /doi.org/10.2307/3151312.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*, 132-154. https://doi.org/10.1037/1089-2680.4.2.132

Gaelick, L., Bpdenhausen, G.V., & Wyer, Jr, R. S. (1985). Emotional Communication in Close Relationships, *Journal of Personality and Social Psychology, 49*(5), 1246-1265. https://doi: 10.1037//0022-3514.49.5.1246

Gajendran, R. S., & Joshi, A. (2012). Innovation in globally distributed teams: The role of LMX, communication frequency, and member influence on team decisions. *Journal of Applied Psychology, 97*(6), 1252–1261. https://doi.org/10.1037/a0028958

Gerstner, C. R., & Day, D. V. (1997). Meta-Analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of Applied Psychology, 82*(6), 827–844. https://doi.org/10.1037/0021-9010.82.6.827

Gottfredson, R. K., Wright, S. L., & Heaphy, E. D. (2020). A critique of the Leader-Member Exchange construct: Back to square one. *The Leadership Quarterly, 31*(6), https://doi.org/10.1016/j.leaqua.2020.101385

Graen, G. B., & Cashman, J. F. (1975). A role-making model of leadership in formal organisations: a developmental approach. In J.G. Hunt and L.L Larson (eds.), Leadership frontiers (pp. 143-165). Kent, Ohio: Kent State Univ. Press.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly, 6*(2), 219-247.

Graen, G. B., Liden, R. C., & Hoel, W. (1982). Role of leadership in the employee withdrawal process. *Journal of Applied Psychology, 67*(6), 868–872. https://doi.org/10.1037/0021-9010.67.6.868

Graen, G. B., Novak, M. A., & Sommerkamp, P. (1982). The effects of leader–member exchange and job design on productivity and satisfaction: Testing a dual attachment model. *Organizational Behavior & Human Performance, 30*(1), 109–131. https://doi.org/10.1016/0030-5073(82)90236-7

Griffin, D. & Bartholomew, K. (1994) Models of the Self and Other: Fundamental Dimensions Underlying Measures of Adult Attachment. *Journal of Personality and Social Psychology*, *67*(3), 430-445. https://doi.org/10.1037/0022-3514.67.3.430

Guerrero, L. K. (1996) Attachment-style differences in intimacy and involvement: A test of the four-category model. *Communication Monographs, 63*(4), 269-292, https://doi.org/10.1080/03637759609376395

Guerrero, L. K., Farinelli, L., & McEwan, B. (2009). Attachment and Relational Satisfaction: The Mediating Effect of Emotional Communication, *Communication Monographs, 76*(4), 487-514. https://doi.org/10.1080/03637750903300254

Hayes, A. F. (2018). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression, Based Approach* (2nd Ed.). A Guilford press. https://www.afhayes.com/introduction-to-mediation-moderation-and-conditional-process-analysis.html

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*(3), 511–524. https://doi.org/10.1037/0022-3514.52.3.511

Hinojosa, A. S., McCauley, K. D., Randolph-Seng, B., & Gardner, W. L. (2014). Leader and Follower Attachment Styles: Implications for Authentic Leader-Follower Relation-Ships. The Leadership Quarterly, *25*, 595-610. https://doi.org/10.1016/j.

Holmes, B. M. & Johnson, K. R. (2009) Adult Attachment and Romantic Partner Preference: A Review. *Journal of Social and Personal Relationships, 26*, 833-852. http://dx.doi.org/10.1177/0265407509345653

Hu, L., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural equation modeling*, *6*(1):1-55. https://doi.org /10.1080/10705519909540118

Judge, T. A., & Ferris, G. R. (1993). Social context of performance evaluation decisions. *Academy of Management Journal, 36*(1), 80–105. https://doi.org/10.2307/256513

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin, 118*, 3-34. https://doi.org/10.1037/0033-2909.118.1.3

Kirrane, M., Kilroy, S., Kidney, R., Flood, P., & Bauwens, R. (2019). The relationship between attachment style and creativity: the mediating roles of LMX and TMX. *European Journal of Work and Organizational Psychology*, *28*(6), 784-799. https://doi.org/10.1080/1359432X.2019.1646247

Kohn, J. L., Rholes, S. W., Simpson, J. A., Martin, A. M., Tran, S., & Wilson, C. L. (2012). Changes in marital satisfaction across the transition to parenthood: the role of adult attachment orientations. *Personality Social Psychology Bulletin*, *38*(11), 1506-22. https://doi: 10.1177/0146167212454548.

Korver-Nieberg N, Berry K, Meijer CJ, de Haan L. (2014). Adult attachment and psychotic phenomenology in clinical and non-clinical samples: a systematic review. *Psychiatry Research, 87*(2), 127-54. https://doi.org/10.1111/papt.12010.

Kring, A. M., Smith, D. A., & Neale, J. M. (1994). Individual differences in dispositional expressiveness: Development and validation of the Emotional Expressivity Scale. *Journal of Personality and Social Psychology, 66*(5), 934–949. https://doi.org/10.1037/0022-3514.66.5.934

Liden, R. C., & Graen, G. (1980). Generalizability of the vertical dyad linkage model of leadership. *Academy of Management Journal, 23*(3), 451–465. https://doi.org/10.2307/255511

Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. In G. R. Ferris (Ed.), *Research in personnel and human resources management, 15*, 47–119.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader–member exchange: An empirical assessment through scale development. *Journal of Management, 24*(1), 43–72. https://doi.org/10.1016/S0149-2063(99)80053-1

Liden, R. C., Wayne, S. J., & Stilwell, D. (1993). A longitudinal study on the early development of leader member exchanges. *Journal of Applied Psychology, 78*, 662-674. https://doi.org/10.1037/0021-9010.78.4.662

Major, D. A., Kozlowski, S. W. J., Chao, G. T., & Gardner, P. D. (1995). A longitudinal investigation of newcomer expectations, early socialization outcomes, and the moderating effects of role development factors. *Journal of Applied Psychology, 80*, 418–431. https://doi.org/10.1037/0021-9010.80.3.418

Martin, S., Charvát, M., Střelec, J., Seitlová, K., & Kafetsios, K. (2022). Experiences in Work Relationships: A Measure of Attachment Strategies at work. *Psychological Reports*, *0*(0), https://doi.org/10.1177/00332941221075249

Martin, R., Thomas, G., Guillaume, Y., Lee, A. & Epitropaki, O. (2016). Leader-member Exchange (LMX) and Performance: A Meta-Analytic Review. *Personnel Psychology, 69*, 67-121. https://doi.org/10.1111/peps.12100

Maslyn, J. M., Schyns, B., & Farmer, S. M. (2017). Attachment style and leader-member exchange: The role of effort to build high quality relationships. *Leadership & Organization Development Journal, 38*(3), 450–462. https://doi.org/10.1108/LODJ-01-2016-0023

Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self-disclosure. *Journal of Personality and Social Psychology, 61*(2), 321–331. https://doi.org/10.1037/0022-3514.61.2.321

Mikulincer, M., Shaver, P. R. (2012). An attachment perspective on psychopathology. *World Psychiatry, 11*(1),11-5. https://doi: 10.1016/j.wpsyc.2012.01.003.

Mikulincer, M., Shaver, P. R., Sapir-Lavid, Y., & Avihou-Kanza, N. (2009). What's inside the minds of securely and insecurely attached people? The secure-base script and its associations with attachment-style dimensions. *Journal of Personality and Social Psychology, 97*(4), 615–633. https://doi.org/10.1037/a0015649

Oldmeadow, J. A., Quinn, S., & Kower, R. (2013). Attachment style, social skills, and Facebook use amongst adults. *Computers in Human Behavior, 29,* 1142-1149. https://doi.org/10.1016/j.chb.2012.10.006

Popper, M., & Mayseless, O. (2003). Back to basics: Applying a parenting perspective to transformational leadership. *The Leadership Quarterly, 14*(1), 41-65. https://doi.org/10.1016/S1048-9843(02)00183-2

Popper, M., Mayseless, O., & Castelnovo, O. (2000). Transformational leadership and attachment. *The Leadership Quarterly, 11*(2), 267-289. https://doi.org/10.1016/S1048-9843(00)00038-2

Podsakoff, P. M., MacKenzie, S. B., Lee J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903. https://doi/10.1037/0021-9010.88.5.879

Ravitz, P., Maunder, R., Hunter, J., Sthankiya, B., & Lancee, W. (2010). Adult attachment measures: A 25-year review, *Journal of Psychosomatic Research, 69*, 419–432. https://doi.org/10.1016/j.jpsychores.2009.08.006

Riggio, R. E. (1986). Assessment of Basic Social Skills. *Journal of Personality and Social Psychology, 51,* 649-660. https://doi.org/10.1037/0022-3514.51.3.649

Richards, D. A., & Hackett, R. D. (2012). Attachment and emotion regulation: Compensatory interactions and leader–member exchange. *The Leadership Quarterly, 23*(4), 686–701. https://doi.org/10.1016/j.leaqua.2012.03.005

Richards, D. A., & Schat, A. C. (2011). Attachment at (not to) work: applying attachment theory to explain individual behavior in organizations. *Journal of applied psychology, 96*(1), 169-182. https://doi.org/10.1037/a0020372

Russell, V. M., Baker, L, R., & McNulty, J. K. (2013). Attachment Insecurity and Infidelity in Marriage: Do Studies of Dating Relationships Really Inform Us About Marriage? *Journal of Family Psychology, 27*(2), 242–251. https://doi.org/10.1037/a0032118

Scandura, T. A., & Graen, G. B. (1984). Moderating effects of initial leader–member exchange status on the effects of a leadership intervention. *Journal of Applied Psychology, 69*(3), 428–436. https://doi.org/10.1037/0021-9010.69.3.428

Shaver, P. R., Belsky, J., & Brennan, K. A. (2000). The adult attachment interview and self-reports of romantic attachment: Associations across domains and methods. *Personal Relationships, 7*(1), 25–43. https://doi.org/10.1111/j.1475-6811.2000.tb00002.x

Shaver, P. R., Collins, N., & Clark, C. L. (1996). Attachment styles and internal working models of self and relationship partners. In G. J. O. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 25–61). Lawrence Erlbaum Associates, Inc.

Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment & Human Development, 4*(2), 133–161. https://doi.org/10.1080/14616730210154171

Shaver, P. R., Mikulincer, M., & Chun, D. S. (2008). Adult attachment theory, emotion regulation, and prosocial behavior. *Regulating emotions: Culture, social necessity, and biological inheritance*, 121-145. https://doi.org/10.1002/9781444301786.ch5

Tran, D. T., Lee, L. Y., Nguyen, P. T., & Srisittiratkul, W. (2020). How Leader Characteristics and Leader Member Exchange Lead to Social Capital and Job Performance. *Journal of Asian Finance, Economics and Business*, 7(1), 269–278. https://doi.org/10.13106/jafeb.2020.vol7.no1.269

Tremblay, M., Parent-Rocheleau, X., & Sajadi, P. (2022). Are leaders and followers receiving what they give? A long-term examination of the reciprocal relationship between relative LMX and relative OCB-helping. *Journal of Leadership & Organizational Studies, 29*(3), 359-371. https://doi.org/10.1177/15480518211041629

Truckenbrodt, Y. B. (2000). The relation between leader-member exchange and commitment and organizational behavior. *Acquisition Review Quarterly*, *7*, 233-244. https://www.dau.edu/library/arj/ARJ/arq2000/truck.pdf

Turban, D. B., & Jones, A. P. (1988). Supervisor-subordinate similarity: Types, effects, and mechanisms. *Journal of Applied Psychology, 73*(2), 228–234. https://doi.org/10.1037/0021-9010.73.2.228

Vecchio, R. (1985). Predicting Employee Turnover from Leader-Member Exchange: A Failure to Replicate. *The Academy of Management Journal, 28*(2), 478-485. https://doi:10.2307/256213

Volmer, J., Niessen, C., Spurk, D., Linz, A., & Abele, A. E. (2011). Reciprocal Relationships between Leader–Member Exchange (LMX) and Job Satisfaction: A Cross-Lagged Analysis. *Applied Psychology: An International Review, 60*(4), 522–545. https://doi.org/10.1111/j.1464-0597.2011.00446.x

Wijaya, N. H. S. (2019). Proactive Personality, LMX, and Voice Behavior: Employee– Supervisor Sex (Dis)similarity as a Moderator. *Management Communication Quarterly, 33*(1), 86–100. https://doi.org/10.1177/0893318918804890

Yukl, G., O'Donnell, M., & Taber, T. (2009). Influence of leader behaviors on the leader-member exchange relationship. *Journal of Managerial Psychology, 24*(4), 289-299. https://doi.org/10.1108/02683940910952697

Zhang, Z., Wang, M. O., & Shi, J. (2012). Leader-follower congruence in proactive personality and work outcomes: The mediating role of leader-member exchange. *Academy of Management Journal, 55*, 111-130. https://doi.org/10.5465/amj.2009.0865

Vol. 13, No. 1, 37-51
doi:10.17708/DRMJ.2024.v13n01a03

Dynamic Relationships Management Journal

MANAGING THE DISTANCE WITH THE SUPERIOR: TOWARD A RESOLUTION OF A SUBORDINATE MANAGER'S DILEMMA

Emil Nikolov Kotsev
Business and Management Faculty, University of Ruse, Bulgaria
ekotsev@uni-ruse.bg

Abstract

The paper explores the follower–leader distance orientation (FLDO) of subordinate managers in eight Bulgarian industrial companies. The purpose was twofold: first, to study the FLDO of subordinate managers and its impact on work environment; and second, to propose a relational followership model which could lay the foundations for the resolution of the subordinate manager's relational dilemma. The study applied a mixed-methods research design, using both qualitative and quantitative approaches within a combination of two research strategies—exploratory, and descriptive. A survey questionnaire, semi-structured interviews, and focus groups were used for primary data collection. Results indicate that Bulgarian managers tend to maintain social proximity with the immediate superior. The strengths and weaknesses of proximal and distant managers are outlined and discussed. A relational followership model is proposed to support lower-level managers in managing their distance with higher-level managers in a way that is favorable to team and organizational effectiveness.

Keywords*: Follower–leader distance orientation, Relational followership, Subordinate manager, Upward influence*

1 INTRODUCTION

To friend or not to friend? This is not just a Facebook etiquette question. Social interactions develop workplace relationships in both digital environments and face-to-face encounters (Mikkola & Nykänen, 2019). Organizational members from different levels and industries face such relational dilemmas constantly. Employees possess social attributes, and normally they want to develop relationships with others, including superiors (Chen & Li, 2018), but they also are cautious when dealing with higher-level managers because there is a fairly low level of mutual trust (Robbins, 1985).

Often the answer to the initial question is more than just yes or no, especially when it comes to follower–leader relationships. Most researchers describe and analyze the relationship dilemma from managers' point of view (e.g., Taylor, Hanlon, & Boyd, 1992). Neilsen and Gypen (1979) were among the first to classify this relational issue as a dilemma that commonly confronts the subordinate. It was described and analyzed in detail by Biçer (2020), but no satisfactory solution was suggested.

This paper focuses on how to solve the relationship dilemma on the part of managers as subordinates—they concurrently should recognize the importance of workplace relationships and should keep in mind that too much interference in seniors' privacy may cause negative results (Kundi, Soomro, & Kamran, 2021). According to Howell and Shamir (2005), both superiors and inferiors in the workplace may play an active role in forming their mutual relationships. Due to their dichotomous place in the organizational structure, inferior managers have the opportunity to deal with both superiors and subordinates at once (Gjerde & Alvesson, 2020). Their dualistic position provides enough resources (information, experience, time, authority, etc.) and opportunities to take an active role in managing follower–leader distance—as stated by Chen, Hou, and Wu (2016), employees with resources are more

adept at managing relationships with superiors. In today's competitive business world successful managers need to work proactively out of their boxes (Howladar & Rahman, 2021) and to be influential both downwards and upwards (Singh, 1998).

Here, the possibility of influencing relationships with the superior is not seen as an end in itself but as a means of increasing managerial effectiveness and organizational productivity. After a series of studies inspired mainly by Kahn's work on this issue (Kahn 1990, 2001, 2010; Kahn and Heaphy, 2014), the quality of workplace atmosphere has been proven to be directly proportional to organizational productivity (Kavade & Nimkar, 2020), and the key role of human relationships in achieving organizational goals currently is beyond doubt. Some scholars go even further and conceptualize organizations as systems of relationships (e.g., Trompenaars, 1985; Wheatley, 2006). Supervisor–subordinate relationships are an essential part of these systems, and are among the most frequently studied topics in organizational communication research (Sias & Shin, 2019).

Nearly 3 decades ago, Napier and Ferris (1993) pointed out the main reasons that justify the need for enhancing our knowledge of supervisor–subordinate relationships: decentralization of certain occupational types, globalization of the economy, workforce diversification, and corporate downsizing. Although today these processes deepen their impact on organizations, practical knowledge of relationship functioning between leaders and followers still is limited (Hudson, 2013) and distance remains a leading question for organizations (Collinson, 2005). In the face of escalating competition and a global pandemic, the opportunity to increase organizational efficiency through a better understanding of the way subordinate managers can manage their distance to superiors deserves greater research attention.

Therefore, this paper studied the follower–leader distance orientation (FLDO) of subordinate managers and its impact on the work environment. Driven by the assumption that a greater appreciation for and understanding of followership can lead to more generative organizational processes (Duren, 2017), this study provides three extensions to contemporary followership research. First, a relational model of followership is introduced as a logical continuation and addition to Uhl-Bien's (2006) Relational Leadership Theory. Although somewhat reminiscent of the relational leadership model developed by Komives, Lucas, and McMahon (2013), the model proposed here has a different research postulate—it focuses on the idea that effective followership depends on relationships and encourages subordinates to approach their superiors relationally. Based on the conviction that followers can partner with the leader to enhance outcomes through proactive participation (Read, 2021) and that present management practices are not ideal for fostering effective superior–inferior relationships (Farr-Wharton, Brunetto, & Shacklock, 2011), the model confronts subordinates' intuitive decision-making and fills a gap between theory and practice.

Second, considering the insufficient understanding of low-power individuals (Schaerer et al., 2018), the paper extends the knowledge of current followership research by dealing with managers in their role as subordinates. Specifically, it addresses an existing shortage in the literature in terms of guiding concepts that recommend certain inferior managers' behaviors regarding the specifics of the situation (Kotsev, 2022). A particular contribution of this paper is the provision of distinctive information on relationships between management levels. Due to the opportunity to upgrade their experience as team leaders through the recommendations of this study, lower-level managers could assess the situation objectively and maintain an appropriate distance to the executive in favor of the organizational goals achievement.

Third, the study identifies a gap in existing tools for measuring workplace relations. Until the beginning of this century, human relationships were measured with universal instruments such as the Avoidant Attachment Questionnaire for Adults (West & Sheldon-Keller, 1992), the Measure of Attachment Qualities (Carver, 1997), and the Experiences in the Close Relationships Scale (Brennan, Clark, & Shaver, 1998). The Relational Distance Index, proposed by Hess (2003), is more accurate but also does not measure explicitly the relationships at work. As stated by Shorey & Chaffin (2018), attachment measures of romantic relationships might not be appropriate for use in an organizational context. It is only in the last decade that several specific tools for measuring work relationships have been developed, such as the Workplace Rela-

tionships Inventory (Young, 2010), but they are designed primarily to study closeness and distance with colleagues in general rather than with higher-level managers. In a scale developed by Biggs, Swailes, and Baker (2016) three of the nine items concern the relationship with the superior, but the information provided is not sufficient for in-depth analysis. A scale proposed by Molero et al. (2019) assesses followers' perceptions of a particular leader but does not examine their value orientation toward superiors. The six-item questionnaire suggested here tries to fill this gap by measuring the individual follower–leader distance orientation from the point of view of the manager as a subordinate.

This paper is organized into six sections. The next section provides the conceptual framework of the study. The methods used are described in the third section. The fourth presents the analysis and modeling of the empirical results obtained, and the fifth section is dedicated to their interpretation. Finally, conclusions, limitations, and future research directions are outlined.

2 CONCEPTUAL FRAMEWORK

The paper builds upon two overlapping constructs: managers' upward influence and follower–leader distance. Almost 7 decades after March's fundamental article (1955), the study of the influence processes in organizations still is in its infancy (Alshenaifi & Clarke, 2014). As a result of the changes in organizational characteristics and requirements for managers that have occurred since the end of the 20th century, the attention of researchers gradually has shifted from downward to upward influence (Cohen & Bradford 2005; Steizel & Rimbau-Gilabert, 2013), which has been defined as the attempt "to influence someone higher in the formal hierarchy or authority in the organization" (Porter, Allen & Angle 2003, p. 433). After the revelation of the positive impact of managers' upward influence on organizational adaptation (Floyd & Wooldridge, 1997), a number of studies have examined the factors on which it depends—manager personality and supervisor leadership style (Cable & Judge, 2003), gender (O'Neil, 2004), culture (Ralston et al., 2006), and political skills (Chaturvedi, Bahuguna, & Raghuvanshi, 2018).

Most previous publications accepted upward influence as a desirable undertaking that brings only positives to an organization. Definitely, a subordinate's proactive behaviors can directly enhance a superior's overall effectiveness (Finlayson & Harvey, 2016). Moreover, managers tend to spend a lot of time and energy "for planning their own protection against mistakes and losses" (Zupan, 2012, p. 32) and in this sense, proactive behaviors seem natural. However, resorting to upward influence tactics too often could be risky, both for the contender and for the organization as a whole (Krone, 1992). The risk can be reduced significantly if the inferior manager recognizes the external and internal factors of influence and is able to assess when and how to decrease or increase his or her upward influence (Kotsev, 2021). Among the factors that need to be considered are follower–leader relationships.

The relationship between leader and follower long has held the interest of researchers, and the impact of leader–follower distance on relationship quality has been recognized (Garzaro et al., 2021). Although it has been emphasized constantly that "leadership and followership are two sides of the same coin" (Kleiner 2008, p. 93) and are equally important (Heilman, 2020), the analysis of publications shows some bias: of all the articles published in *The Leadership Quarterly* in the current century, the phrase "leader-follower relationship" (or a derivative) is used in 28 times more articles than the phrase "follower–leader relationship." It seems that subconsciously scholars continue to view the superior as the defining figure in the dyadic interaction ,and may need some time to recognize the follower's ability to manage the distance between the two. Considering followers first could highlight their important role in influencing relationships with or distance from leaders and reveal distinct contextual challenges and opportunities followers need to address (Wang, 2020), such as determining a reasonable degree of distance in favor of the dyadic interaction effectiveness. Because people continuously are getting closer and further apart (Cooper, 2016), the degree of follower–leader distance also can vary between proximity and detachment. Wang (2020; 49) argued that followers are "capable of making changes in the degrees of distance from their leaders." In other words, not only leaders but followers also can manage the distance between them.

Although workplace friendship can have undesirable outcomes at work (Elnafrawy, 2022), effective management of follower–leader distance can reduce the risk significantly. However, it involves understanding the multidimensionality of the distance between the "leadership actors," as Psychogios and Dimitriadis (2021) call followers and leaders. Napier and Ferris were the first to suggest a three-dimensional model of dyadic distance in organizations. They defined distance as "the psychological, structural and functional separation, disparity or discord between a supervisor and a subordinate" (Napier & Ferris, 1993, p. 326). According to their model, functional distance (the degree of closeness and relationship quality) is caused by both psychological [power distance (PD), and demographic and value differences] and structural distance (office design and opportunity to interact). Antonakis and Atwater's (2002) leader distance model divides Napier and Ferris' structural distance into two dimensions (frequency of interaction, and physical distance) and combines functional and psychological distance into a third dimension: perceived social distance, measured in terms of the intimacy of the relationship that one of the leadership actors would willingly accept with regard to the other.

Examining the third dimension (social distance) from the point of view of the inferior manager and its impact on organizational performance is the innovative point of the present study. Despite some common features, social distance should not be confused with power distance, which is defined by Hofstede (2001, p. 83) as "a measure of the interpersonal power or influence between the boss and subordinate as perceived by the less powerful of the two." Power distance is about the follower's perceptions of the superior's style of decision-making (Antonsen & Almklov, 2019), whereas social distance refers to the degree of intimacy or acceptance individuals feel toward others (Kim, Lee, & Wong, 2016). However, PD is likely to affect subordinate managers' assessments of the legitimacy of social distance (Erskine, 2012). -(2019) confirmed that high PD is associated with higher social distance orientation, i.e., managers in countries with high-PD cultures, as is the case with Bulgaria (Davidkov, 2004), are expected to have more-detached relationships with the superior than are managers in low PD countries.

Apart from the cultural aspect, distance within power relations is not felt equally by the leadership actors: low-power individuals feel less distant than their high-power counterparts, and vice versa (Magee & Smith, 2013). Indeed, asymmetries of power are inevitable, but they create opportunities (Van Kleef & Cheng, 2020). Actually, asymmetric social distance affirms the subordinate manager's relational dilemma. For the successful resolution of the dilemma, superiors' tendency to objectify and diminish inferiors as human beings have to be considered, as well as the risk of being rejected—social rejection is proven to have more-detrimental psychological effects on low-power individuals than on higher power individuals (Magee, 2020). Moreover, the main factors that affect inferior–superior social relationship establishment must be taken into account. In addition to subordinate managers' personal factors (individual characteristics, competencies, and motives), interpersonal and organizational factors such as work tasks and corporate culture influence manager–supervisor relationships (Astuti et al., 2020) and are the basis of the relational model proposed here.

3 METHOD

3.1 Aim, Objectives, and Research Questions

The purpose of this paper was twofold: first, to study the follower–leader distance orientation of subordinate managers and its impact (advantages and disadvantages) on work environment; and second, to propose a relational followership model which can lay the foundations for the resolution of the lower-level managers' relational dilemma.

The main objectives were as follows:

O1. To explore inferior managers' FLDO in eight Bulgarian business organizations.

O2. To identify and analyze the advantages and disadvantages of relationally distant or proximal subordinate managers.

O3. To build a relational followership model recommending to lower-level managers the appropriate follower–leader distance.

Taking into account the conceptual framework and objectives of the study, the following research questions are addressed in this paper:

Q1. What is the predominant orientation of Bulgarian managers as subordinates: to keep their distance, or to maintain proximity with their immediate superiors?

Q2. What are the strengths and weaknesses of proximal (low-distance oriented) subordinate managers?

Q3. What are the strengths and weaknesses of distant (high-distance oriented) subordinate managers?

Q4. How can lower-level managers manage their distance with higher-level managers in a way that is favorable to team and organizational effectiveness?

3.2 Research Design and Data Collection

The research philosophy of this study is pragmatism because it focuses on the production of actionable knowledge about the phenomenon studied (Kelly & Cordeiro, 2020).

The study applied a mixed-methods research design, using both qualitative and quantitative approaches to explore the complex phenomenon of follower–leader distance in detail (Halcomb, 2019) and to provide a better understanding of FLDO of subordinate managers toward their immediate superiors. Empirical data were obtained through a combination of two research strategies. Because the study aimed to propose a new relational followership model, exploratory research was involved. It also explored inferior managers' FLDO and described its impact on work environment, which implies a descriptive research strategy.

In the first phase of the study, a 10-item questionnaire was developed. It was designed to measure inferior managers' FLDO regarding Research question Q1. Content and face validity of the questionnaire were assessed by experts and a pilot study with a group of 17 business students. Reliability was tested by test-retest of the same respondents 2 weeks later (reliability coefficient $p = 0.73$). As a second step to validate the questionnaire, the cognitive interviewing method was used. A group of 10 lower- and middle-level managers (leadership course attendees) gave their feedback through two well-recognized techniques: verbal probing, and thinking aloud (Priede & Farrall, 2011). As a result of the pretesting, four items that did not load well were eliminated and one item was modified, and the reliability was increased to 0.89.

In its final version, the questionnaire consisted of six items (Table A-1). Each item contained two statements describing opposite attitudes. Respondents were asked to assign a score from 0 to 10 to each statement to show how strongly they agreed (0 = strong disagreement, and 10 = strong agreement). The points assigned for each pair had to total 10. The degree of individual FLDO was calculated using the formula FLDO = (a) + (c) + (e) + (h) + (i) + (l). A value close to zero indicated a proximity orientation. As the result approached 60, a higher distance orientation gradually prevailed.

As a measure of the central tendency of a set of quantitative observations with different importance, the weighted arithmetic mean is used (Pulamolu et al., 2017). The individual FLDOs were divided into four class intervals (0–15, 16–30, 31–45, and 46–60), and the weighted arithmetic mean $\overline{x}$ was calculated as

$$\overline{x} = \frac{\sum_{i=1}^{n} x_i f_i}{\sum_{i=1}^{n} f_i} \qquad (1)$$

where f_i represents the number of managers (the weight) in the ith interval; and x_i represents the data values to be averaged. for Q2, Q3, and Q4, a qualitative approach was applied to gain an in-depth knowledge of the subject.

Alongside the survey questionnaire, semi-structured interviews and focus groups were used for primary data collection (Saunders et al., 2019). These were conducted in eight Bulgarian industrial companies as a part of their in-company training programs. The semi-structured interviews were held with middle-level managers ($N = 21$), whereas focus group contributors were lower-level managers ($N = 71$). Thus homogeneity of 11 focus groups was provided.

Prior to discussion of questions Q2, Q3, and Q4, all participants in the qualitative data collection answered the questionnaire. In addition, 127 lower managers from the same companies, who did not attend the training courses, also answered the questionnaire. As a result, a total of 219 complete questionnaires were returned. The respondents mainly were female (81.2%), aged 25–45 (57%), and had up to 3 years of work experience as managers (53.4%).

Secondary data collection involved retrieving information on managerial subordination and leader–follower relationship from scientific journals, reports, and books.

4. RESULTS

4.1 Analysis

The results of the survey indicate that 165 managers (75.3%) display themselves as proximal followers (the first two intervals) to superiors, and 66 of them gave scores from 0 to 15, indicating that they considered themselves to have a high proximity orientation (Table A-2). The remaining 54 managers (24.7%), who ranked themselves in the third and fourth intervals, tend to keep their distance from immediate superiors, and three of them (1.4% of the sample) were high-distance oriented.

By substitution in Equation (1), an arithmetic mean value of 21.88 was obtained. This clarifies the answer to the first research question: the majority of the managers surveyed tend to maintain social proximity with their immediate superiors. In addition to questioning previous research on the influence of power distance on social distance orientation (as presented in the conceptual framework section), the results obtained can be interpreted according to the effect of FLDO on follower–leader interaction and overall organizational performance. To put it simply: are the results good or bad news?

Answering this question implies analysis of advantages and disadvantages of the two extremes (high proximity versus high distance). This task was performed during the interviews and focus group discussions on Q2 and Q3. The ideas presented by the participants regarding the answer to Q2 (What are the strengths and weaknesses of low-distance-oriented subordinate managers?) are summarized here, starting with the strengths:

- Existence of strong exchange links between the leadership actors makes the superior more inclined to delegate responsibilities to the inferior—an assumption stated several decades earlier by Graen and Scandura (1987).
- Close relationships with the superior allow proximal managers to comfortably express personal opinions so that they can be recognized as a valuable asset, especially when non-programmed decision-making is involved.
- When closing the distance, leadership actors get to know each other better. This advantage can be considered from at least two aspects. On the one hand, the superior is able to assess accurately the inferior's strengths and weaknesses regarding task assignments. On the other hand, by getting acquainted with inferior's mentality, the superior can apply appropriate motivational tools.
- Low-distance managers add emotional nuance to task execution. Often their attachment to the superior is the reason for making extra effort to achieve desired results—they would not let a friend down.
- Promising career opportunities are available to proximal managers. Although higher-level managers willingly share knowledge and experience with them, it is far from the only reason for their rapid growth—the superior's subjective assessment of the inferior's work performance also should be considered.

However, as stated by Knight, "allowing yourself to be the manager's darling is not always a smart career move" (2021). Qualitative data from the focus groups and interviews highlighted the following weaknesses of low-distance managers:

- Often, leadership actors have to expend extra time and energy on maintaining close relationships. The opportunity of using these valuable resources for other more-urgent and important organizational tasks should not be overlooked.
- In the case of gender differences, closeness between managers rarely goes unnoticed by others. Rumors and gossip (whether reasonable or not) begin to shift the focus of general attention from organizational goals and individual tasks to the couple's behavior.

- Each of the two leadership actors has the opportunity to misuse personal information received from the other, especially in the event of a cooling of the relationship. Disclosure of intimate information, whether intentional or not, can be devastating for the victim.
- Subjectivity in decision-making is possible. It can be expressed both in the unwillingness of the inferior to criticize senior manager's decisions as well as in the superior's selective approach to task assignment and performance evaluation.

Focus groups participants and interviewees also identified the strengths and weaknesses of managers who tend to keep their distance from the superior. Thus, the answer to Q3 was provided. The strengths of high-distance managers are as follows:

- Distant managers' orientation reduces the degree of subjectivity in management decisions. Without the interference of emotions, leadership actors can objectively select the optimal alternative in terms of organizational policies and goals.
- Performance evaluation of high-distance oriented managers and their remuneration is based on real results. There is no risk of informal relationships predisposing the superior toward an unfair distribution of organizational rewards.
- Distant managers do not burden the superior with their personal problems. This, on the one hand, reduces the time for interaction between leadership actors, and on the other hand, keeps their focus on organizational goals.
- High-distance-oriented managers have a clear understanding of their position in the organizational hierarchy. They stick to the role assigned to them in the company, without entering the personal space of the superior. In this manner, they indirectly support the formal communication channels in the organization.
- Distant managers' orientation limits the spread of rumors and gossip in the organization and enables them to maintain some personal freedom. They respect the superior's right to privacy and wish to receive the same treatment.

Most of these strengths mentioned are beneficial primarily for the organization, whereas the weaknesses of high-distance managers pose a threat mainly to themselves:

- Distant managers' skills and expertise are not always adequate to the tasks assigned to them—because they keep their distance from the superior, in some cases their capabilities might be overestimated, and in other cases they might be underestimated. In addition, it is likely that the most desirable tasks will be assigned to closer subordinates, and the dirty work will be left to high-distance-oriented inferiors.
- Higher distance to the superior does not favor growth in the organizational hierarchy. Moreover, in the event of redundancies in the organization, the probability that the names of distant managers will appear on the list of their immediate supervisor is not negligible.
- It is possible at some point that the distant manager might be insufficiently informed about internal and external changes. Neglecting informal communication channels can slow the exchange of information and even isolate the inferior.
- Often, distance orientation is accompanied by a lack of desire to work in a team. Thereby distant managers tend to avoid sharing their concerns with their immediate superior. Over time, they can become individuals who try to solve problems on their own, without the involvement of a superior, and that usually calls into question the final result.
- By avoiding the expression of feelings, high-distance managers accumulate a significant amount of stress. Sooner or later this affects the quality of their work.

This analysis of the strengths and weaknesses sends a clear message: in some cases subordinate managers have to maintain proximity with the immediate superior, but in other cases, keeping a certain amount of distance may be more appropriate. Based on this general inference and the concrete answers of the managers surveyed to Q4, a model was developed. It provides some guidelines to inferior managers in deciding what are these "other cases" and what does "a certain amount" exactly mean.

4.2 Modeling

Figure 1 presents the result of the individual interviews and group discussions on the subject—a behavior chain that covers all possible nuances of

the behavior of subordinate managers in the low-distance–high-distance continuum. It was developed through inductive thematic analysis of the responses received to Q4 and its subquestions. The chain comprises a series of behaviors classified according to the predominant orientation of inferior managers to maintain proximity or keep their distance from the superior.

The chain is composed of five basic managerial behaviors:

- The manager establishes **close** relationships with the immediate superior, sharing and being the recipient of personal information about life values, motives, ambitions, beliefs.
- The manager maintains **mostly informal** relationships with the superior by revealing information from her or his personal life that is relevant to the work, giving an impression of belonging and commitment.
- The manager sustains **balanced** relationships with the superior by carefully considering what and when to share according to the situation.
- The manager maintains **mostly formal** relationships with the superior, distinguishing between official and personal matters.
- The manager remains **distant** from the superior and upholds her or his independence, expecting to be evaluated solely on performance.

Adopting a widely renowned leadership decision tree approach (Vroom and Yetton 1973), the relational model of followership presented in Figure 2 enables the subordinate manager to independently determine an appropriate behavior and increases their chances to solve the relational dilemma. The model consists of four questions exploring the influencing factors presented in the literature review. The first three questions reflect the organizational factors of influence (culture and work tasks), whereas the fourth regards an interpersonal factor—the inferior's perception of the immediate superior. The answers form a tree of alternative decisions recommending relevant behaviors from the low-distance–high-distance continuum. As a precondition for the effective implementation of the model, consistent self-monitoring by the subordinate manager is required, because it is the key for balancing the right level of workplace relationships (Tasselli & Kilduff, 2018).

5. DISCUSSION AND CONCLUSION

The answer to the first question defines the behavior that a manager can choose in order to comply with the norms established in the organization: "Does organizational culture support higher follower–leader distance?" As far as Bulgarian industry is concerned, answering this question is not too dif-

Figure 1: Behavior chain

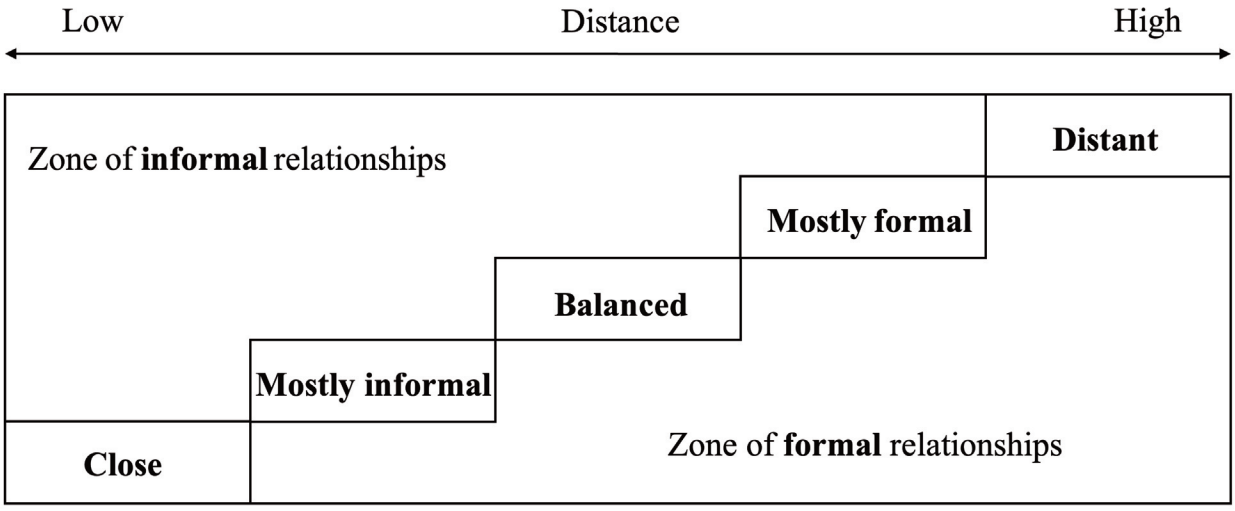
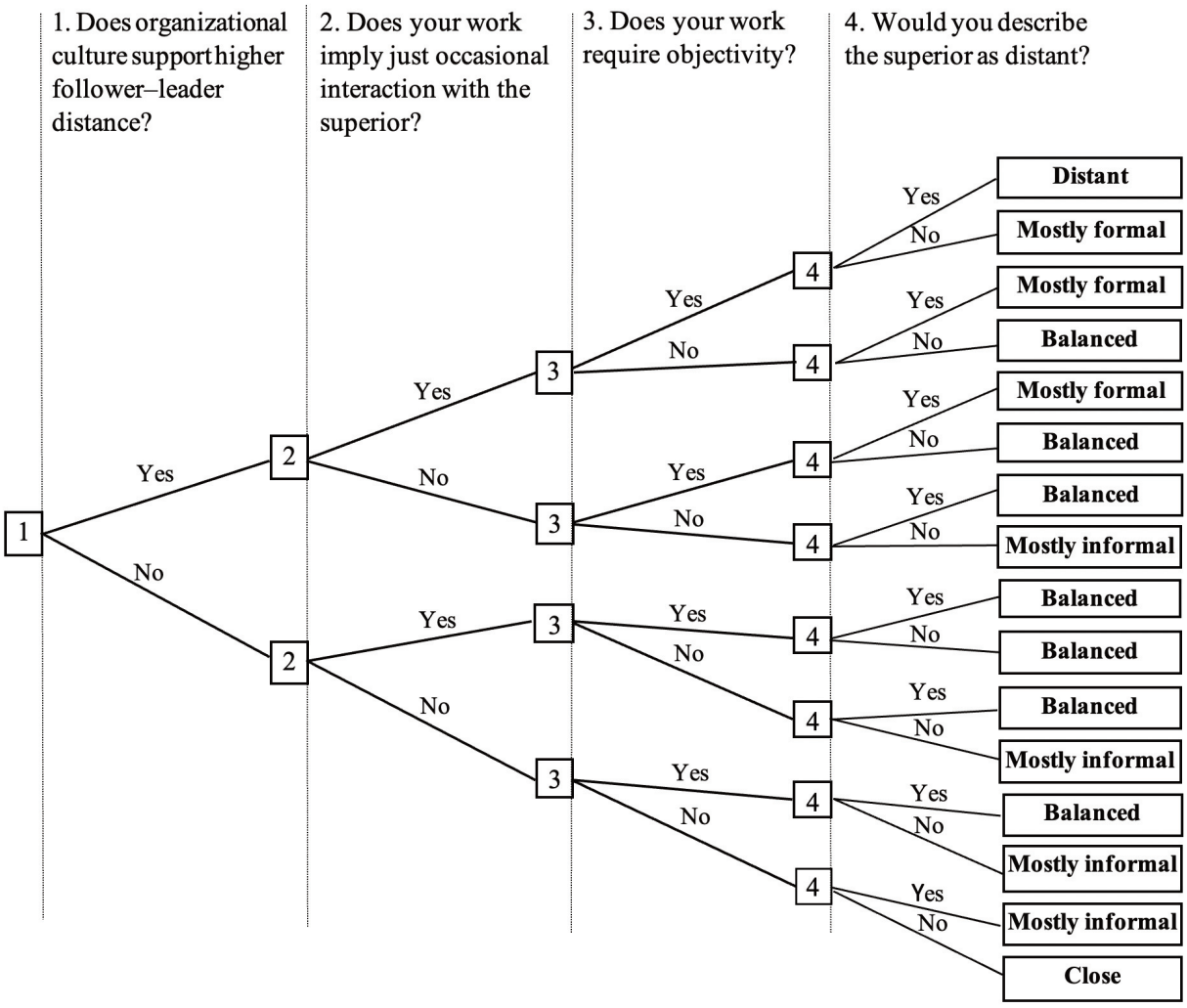


Figure 2: Relational model of followership



ficult—low-distance orientation was observed in all the companies surveyed, which makes it evident that close relationships with superiors are viewed as normal. However, if the answer to the question is yes, low-distance-oriented managers should try to resist their natural inclination, so as not to contradict established norms and become an object of ridicule by colleagues.

The second question was intended to determine whether the work of inferior managers is conducive to a closer relationship with the superior: "Does your work imply just occasional interaction with the superior?" A positive answer to this question suggests a low probability of a shift in relationships from formal to informal and a necessity for low-distance managers to readjust their orientation. If the answer is no, high-distance managers face a similar challenge.

The third question concerned the need for impartiality in the performance of management functions: "Does your work require objectivity?" In principle, every manager is expected to be objective, but if in some activities the expression of subjectivism might be understandable, or even justified (e.g., in the daily work assignment by the foreman), in other activities (e.g., related to the control of quality) objectivism is mandatory. In such activities, it does matter whether the relationship with the manager is formal or informal—usually, close relationships are a prerequisite for subjective assess-

ment of the situation and biased decision-making. Therefore if objectivity is required in their work, subordinate managers should refrain from being too close to their superiors.

The fourth question examined the personal preferences of the senior manager: "Would you describe the superior as distant?" This question is almost useless in practical terms—often in response to a perceived inclination of the higher-level manager, inferiors imperceptibly change their orientation. For example, in the case of a superior who tends to avoid informal contact, subordinate managers usually respond by reinforcing a higher-distance orientation. In event of a leader change, they may show a different orientation.

The findings presented in this paper have various practical implications. The relational model of followership can be used best by subordinates who possess the three key elements to being an effective follower: work-related knowledge, communication skills, and motivation (Yung, 2013). For them, the model reveals opportunities for resolving the relational dilemma and improving their management performance. It supports managers in determining appropriate behaviors and provides options to avoid the negatives associated with the two continuum extremes. Following the model, subordinate managers can reduce their high-distance orientation in harmony with a low-distance culture and maintain closer relationships with the immediate superior if frequent interaction is needed. In other cases, when objectivity is key, the model may recommend a more distant approach to the superior.

Both proximal and distant inferiors have their place and significance in the organizational hierarchy. Subordinate managers can strengthen their active role in managing follower–leader relationships by overcoming the extremes in their FLDO. Adopting a balanced approach to follower–leader distance enables them to take full advantage of the opportunities provided by the relational model of followership.

By analyzing the capability of the manager as a subordinate to decide when and how to influence the distance to the superior, the study reinforces and extends prior work on upward influence and follower–leader relationship. It builds on the understanding that in some cases managers' upward exchange with their own supervisor can moderate their relationships (Huang et al., 2020). The paper broadens Boccialetti's (1995) research and adds to his list of advantages and disadvantages of high and low distance. Shifting between following and managing, the study confirms that "following sometimes involves leading" (Morris, 2014, p. 58) and suggests four questions to be considered when managing relationships with superiors. Thus, it can be viewed as a natural extension of Wong's (2019) research, taking it a step further and offering a tool to influence superiors who do not pay attention to the expectations of their subordinates.

Among the theoretical contributions of the study is the validation of a new assessment tool, as well as the combination of qualitative and quantitative methods. The predominant FLDO of the managers surveyed was revealed—the majority of them tend to maintain closer relationships with their immediate superiors (thus answering Q1). The paper also identified the main strengths and weaknesses of proximal and distant managers (thus answering Q2 and Q3). On this basis, a relational followership model is proposed that provides some useful insights for lower-level managers into how to manage their distance with superiors in a way that is favorable to team and organizational effectiveness (thus answering Q4).

The results of this study could have additional practical and theoretical implications in future research. The model developed could facilitate the development of similar approaches to organizational subordination modeling that can be used in other behavioral challenges of inferior managers, such as deciding when to follow instructions and when to take the initiative. Similar decision trees could be a valuable guide for subordinate managers and could be used in managing relationships with superiors.

However, the study is not without limitations. First, it covers only manufacturing industries. It is not clear whether the survey would generate similar results in the tertiary and public sectors. Second, it ignores the effect of individual diversity (gender, age, ethnicity, sexual orientation, etc.) on follower–leader distance. Third, too much reliance is put on the presumably objective assessment of the situa-

tion by subordinate managers in answering the decision tree questions. Fourth, the proposed relational model of followership has not been tested in practice, and its reliability could be questioned.

Finally, subordinate managers' predicaments are not limited to the dilemma discussed here. Considering their decisions and behaviors in a more systematic way could stimulate a more rigorous analysis of subordinate managers' followership styles, and many new questions could be addressed. How does the resolution of the relational dilemma refer to inferior's propensity to follow instructions or take the initiative? How do their decisions correspond to other challenging questions faced by inferior managers, such as when to trust their own judgment and when to trust the superior? How do their competence, temperament, and other individual specificities affect the way subordinate managers interact with higher-level managers? What in fact are the other dominant parameters of followership that need to be considered by subordinate managers? These and many other questions still need to be addressed.

EXTENDED SUMMARY/IZVLEČEK

Članek raziskuje usmerjenost razdalje med sledilci in vodji pri srednjih managerjih v osmih bolgarskih industrijskih podjetjih. Namen je bil dvojen: prvič, preučiti usmerjenost razdalje med sledilci in vodji srednjih managerjev in njen vpliv na delovno okolje; in drugič, predlagati relacijski model sledenja, ki bi lahko postavil temelje za rešitev relacijskih dilem srednjega managementa. Študija je uporabila kombinirani raziskovalni načrt z mešanimi metodami, ki združuje tako kvalitativne kot kvantitativne pristope v kombinaciji dveh raziskovalnih strategij - raziskovalne in opisne. Za primarno zbiranje podatkov so bili uporabljeni anketni vprašalnik, polstrukturirani intervjuji in fokusne skupine. Rezultati kažejo, da bolgarski managerji težijo k vzdrževanju družbene bližine z neposrednim nadrejenim. Članek izpostavlja ter razpravlja o prednostih in slabostih managerjev, ki so bližje ali bolj oddaljeni. Predlaga se relacijski model sledenja, ki bi podrejenim managerjem pomagal bolje ravnati z njihovo razdaljo do managerjev višjih ravni na način, ki je ugoden za učinkovitost tima in organizacije.

REFERENCES

Alshenaifi, N. & Clarke, N. (2014). Follower upward influence tactics – key findings from the literature. In University of Southampton file (database online), West Yorkshire, UK: University Forum for Human Resource Development.

Antonakis, J. & Atwater, L. (2002). Leader distance: A review and a proposed theory. Leadership Quarterly, 13(6), 673-704.

Antonsen, S., & Almklov, P. (2019). Revisiting the issue of power in safety research. Safety Science Research, 87-102.

Astuti, T., Helmi, A. F., Haq, A. H. B., & Al Farauqi, M. D. A. (2020). The dynamic of performing social relations amongst managers and supervisors: A thematic analysis. The Qualitative Report, 25(3), 700-720.

Biçer, C. (2020). The Hedgehog's dilemma in organizations: The pros and cons of workplace friendship. Hitit University Journal of Social Sciences Institute, 13(1), 201-217.

Biggs, D., Swailes, S., & Baker, S. (2016). The Measurement of Worker Relations: The Development of a Three-Component Scale. Leadership & Organization Development Journal, 37(1), 2–12.

Boccialetti, G. (1995). It Takes Two. Jossey-Bass Publishers, CA: San Francisco.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In Attachment theory and close relationships, edited by J. A. Simpson and W. S. Rholes, 46–76. NY: Guilford Press.

Cable, D. M., & Judge, T. A. (2003). Managers' upward influence tactic strategies: The role of manager personality and supervisor leadership style. Journal of Organizational Behavior, 24(2), 197-214.

Carver, C. S. (1997). Adult attachment and personality: Converging evidence and a new measure. Personality and Social Psychology Bulletin, 23(8), 865-883.

Chaturvedi, S., Bahuguna, P. C., & Raghuvanshi, J. (2018). Political skill as mediator of the upward influence and career success relationship. International Journal of Business Excellence, 15(3), 372-391.

Chen, A. S. Y., Hou, Y. H., & Wu, I. H. (2016). Handling conflict at work – the impact of active and agreeable conflict styles. International Journal of Conflict Management, 27(1), 50-61.

Chen H. & Li S. (2018). Measuring the psychological distance between an organization and its members – The construction and validation of a new scale. Frontiers in Psychology, 8, 2296.

Cohen, A. R. & Braford, D. L. (2005). Influence without Authority. 2nd ed. Hoboken, NJ: John Wiley & Sons, Inc.

Collinson, D. (2005). Questions of distance. Leadership, 1(2), 235-250.

Cooper, R. (2016). The generalized social body: distance and technology. In For Robert Cooper, edited by G. Burrell and M. Parker, 311-325. NY: Routledge.

Davidkov, T. (2004). Where does Bulgaria stand. Papeles del este, 8(1), 1-22.

Duren, D. (2017). Servant leadership: A new paradigm. In Servant Leadership and Followership: Examining the Impact on Workplace Behavior, edited by C. J. Davis, 225-260. NY: Palgrave Macmillan.

Elnafrawy, A. A. R. (2022). Workplace spirituality, affective commitment, and mediating role of workplace friendship. Dynamic Relationships Management Journal, 11(1), 69-82.

Erskine. L. 2012. Defining relational distance for today's leaders. International Journal of Leadership Studies, 7(1), 96-113.

Farr-Wharton, R., Brunetto, Y., &Shacklock, K. (2011). Professionals' supervisor-subordinate relationships, autonomy, and commitment in Australia: A leader-member exchange theory perspective. A Journal for the Australian Nursing Profession, 22(17), 3496-3512.

Floyd, S. W. & Wooldridge, B. (1997). Middle management's strategic influence and organizational performance. Journal of Management Studies, 34(3), 465-485.

Garzaro, G., Gatti, P., Caputo, A., Musso, F., Clari, M., Dimonte, V., & Pira, E. (2021). Job demands and perceived distance in leader-follower relationships: A study on emotional exhaustion among nurses. Applied Nursing Research, 61, 151455.

Gjerde, S & Alvesson, M. (2020). Sandwiched: Exploring role and identity of middle managers in the genuine middle, Human Relations, 73(1), 124-151.

Graen, G. & Scandura, T. (1987). Toward a psychology of dyadic organizing. Research in Organizational Behavior, 9, 175-208.

Halcomb, E. J. (2019). Mixed methods research: The issues beyond combining methods. Journal of Advanced Nursing. 75(3), 499-501.

Heilman, E. L. (2020). Linking Effective Followership to Adaptive Performance: The Moderation Role of Healthy Emotionality. Doctoral dissertation (database online), William James College: ProQuest Dissertations Publishing.

Hess, J. (2003). Measuring distance in personal relationships: The Relational Distance Index. Personal Relationship, 10(2), 197-216.

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations across Nations, 2nd ed. Thousand Oaks, CA: Sage.

Howell, J. M. & Shamir, B. (2005). The role of followers in the charismatic process: Relationships and their consequences. Academy of Management Review, 30, 96-112.

Howladar M. & Rahman M. (2021). The influence of servant leadership on organizational citizenship behavior: the mediating effect of organizational commitment. South East European Journal of Economics and Business, 16(1), 70-83.

Huang, L., Krasikova, D. V., & Harms, P. D. (2020). Avoiding or embracing social relationships? A conservation of resources perspective of leader narcissism, leader–member exchange differentiation, and follower voice. Journal of Organizational Behavior, 41(1), 77-92.

Hudson, D. L. (2013). Attachment theory and leader-follower relationships. The Psychologist-Manager Journal, 16(3), 147–159.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. Academy of Management Journal, 33, 692-724.

Kahn, W. A. (2001). Holding environments at work. Journal of Applied Behavioral Science, 37(3), 260-279.

Kahn, W. A. (2010). The essence of engagement: lessons from the field. In Handbook of Employee Engagement, edited by S. L. Albrecht, 3-19, Cheltenham, UK: Edward Elgar.

Kahn, W. A. & Heaphy, E. D. (2014). Relational contexts of personal engagement at work. In Employee Engagement in Theory and Practice, edited by C. Truss, R. Delbridge, K. Alfes, A. Shantz, & E. Soane, 82-96, London: Routledge.

Kavade A. & Nimkar N. (2020). Impact of employee friendship for productivity and job satisfaction. Ann Trop Med & Public Health, 23(17), 231703.

Kelly, L. M. & Cordeiro, M. (2020). Three principles of pragmatism for research on organizational processes. Methodological Innovations, 13(2), 1-10.

Kim, T. Y., Lee, D. R., & Wong, N. Y. S. (2016). Supervisor humor and employee outcomes: The role of social distance and affective trust in supervisor. Journal of Business and Psychology, 31(1), 125-139.

Kleiner, K. (2008). Rethinking leadership and followership: A student's perspective. In The art of followership, edited by R. E. Riggio, I. Chaleff, and J. Lipman-Blumen, 89-93. San Francisco, CA: Jossey-Bass.

Knight, R. (2021). The hazards of being the boss's favorite. In Managing Yourself (database online), Harvard Business Review, 5.

Komives, S., Lucas, R., & McMahon, T. R. (2013). Revisiting the relational leadership model: Perspectives from the third edition of exploring leadership. Eugene, Oregon: The University of Oregon.

Kotsev, E. (2021). The dual role of managers as an object and subject of influence. In Book of proceedings, International May Conference on Strategic Management IMCSM21, 46-56.

Kotsev, E. (2022). Knowing when and how to trust superiors' decisions: Toward a conceptual model of subordinate managers' behavior. Organizacija, 55(1), 50-63.

Krone, K. J. (1992). A comparison of organizational, structural, and relationship effects on subordinates' upward influence choices. Communication Quarterly, 40(1), 1-15.

Kundi, Y. M., Soomro, S. A., & Kamran, M. (2021). Does social support at work enhance subjective career success? The mediating role of relational attachment. International Journal of Organizational Analysis, https://doi.org/10.1108/ijoa-08-2020-2379.

Magee, J. C. (2020). Power and social distance. Current Opinion in Psychology, 33, 33-37.

Magee, J. C. & Smith, P. K. (2013). The social distance theory of power. Personality and Social Psychology Review, 17, 158-186.

March, J. G. (1955). An introduction to the theory and measurement of influence. American Political Science Review, 49(2), 431-451.

Mikkola, L. & Nykänen, H. (2019). Workplace relationships. In Workplace Communication, 15-27. London: Routledge.

Molero, F., Mikulincer, M., Shaver, P. R., Laguía, A., & Moriano, J. A. (2019). The development and validation of the leader as security provider scale. Journal of Work and Organizational Psychology, 35(3), 183-193.

Morris, R. (2014). Constructions of following from a relational perspective: A follower-focused study, Journal of Leadership Education, 13(4), 51-62.

Napier, B. J. & Ferris, G. R. (1993). Distance in organizations. Human Resource Management Review, 3(4), 321-357.

Neilsen, E. H. & Gypen, J. (1979). The subordinate's predicaments. Harvard Business Review, 57(5), 133-143.

O'Neil, J. (2004). Effects of gender and power on PR managers' upward influence. Journal of Managerial Issues, 16(1), 127-144.

Porter, L., Allen, R., & Angle, H. (2003). The politics of upward influence in organizations. In Organizational Influence Processes, 2nd ed., edited by L. Porter, H. Angle, and R. Allen, 431-445. Oxfordshire, UK: Routledge.

Psychogios, A. & Dimitriadis, A. (2021). Brain-adjusted relational leadership: A social-constructed consciousness approach to leader-follower interaction. Frontiers in Psychology, 12, 672217.

Pulamolu, K. K., Bhavani, T., & Subramanian, D. V. (2017). Intra-Tenant resource sharing in yarn based on weighted arithmetic mean. In 2017 International Conference on Networks & Advances in Computational Technologies (NetACT), 262-265.

Ralston, D. A., Terpstra-Tong, J., Maignan, I., & Napier, N. K. (2006). Vietnam: A cross-cultural comparison of upward influence ethics. Journal of International Management, 12(1), 85-105.

Read, J. B. (2021). A decade of teaching followership: retrospective and guide. Industrial and Commercial Training, 53(2), 166-174.

Robbins, D. (1985). Synthesis of leadership theory to date, In ScholarWorks at University of Montana (database online), University of Montana. https://scholarworks.umt.edu.

Saunders, M., Lewis, P., & Thornhill A. (2019). Research methods for business students. 8th ed. Harlow, UK: Pearson.

Schaerer, M., du Plessis, C., Yap, A. J., & Thau, S. (2018). Low power individuals in social power research: A quantitative review, theoretical framework, and empirical test. Organizational Behavior and Human Decision Processes, 149, 73-96.

Shorey, H. S. & Chaffin, J. S. (2018). Leader–follower attachment: Implications for personality assessment in organizational contexts. Journal of Personality Assessment, 100(5), 518-528.

Sias, P. M. & Shin, Y. (2019). Workplace relationships. In Origins and Traditions of Organizational Communication, edited by A. Nicotera, 187-206. New York: Routledge.

Singh, A. K. (1998). Influencing the superior: A factor analytical study. Vikalpa, 23(2), 47-52.

Steizel, S. & Rimbau-Gilabert, E. (2013). Upward influence tactics through technology-mediated communication tools. Computers in Human Behaviour, 29(2), 462-472.

Tasselli, S. & Kilduff, M. (2018). When brokerage between friendship cliques endangers trust: a personality–network fit perspective. Academy of Management Journal, 61(3), 802-825.

Taylor, R. R., Hanlon, S. C., & Boyd, N. G. (1992). Can leaders and subordinates be friends? A classroom approach for addressing an important managerial dilemma. Journal of Management Education, 16(1), 39-55.

Trompenaars, A. M. R. (1985). The organization of meaning and the meaning of organization: A comparative study on the conceptions of organizational structure in different cultures (brain). In ProQuest dissertations. AAI8515460 (database online). Pennsylvania: Penn Libraries.

Uhl-Bien, M. (2006). Relational Leadership Theory: Exploring the social processes of leadership and organizing. The Leadership Quarterly, 17(6), 654-676.

Van Kleef, G. A., & Cheng, J. T. (2020). Power, status, and hierarchy: current trends and future challenges. Current Opinion in Psychology, 33, iv-xiii.

Vroom, V. H. and Yetton, P. W. (1973). Leadership and decision-making. 110, University of Pittsburgh Press.

Wang, D. (2020). How do followers distance themselves from leaders? An interpretive study of followership in physical and non-physical contexts. Doctoral dissertation (database online), Lancaster, UK: Library of Lancaster University.

West, M. & Sheldon-Keller, A. (1992). The assessment of dimensions relevant to adult reciprocal attachment. Canadian Journal of Psychiatry, 37(9), 600-606.

Wheatley, M. (2006). Leadership and the new science: Discovering order in a chaotic world. 3rd ed. San Francisco, CA: Berrett-Koehler Publishers.

Wong, S. I. (2019). Influencing upward: Subordinates' responses to leaders'(un)awareness of their empowerment expectations. The International Journal of Human Resource Management, 30(10), 1604-1634.

Young, D. M. (2010). Validation study of the workplace relationships inventory: A workplace self-report measure of adult attachment style. Doctoral dissertation (database online), UT Southwestern Institutional Repository. https://utswmed-ir.tdl.org

Yung, C. T. & Tsai, K. C. (2013). Followership: An important partner of leadership. Business and Management Horizons, 1(2), 47-55.

Zheng, X., Li, L., Zhang, F., & Zhu, M. (2019). The roles of power distance orientation and perceived insider status in the subordinates' Moqi with supervisors and sustainable knowledge-sharing. Sustainability, 11(5), 1421.

Zupan, M. K. (2012). Relationship between management and leadership and characteristics of Slovenian managers. Dynamic Relationships Management Journal, 1(2), 21-34

Appendix 1

Table A-1: Follower–leader distance orientation questionnaire

Statement	*Score*
(a) You prefer superiors who keep distant relationships with their subordinates. (b) You prefer superiors who initiate closer relationships with their subordinates.	.... (10)
(c) You feel awkward when superiors share personal issues with you. (d) You see conversations of a personal nature as something natural in superior-subordinate communication.	.... (10)
(e) You are deeply convinced that it is better for the organization if superiors and subordinates keep their relationships formal and objective. (f) You believe that close, informal relationships with superiors increase organizational effectiveness.	.... (10)
(g) In your opinion, work relationships, especially those with the superior, are an integral part of your personal and social life. (h) You prefer to distinguish your personal life and social contacts from your professional life.	.... (10)
(i) You stay alert when your boss asks you questions of a personal nature. (j) You are happy to share information about your personal life with your boss.	.... (10)
(k) You find the superiors' interest in their subordinates' private lives to be correct and necessary. (l) You believe that superiors' interest in their subordinates' private lives is inappropriate and violates human rights.	.... (10)

Appendix 2

Table A-2: Distinctive orientations, number of respondents, and data values to be averaged

Interval	x'	**Orientation**	f	$x'f$
0–15	7.5	High proximity	66	495.0
16–30	22.5	Moderate proximity	99	2227.5
31–45	37.5	Moderate distance	51	1912.5
46–60	52.5	High distance	3	157.5
		Total	**219**	**4792.5**

Vol. 13, No. 1, 53-70
doi:10.17708/DRMJ.2024.v13n01a04

Dynamic Relationships Management Journal

THE YESTERDAY, TODAY AND TOMORROW OF EMPLOYEE AUTONOMY: A BIBLIOMETRIC REVIEW AND RESEARCH AGENDA

Ljupcho Eftimov
Ss. Cyril and Methodius University in Skopje, Faculty of Economics – Skopje, Republic of North Macedonia
ljupco.eftimov@eccf.ukim.edu.mk

Violeta Cvetkoska
Ss. Cyril and Methodius University in Skopje, Faculty of Economics – Skopje, Republic of North Macedonia
vcvetkoska@eccf.ukim.edu.mk

Bojan Kitanovikj
Ss. Cyril and Methodius University in Skopje, Faculty of Economics – Skopje, Republic of North Macedonia
bojan.kitanovikj@eccf.ukim.edu.mk

Abstract

Following the phenomena of the Great Resignation, quiet quitting, and ubiquitous remote work in post-COVID human resource management, researchers' interest in job autonomy has grown to an all-time high. Besides the growing scientific maturity of the field, the extent to which employees should enjoy autonomy in crafting their workload, choosing their work methods and workplace, and the impact on the work outcomes is not synthesized and open to debates. We address the evolutionary development track of this concept using a multitechnique bibliometric analysis of employee autonomy and the invisible colleges framework. Moreover, the research presents a combination of descriptive bibliometric analysis, co-authorship, and keyword co-occurrence analysis, to investigate the state-of-the-art research and past scholar directions about job autonomy. Thus, we contribute to academic research by revealing job autonomy's inherent intellectual structure, investigating the most influential concepts and hotspots, and portraying new paths for future research. Namely, the analysis pointed out core themes including benefits of employee autonomy, job satisfaction and well-being, environmental context, motivation, employee behavior, organizational psychology, work organization, leadership, digitalization, and performance, and five paths for future studies. This leaves space for the topic to be further cross-pollinated with other managerial concepts. The findings have the potential to benefit policymakers, practitioners, and the academic community as crucial stakeholders in the field.

Keywords: *employee autonomy, job autonomy, bibliometric review, co-citation analysis, keyword co-occurrence analysis*

1 INTRODUCTION

Definitions describe employee autonomy or job autonomy as the degree to which the job enables a significant portion of freedom, discretion, and independence in employees to determine how, when, and where they perform their work (Kubicek et al., 2017).

Employee autonomy, which concerns the empowerment of employees and redefines the role of employees in how organizations work has been extensively researched in the last decades, mostly in fields such as organizational psychology, organizational behavior, strategic management, and most dominantly in human resource management (HRM). Both human resource (HR) practitioners and schol-

ars have emphasized employee autonomy as a contributing factor to individual, team, and organizational performance. In this sense, many scholars view job autonomy as a core element of the job design function in HRM, which is tasked with establishing employees' duties, roles, and responsibilities (Ilgen & Hollenbeck, 1991). As one of the most prevalent models in job design, the job characteristics model centers employee autonomy as one of the fundamental dimensions together will skill variety, task identity and significance, and feedback that lead to increased motivation and satisfaction (Ali et al., 2014).

To date, published research has focused mainly on determining various relationships between employee autonomy and employees' cognitive abilities and job-related skills (Morgeson et al., 2005), communication quality and managerial support (Parker et al., 2001), intrinsic motivation (Dysvik & Kuvaas, 2011), perceived control, family support, self-efficacy, and similar (Federici, 2013), and assessing its influences on employee wellbeing, work-life balance, job performance, and work outcomes (Clausen et al., 2022; De Clercq & Brieger, 2021; Cho et al., 2021). Additionally, several meta-literature reviews exist on the topic, yet are predominantly partial and focused on specific relationships between constructs (Khoshnaw & Alavi, 2020) or are in turn industry-specific (Pursio et al., 2021).

This is why we believe that an overarching aerial view of this concept is needed using bibliometric analysis, which has recently gained popularity among researchers as a method for achieving objectivity and comprehensiveness in reviewing efforts (Donthu et al., 2021). Bibliometric methods have the potential to shed light on articles' importance and connections to other articles in the field, presenting these links in a network by clusters. In turn, these connections can remain hidden with systematic literature reviews or meta-reviews. Further, in the case of bibliometric analyses, researcher bias is rarely present, and the sample size is much larger as it often comprises several hundred articles (Zupic & Cater, 2013). Despite all these benefits, very few bibliometric reviews on employees' and job autonomy have been published so far (Zychová et al., 2023), which represented additional motivation for us to carry out this research.

We conducted a quantitative systematic review grounded in bibliometrics and compliant with the PRISMA protocol for acquiring data (Moher et al., 2015). The analyzed period covers all published articles in double-blind peer-reviewed journals until the end of 2023. To contribute to a wider perspective and to ensure an increased level of objectivity, we perform a multitechnique bibliometric analysis containing a descriptive bibliometric analysis, co-authorship analysis, and keyword co-occurrence analysis (Porter et al., 2002). Through using advanced bibliometric techniques, this study attempts to complement prior literature and trace the historical evolution of employee autonomy research, uncover present influential and popular themes and hotspots, and eventually point out directions for future research in the field. With that in mind, we look to answer the following research questions:

RQ1: What is the inherent intellectual structure of the employee autonomy body of research?

RQ2: What are the most influential and impactful concepts, themes, and hotspots nowadays?

RQ3: What is the potential of employee autonomy research and what new paths for future research on the topic exist?

With this, the article's attempted contributions are twofold. To begin with, this bibliometric review underscores the most impactful articles, and the themes they investigate, and pinpoints the current trends of the research trends, which serve as a basis for new investigations in future research endeavors. Then, the second contribution can be seen in the attempt to elevate the existing employee autonomy literature through a more comprehensive and objective point of view in terms of the review. This holds potential theoretical contributions as the dominant job autonomy research is synthesized around the backbone of the bibliometric method comprised of three bibliometric techniques, while also benefitting a range of different stakeholders such as business leaders, managers, HR professionals, who can practically act on the findings in their everyday work towards improving their organizations. Additionally, policymakers can find the contributions useful when regulating unionization and forms of increased employee participation.

To address the above-mentioned research questions, we first provide a theoretical perspective of employee autonomy, followed by an in-depth description of the process of selecting and analyzing data for the three bibliometric techniques. Then, the study will outline the summary of the results in a review grounded in the invisible colleges framework and lastly recommend future research directions in the field in question, as well as underline potential limitations of the bibliometric method.

2 THEORETICAL BACKGROUND

As stated, for this article, we understand employee autonomy in the broadest sense as the level of freedom and discretion employees have in terms of their workplace autonomy, worktime autonomy, and methods autonomy (Kubicek et al., 2017). Other definitions broaden the power delegated to employees with this concept, so they understand it to mean a set of practices that involve the delegation of responsibility in the hierarchy to give the workforce enhanced authority and decision-making (Lin et al., 2013). Besides the work-related aspects, some researchers believe that employee autonomy also translates to allowing workers to regulate and show their feelings, emotions, and behaviors to pursue the fulfillment of the objectives, which are grounded in their personal values and belief systems (Wu et al., 2015).

Moreover, the dimensions of job autonomy have significantly varied over time as more researchers added new constructs to this umbrella concept. One of the first conceptualizations of employee autonomy stress job schedule or the autonomy to schedule the work on one's own and job procedures or the autonomy to opt for the approach one believes is the most adequate one for performing a certain task (De Spiegelaere et al., 2016). Then, other dimensions were considered such as autonomy in choosing the job criteria, goals, pace of work, the workplace, workload, and working hours – the latter gaining new ground with the ubiquitous character of remote work and hybrid work practices (Muecke & Iseke, 2019; Sewell & Taskin, 2015). Some later additions to the dimensions of job autonomy include decision-making and self-reflection (Theurer et al., 2018).

A concept that is commonly mistaken for job autonomy is independence in the workplace. While they have similarities, the concepts differ widely one from the other. According to the self-determination theory, job autonomy can be characterized by having free will at work and standing behind the actions and values one believes in (Deci et al., 2017). On the other hand, independence means that one does not need nor accept any help or resources to perform the task, so one does not require others to perform the tasks and can function on one's own (Tsen et al., 2021).

In other words, job autonomy does not necessarily require an employee to be independent – in fact, an employee can be autonomous while depending on co-workers and managers for support and help with the workload. With that in mind, the positive effects of increased autonomy in the workplace are often associated with work outcomes like increased employee satisfaction, motivation, engagement, commitment, and self-efficacy, while mitigating work-related stress and nurturing trustworthy relationships with the top managers (Clausen et al., 2022; Cho et al., 2021; Morgeson et al., 2005).

Yet, a body of empirical work indicates that negative effects are more likely to be seen on employees' well-being when employees have the power to decide when and where they perform their work tasks and duties, leading to possible deviations from the organizational objectives (Kubicek et al., 2017). These negative effects can be attributed to the differences in the characteristics of each employee as well as the various groups of job features (Lu et al., 2017). The way job autonomy is perceived is also different among cultures; while some fully embrace it, others shun it, preferring to widen the gap between management and employees. These differences further fuel the debate and the scientific discourse surrounding this concept.

3 METHODS AND DATA

The objective of bibliometric methods as research instruments is the evaluation and analysis of scientific literature to uncover the structure and dynamics of a scientific field with classification and visualization (Zupic & Cater, 2013). This is why these

techniques are often equated with science mapping, as they tend to shed light on relationships between publications. Despite being a well-established method (Kessler, 1963), bibliometric analysis has recently gained the researchers' interest partly because of the accessible online databases for retrieving data and then because of the objective, aerial, synthesized view on a particular subject matter, which is useful for other scholars and future research endeavors. Enhanced bibliometric software like VOSviewer, R, Bibexcel, and similar played a big role in the proliferation of bibliometric studies.

To fulfill our research objectives, we conduct descriptive bibliometric analysis, co-authorship analysis, and keyword co-occurrence bibliometric analysis. The co-citation technique is based on the frequency at which articles, authors, or journals are cited together, meaning that if a pair of co-cited articles frequently appears in a body of work, their connection or link strength is stronger and the concepts they elaborate are more closely tied together.

The descriptive and co-authorship analyses were some of the first bibliometric techniques followed by keyword co-occurrence analysis, which was introduced later in the bibliometric development journey. It focuses on the content of the article, and establishing relationships based on keywords from article titles and abstracts (Zupic & Cater, 2013). A rule of thumb of this technique is that the connection between two keywords and concepts is as strong as the number of articles in which two important words appear. As a result, the network map generated as an output of this analysis places the keywords closer to each other if they are more connected and appear more frequently (Wallin, 2005).

With this study, we also wanted to analyze the field's development across time. We interpret these evolutionary rather than revolutionary changes in the field by incorporating them into the conceptual framework of invisible colleges, which is typically utilized for investigating scientific communication to expose the dynamic transformations across the analyzed period (Vogel, 2012). The framework proposes several patterns evident in the evolutionary development of invisible colleges from the emergence of a new college without its predecessors until two or more colleges combine and merge into a scientific thought: college appearance, transformation, drift, differentiation, fusion, implosion, and revival (Vogel, 2012).

In terms of the data, a search query was performed in the Scopus database, one of the leading databases that index global, high-quality research on 17 December 2023. The subject area was limited to business, management, and accounting, and only peer-reviewed articles in scientific journals were included in the query. Moreover, we used the following search syntax: ("EMPLOYEE*" AND "AUTONOM*"), ("JOB" AND "AUTONOM*"), and ("WORK*" AND "AUTONOM*"). The search generated a total of 1565 articles.

The inclusion criteria to determine the final dataset for this study included original scientific articles that analyze an aspect of employee autonomy, written in the English language, and indexed in the Scopus database. On the other hand, commentaries, country reports, governmental reports, abstracts, editorials, posters, research protocols, white papers, so-called gray literature, and thesis dissertations were excluded from consideration.

To clean the data and get to the dataset of included articles, we followed the PRISMA protocol (Moher et al., 2015). The steps and a detailed description of the performed action per this protocol are given in Figure 1. The data sample eventually consisted of 1041 articles.

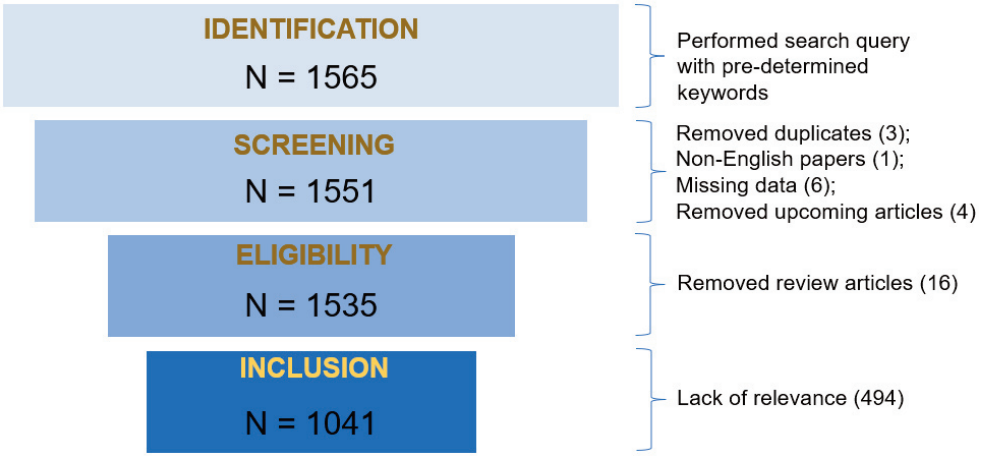
4 RESULTS AND FINDINGS

4.1 Descriptive Analysis

A total of 1041 articles on employee autonomy were published from 1957 onwards: that year marking the publication of the first article mentioning job autonomy in the context of determining job satisfaction and employee turnover (Ross & Zander, 1957). The last five years have been instrumental in employee autonomy research as is evident in Figures 2 and 3, which display the timeline of published articles per year.

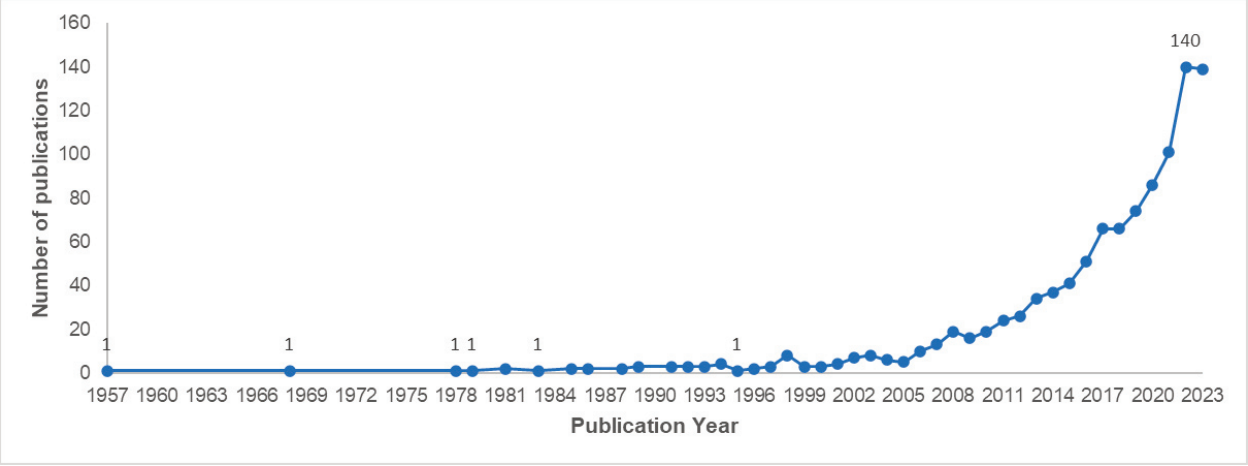
In the early years, employee autonomy was viewed as just an integral part of job characteristics and demands, which is why it was researched paired with the rest of the constructs of models like the job

Figure 1: Visual presentation of the applied PRISMA protocol



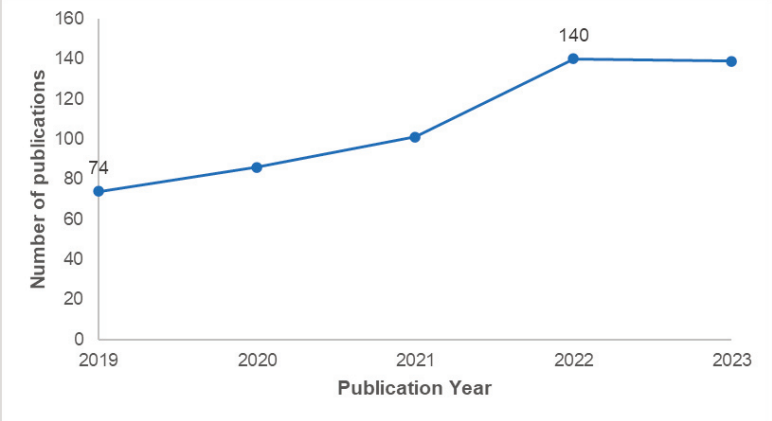
Source: Authors' analysis

Figure 2: Annual trend of published articles on employee autonomy



Source: Authors' analysis

Figure 3: Five-year trend of published articles on employee autonomy



Source: Authors' analysis

demands-resources model (Taipale et al., 2011). It was not until the 2010s that scholars started massively singling out employee autonomy as a separate concept worth analyzing. Furthermore, from the large research body, some foundational articles stand out; the most-cited ones are presented in Table 1.

The interest in this field is evident in the fact that since 2010, more than 900 articles have been written about the level of autonomy of employees and its impact on other organizational phenomena, which is nine times more than in all years before 2010 combined. Journals which have published the most employee autonomy-related articles are *International Journal of Human Resource Management* (36), *European Journal of Work and Organizational Psychology* (26), *Personnel Review* (21), *Journal of Managerial Psychology* (20), *Employee Relations* (18), *Human Relations* (18), and *Journal of Vocational Behavior* (17), signaling the main research areas featuring job autonomy literature to be human resource management, organizational psychology, leadership, and organizational behavior.

The most-cited authors who have achieved that with the fewest published articles are presented in Table 2. They reflect the diverse landscape of employee autonomy research, confirming the various research contexts where this field has developed.

4.2 Co-authorship Bibliometric Analysis

Connected with authorship, the following bibliometric technique analyzes co-authorship among authors and country-wise. To achieve this, all articles from the identified data sample were imported into the software VOSviewer, one of the leading pro-

Table 1: Most-cited articles on employee autonomy

Title	Author(s)	Source	Total Citations
Strength is ignorance; slavery is freedom: Managing culture in modern organizations	Willmott (1993)	*Journal of Management Studies*	974
Work engagement and financial returns: A diary study on the role of job and personal resources	Xanthopoulou et al. (2009)	*Journal of Occupational and Organizational Psychology*	797
Determinants of individual engagement in knowledge sharing	Cabrera et al. (2006)	*International Journal of Human Resource Management*	748
Weekly work engagement and performance: A study among starting teachers	Bakker & Bal (2010)	*Journal of Occupational and Organizational Psychology*	723
On the relations among work value orientations, psychological need satisfaction and job outcomes: A self-determination theory approach	Vansteenkiste et al. (2007)	*Journal of Occupational and Organizational Psychology*	440
Job crafting and its relationships with person-job fit and meaningfulness: A three-wave study	Tims et al. (2016)	*Journal of Vocational Behavior*	374
Exploring nonlinearity in employee voice: The effects of personal control and organizational identification	Tangirala & Ramanujam (2008)	*Academy of Management Journal*	335
The employee-organization relationship, organizational citizenship behaviors, and superior service quality	Bell & Menguc (2002)	*Journal of Retailing*	315
The experience of powerlessness in organizations	Ashforth (1989)	*Organizational Behavior and Human Decision Processes*	307
Conflict management, efficacy, and performance in organizational teams	Alper et al. (2000)	*Personnel Psychology*	302

Source: Authors' analysis

Table 2: Most-cited authors on employee autonomy

Author	Total citations	Number of published articles
Bakker A.B.	2334	11
Demerouti E.	1332	9
Schaufeli W.B.	1072	7
Willmott H.	1043	2
Xanthopoulou D.	961	4
Bal P.M.	882	2
De Witte H.	815	7
Cabrera Á.	748	1
Collins W.C.	748	1
Salgado J.F.	748	1

Source: Authors' analysis

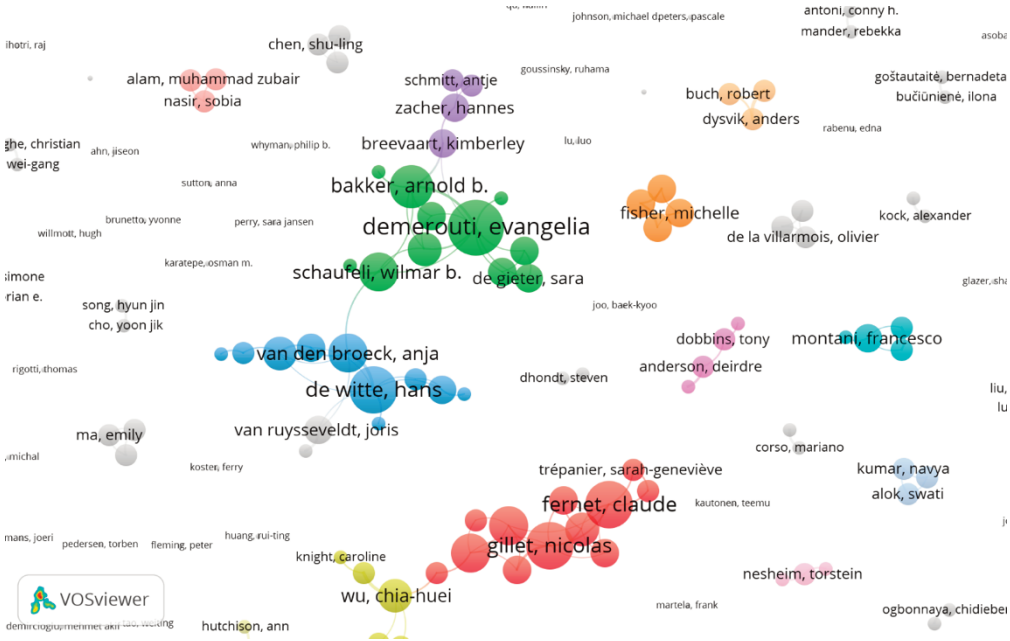
grams for multitechnique bibliometric analysis (Van Eck & Waltman, 2010). There are several mini clusters and connections between the authors out of which most notable for the bibliometric analysis are the green, blue, and red clusters shown in Figure 4 due to their size and biggest link strengths.

The *green cluster* is represented by the inclusion of employee autonomy measurement as part of the job demands-resources (JD-R) theory. These co-authorship collaborations have found that the feeling of increased employee autonomy can combat burnout (Bakker et al., 2014), boost employee engagement levels (Demerouti et al., 2010), empower employees to participate in crafting their jobs (Demerouti et al., 2015). In recent years, the relationship between job demands and resources, which includes employee autonomy, has gained new popularity when researched in the context of organizational and environmental crises. The *blue cluster* sees autonomy as an integral part of employees' basic needs satisfaction (Van den Broeck et al., 2010). Additionally, the scholars analyzing this concept connected employee autonomy with the fulfillment of needs and the effect on autonomous motivation, meaning that employees who feel they have higher levels of freedom and discretion in their work will have fulfilled such psychological needs, thus making them more self-motivated in their performance (De Cooman et al., 2013). Findings in this cluster also suggest that senior employees value higher job autonomy and, in such cases, may be more willing to work until retirement age (Vanbelle et al., 2017). Reaffirming these findings, authors in the *red cluster* also find that higher levels of autonomy are associated with enhanced autonomous motivation (Sandrin et al., 2022), which can result in improved performance and commitment to the organization on one hand, and lower turnover rates on the other (Fernet et al., 2021).

Country co-authorship is another important bibliometric technique for determining the research contexts of existing employee autonomy research. For the analysis, the country co-authorship minimum threshold was set to two articles, so that more countries can be represented. This translated into a map of 64 countries, which are categorized into 11 clusters, each represented with a separate color (Figure 5).

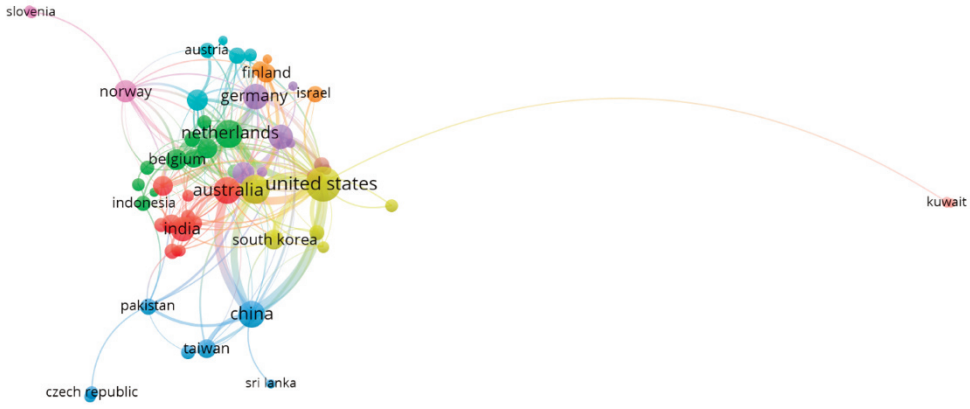
Most authors tend to collaborate with their peers from the cluster itself. Additionally, the majority of countries in a single cluster have other contextual, historical, cultural, or geographical connections. Illustratively, the green cluster is composed mainly of European countries or countries that speak similar languages. This includes the Netherlands, Spain, Portugal, Brazil, Italy, Belgium, Poland, Lithuania, and more. While some authors like ones from the United States and the United Kingdom often pair up with counterparts from their cluster, they are an example

Figure 4: Co-authorship network visualization map



Source: Authors' analysis

Figure 5: Country co-authorship map



Source: Authors' analysis

of cross-regional collaboration as can be demonstrated through the strong link connection between these two countries and China. Chinese authors also contribute to employee autonomy literature with Pakistani, Taiwanese, and Sri Lankan authors, to name a few, too.

Tables 3 and 4 present a ranking of countries where employee autonomy researchers come from in terms of the total number of citations and the number of published articles in the field. When it comes to the former, the most productive were European authors, whose countries make up half of the

Figure 3: Structural model of CXM framework for loyalty

#	Country	Number of Published Articles
1	United States	208
2	United Kingdom	113
3	The Netherlands	99
4	Australia	88
5	China	80
6	Germany	72
7	Canada	59
8	India	59
9	France	40
10	Norway	40

Source: Authors' analysis

Table 4: Country co-authorship by number of total citations

#	Country	Number of Total Citations
1	United States	8671
2	The Netherlands	5871
3	United Kingdom	4344
4	Australia	3693
5	Canada	3137
6	China	2079
7	Germany	1647
8	Belgium	1593
9	Spain	1379
10	Norway	1145

Source: Authors' analysis

top 10 countries in this aspect with countries from the Americas and Asia, following closely behind.

The situation is changed when the total citations are accounted for. While the first four countries are still present, their positions have slightly changed. It can be concluded that the United States authors have both the most published articles and the most citations. Interestingly, Belgium and Spain were not among the 10 most productive countries, but in turn, entered the 10 most-cited countries.

4.3 Keyword Co-occurrence Bibliometric Analysis

This bibliometric technique aims to identify key themes and topics in employee autonomy research. Each cluster of keywords in the bibliographic map corresponds with the subfields of the bigger employee autonomy field (Van Raan, 2014). Moreover, for this analysis, the same dataset consisting of 1041 articles was used. Due to the size, the number of keywords for the semantic map had to be minimized by determining the most adequate threshold. This

was done through trial and error and eventually, the minimum number was set to two articles mentioning a certain keyword to gain a more aerial perspective of the employee autonomy field.

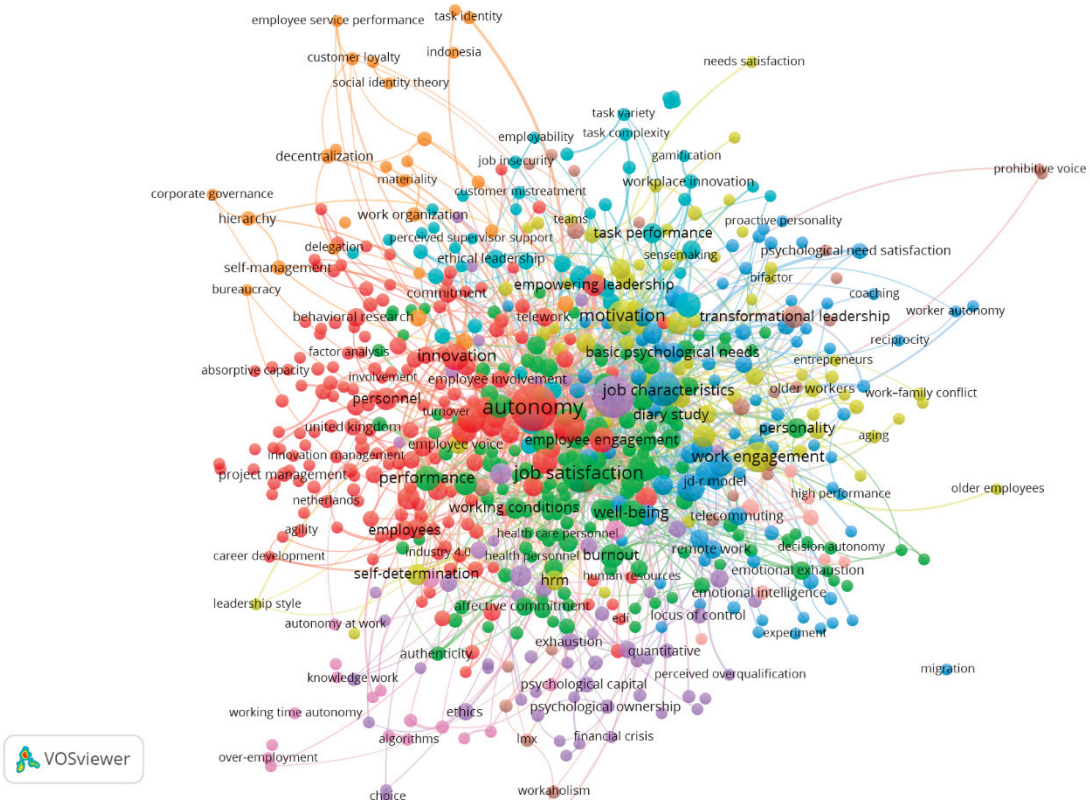
After the abstract and keyword mining and manually selecting the relevant keywords, 654 keywords were included in the network visualization map (Figure 6). These keywords are connected with 6067 links and their total link strength is 1674.49. In this sense, the five keywords with the highest occurrences across the research landscape include '*autonomy*' (links: 329, total link strength: 185, occurrences: 191), '*job autonomy*' (links: 234, total link strength: 120, occurrences: 126), '*job satisfaction*' (links: 212, total link strength: 92, occurrences: 96), '*self-determination*' (links: 138, total link strength: 66, occurrences: 67), '*motivation*' (links: 151, total link strength: 46, occurrences 46).

The keywords were separated into 10 interconnected clusters: 1) *red cluster*: Benefits of employee autonomy, 2) *green cluster*: Job satisfaction and wellbeing, 3) *dark blue cluster*: Environmental context, 4) *yellow cluster*: Motivation, 5) *purple cluster*: Employee behavior, 6) *light blue cluster*: Organizational psychology, 7) *orange cluster*: Work organization, 8) *brown cluster:* Leadership, 9) *pink cluster:* Digitalization, and 10) *magenta cluster:* Performance. In the next paragraphs, we examine the clusters with the highest keyword occurrences in further detail.

Red cluster: Benefits of employee autonomy

The red cluster is the largest one, encompassing 173 distinct keywords, which are related to the various relationships that employee autonomy has with other constructs. The most frequent keywords are 'autonomy', 'leadership', 'human resource management', 'innovation', and 'personnel', which are in turn connected with other items like 'knowledge management', 'empowerment', 'employee engagement', 'control', 'entrepreneurship', and similar. De-

Figure 6: Network visualization of keyword co-occurrence analysis



Source: Authors' analysis

spite the negative aspects of this concept, existing research mainly focuses on the positives. When employees feel they are more autonomous, this can highly likely translate into a higher absorptive capacity, need satisfaction, commitment, willingness for continuous improvement, creativity, and innovative work behavior (Chung-Yan, 2010; Langfred & Moye, 2004; Cho et al., 2021). Ultimately, this makes the entire employee experience at work better, which is one of the primary domains of HRM. The research in the cluster has mostly been done in the Asian context and industries such as banking and healthcare and family businesses and startups. Recently, research on work-from-home practices demonstrated the effects of perceived autonomy in this context, too (Galanti et al., 2021).

Green cluster: Job satisfaction and wellbeing

The second largest cluster consists of 147 keywords, which are mostly connected with this cluster's highest-occurring keywords 'job satisfaction' and 'wellbeing'. Other notable keywords include 'job crafting', 'work-life balance', 'working conditions', 'workplace', 'burnout', 'emotional exhaustion', 'personality', and more. Scholars point out that lower levels of autonomy may result in higher absenteeism and this organizational phenomenon may mitigate the effects of burnout, customer aggression, emotional exhaustion, and dissonance, especially in knowledge-intensive organizations (Kim et al., 2019). The level of hierarchy and management support can play a role in this aspect when crafting the job characteristics together with the HR team and the employees. The research context is a diverse one, including countries from Eurasia, Canada, South Africa, and more, with methods like thematic analysis, regression analysis, and qualitative research predominantly used.

Dark blue cluster: Environmental context

Keywords like 'self-determination', 'covid-19', 'organizational commitment', and 'job design' dominate this cluster and are linked with similar ones relating to the context of the surrounding one finds themselves in such as 'co-workers support', 'crisis', 'employee development', 'flexible working', 'hybrid work', 'justice', and others. The total number of keywords in this cluster is 83. Further, research endeavors signal that the level of autonomy workers enjoy may vary in different critical situations and this feeling can be a potent mediating factor when the organization is facing a crisis (Frare & Beuren, 2021). While employees are more autonomous when working remotely, this can impact their feelings of loneliness on one hand or make them more efficient in some cases due to their self-efficacy and self-determination (Mohammed et al., 2022).

Yellow cluster: Motivation

This cluster considers the effect of employee autonomy on the motivation or engagement to perform the required tasks. Of the 67 distinct keywords, the ones that occur the most are 'work engagement' and 'motivation', which further link with 'job characteristics', 'organizational citizenship', 'self-employment', and other keywords. As workplaces become more diverse generation-wise, multiple studies confirm that workers from Generation Y value their autonomy as a motivational factor and see it as a core value for making sure the employee's voice is heard (Rice et al., 2022). Autonomy has been found to be crucial for female employees as another category, especially if they choose to start a family (Halldén et al., 2012). The sense of increased freedom about how, where, and when the job is done is also one of the reasons why entrepreneurs tend to launch their businesses instead of opting to work for someone else (Van Gelderen & Jansen, 2006). European countries like Greece, Norway, and Finland appear as the backdrop of these findings while studies in the public sector and the hospitality sector dominate.

Purple cluster: Employee behavior

Consisting of 60 keywords, this cluster reaffirms that employee autonomy can impact how employees act not simply how they feel. The main item in the cluster is 'job autonomy' with 'job performance' trailing behind, connecting with keywords such as 'employee relations', 'employee retention', 'employee turnover', 'innovative work behavior', 'proactivity, 'participative decision-making', and more. While employee autonomy can affect whether the worker perceives the work as meaningful or not, it can also help them decide if they want to stay or leave the organization (Dysvik & Kuvaas, 2013). Task and structural autonomy are highlighted as autonomy types that can particularly leverage employee

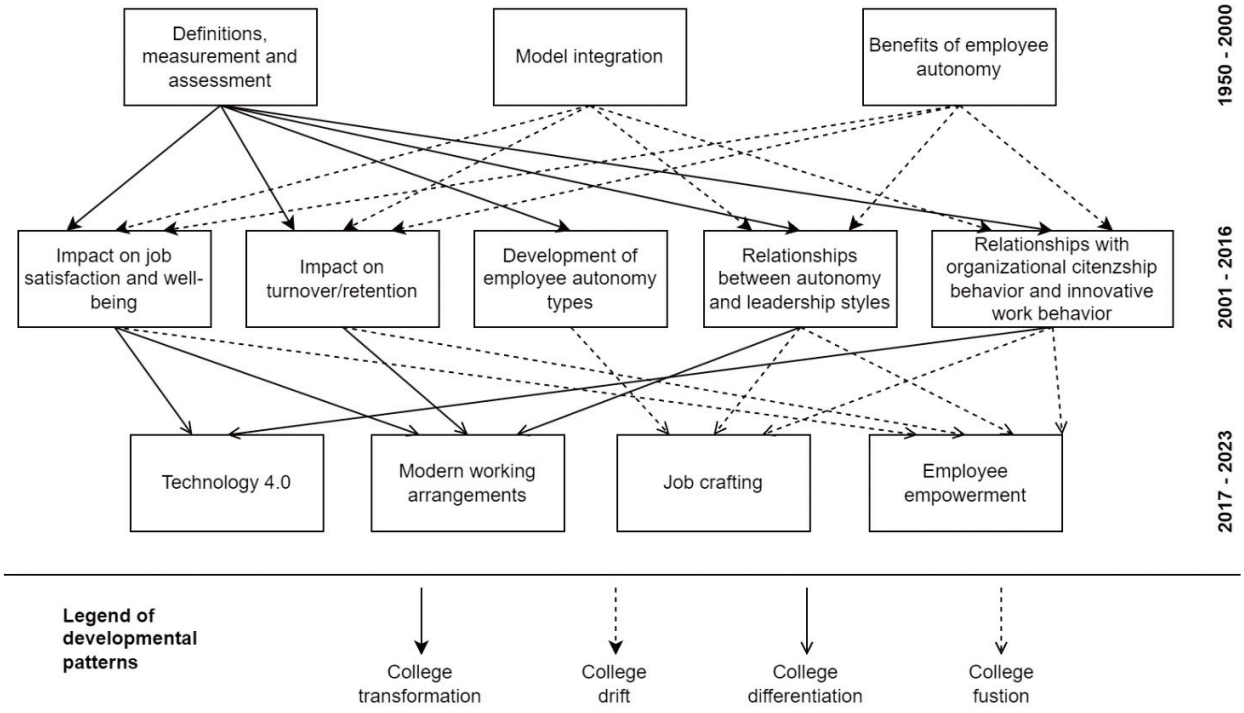
behavior in a way that drives job performance further and stimulates innovation as a key competitiveness factor (Pattnaik & Sahoo, 2021).

5 REVIEW OF THE EVOLUTION OF EMPLOYEE AUTONOMY AND DISCUSSION

As described in the section dedicated to the used methodology, besides the bibliometric analysis, we interpret the field's development across four phases from its origins in the 1950s until now through the framework of invisible colleges (Vogel, 2012), including college transformation, drift, differentiation, and fusion. This framework has also been used by other researchers to track the evolutionary patterns and paths of different organizational phenomena like work mindfulness (Bunjak et al., 2022). The findings from the clusters of the bibliometric techniques are synthesized in the framework.

The framework, presented in Figure 7, indicates that employee autonomy research has first been defined, assessed, and measured using different scales and methods. With that in mind, employee autonomy as a concept has been included in the job engagement scale and performance questionnaire, training, information, participation, and autonomy (TIPA) scale, the measure of disorganization, the basic psychological needs at work scale (BPNWS), the job quality scale, and the work autonomy scales. Then, it was paired up with other organizational phenomena in theoretical models which in their inception were used for evaluating their impact on job satisfaction, well-being, behavior, and similar. After developing several autonomy types, researchers analyzed the impact of leadership and other facilitating conditions on this construct. In its final stages of development so far, new technologies such as artificial intelligence, digitalization, flexible working arrangements, and individual and team job crafting have reinvigorated job autonomy as an organizational segment. Now, it is often fused with other employee-centered aspects like empowerment and participative decision-making.

Figure 7: Evolutionary development patterns of employee autonomy research grounded in the invisible colleges framework



Source: Authors' analysis

It is worth noting that it didn't take for a phase to end so that another could start, instead, they overlapped and even in recent years, scholars have found different ways for comprehensively measuring the impact of employee autonomy on as many spheres of the professional and personal lives of workers.

The foundation of most employee autonomy research is a solid theoretical framework and a theoretical background that has incorporated this concept when analyzing organizational phenomena. Subsequently, Figure 8 presents a word cloud of the theories that have attempted to incorporate, define, or explain employee autonomy across the historic development of the concept.

Looking at the roots of HRM historically, one of the reasons for establishing the HR profession was to enable employee autonomy (Hansen et al., 1994) as a healthy concept that views each employee as his/her whole self, who should be free to some extent make work-related decisions that affect them. This relates to the early efforts of increasing employee participation and the growing need for unionization across different industries (Chang et al., 2017).

Job autonomy is especially analyzed between employees and entrepreneurs with the former stating that this can be a reason for starting a new business (De Clercq & Brieger, 2021). Furthermore, managerial and employee autonomy is perceived as a significant career development step (Lartey, 2021), which means that workers can self-direct their careers and learn at their own pace.

Employee autonomy research has been affiliated with the different types of leadership, too. Often, cultures that promote ethical, transformative, and Laissez-faire leadership styles tend to value a higher degree of job autonomy for the workforce (Gao & Jiang, 2019). Not only leadership types, but several management styles like lean management, agile, and amoeba management also tend to favor the wide expansion of this concept (Butollo et al., 2019). Additionally, since employees don't necessarily depend on each other, autonomous jobs invoke the discussion of work alienation as well as organizational knowledge sharing and hiding (Peng et al., 2022). As a result, if there is a lack of communication, too autonomous employees may choose to withhold information from their co-workers.

Recent research has put the focus on using employee autonomy to build a resilient workforce that finds meaningfulness in the work, while improving their psychological wellbeing (Martela et al., 2021). Even though employees are freer to make decisions about their work, when they feel autonomous, they are more likely to display positive organizational citizenship and innovative work behavior (De Spiegelaere et al., 2016). Yet, researchers have pointed out the autonomy paradox, meaning that too much of a good thing, or in our case, employee autonomy can lead to destructive effects on the organizational core and fabric (Fürstenberg et al., 2021).

6 PATHS FOR FUTURE RESEARCH

A significant part of bibliometric analysis is to identify the latest trends and potential future research pathways in the field. Our quantitative approach takes a look at the latest themes in employee autonomy research presented historically in the overlay visualization map in Figure 9. The circles in

Figure 8: Word cloud of employee autonomy theories

Source: Authors' analysis

the map are colored in yellow and darker colors, meaning that the brighter the circle is, the more recently this theme has been researched.

There is still room for studies of employee autonomy in different research contexts in terms of geographically less-represented regions like the Balkan region, Latin America, South-East Europe, Central Africa, and more, as well as sectors including non-profit, manufacturing, social, and green economy, and similar.

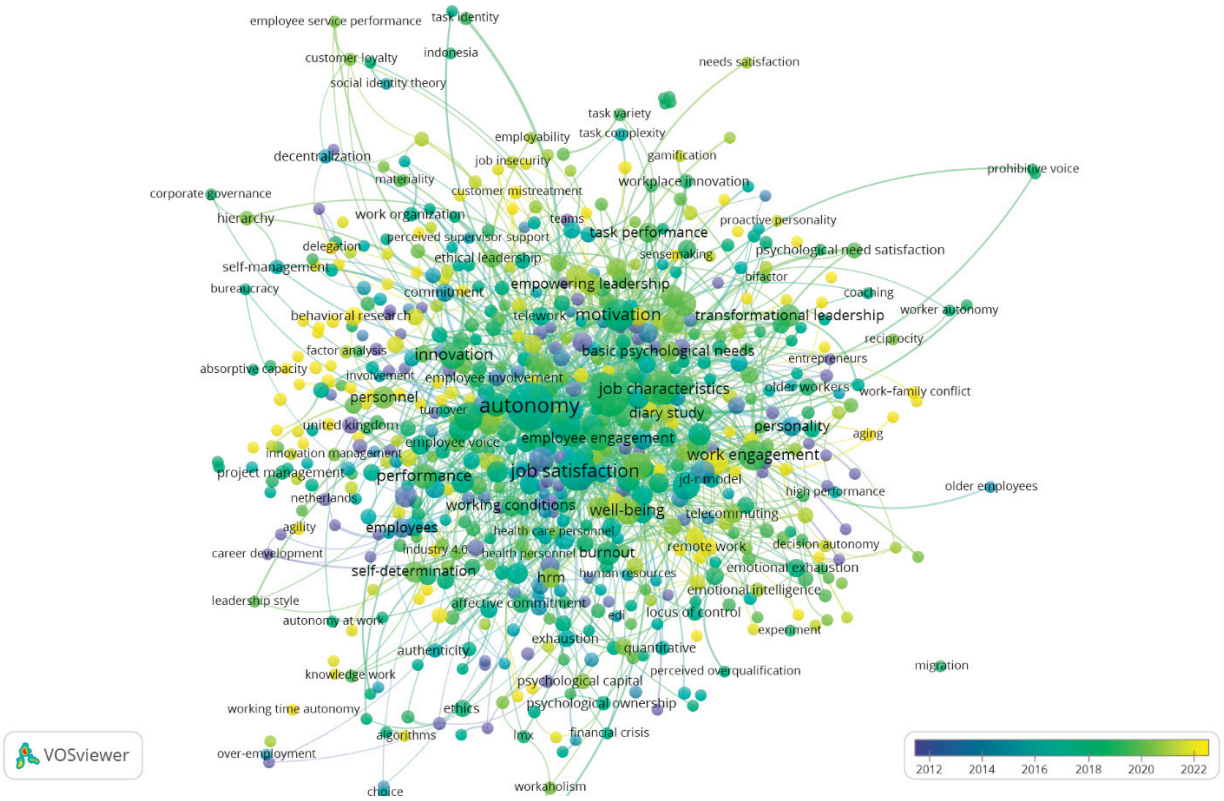
Contemporary technologies such as artificial intelligence and its affiliated methods are predicted to continue widening the impact on employee autonomy. In this sense, there is a gap in the literature about how generative artificial intelligence can help with individual job crafting and the impact of human-artificial intelligence collaboration (Calvo et al., 2020).

Other types of technologies making the headlines include wearable technology and employee behavior tracking, which significantly impacts workers' autonomy (Van Acker et al., 2021). Scholars can explore this relationship and if or to what extent should these technologies be present in the workplace for monitoring employee behavior.

While worker co-operatives aren't a fresh concept, we see a resurgence in their popularity, potentially motivated by the growing debate about giving more voice to employees. As unique types of organizations governed by the workers, it may be beneficial to further analyze the concept of employee autonomy when this type of organization is translated to other industries, especially for-profit ones (Sacchetti & Tortia, 2021).

Furthermore, flexible working arrangements tend to blur the lines when it comes to establishing and maintaining employee autonomy and control in the workplace as an increasing portion of the workforce can work remotely or hybrid (Metselaar et al., 2023). How this affects gig workers and digital nomads may be an interesting research path.

Figure 9: Overlay visualization map on employee autonomy



Source: Authors' analysis

7 CONCLUSION

Through a multitechnique bibliometric analysis of the employee autonomy concept from a dataset of 1041 articles indexed in the Scopus database, our objective was to answer what the inherent intellectual structure of the employee autonomy body of research is, what the most influential concepts, themes, and hotspots are, and what new paths for future research on the topic exist. The findings from the descriptive bibliometric analysis, co-authorship, and keyword co-occurrence analysis, which were additionally synthesized in the invisible colleges framework for tracing the evolutionary development of the field, we focus on a few core themes such as benefits of employee autonomy, job satisfaction and wellbeing, environmental context, motivation, employee behavior, organizational psychology, work organization, leadership, digitalization, and job performance.

The study doesn't come free of some limitations as all bibliographic methods tend to have. This is why they should be complemented by other review types. To begin with, the dataset relies only on the Scopus database, which future studies can use as a motivation to further incorporate articles indexed in other databases like the Google Scholar database, too. Then, different reasons for low citation rates, citing certain publications as well as self-citation cannot be fully established. In this sense, the clusters generated by the bibliometric software are not grounded in science and there is some dose of researcher's input regarding decisions for citation and article thresholds.

All in all, the analysis identified five paths for future studies, focusing on the impact of artificial intelligence-human collaboration and wearable technology on autonomy, the need for widening the research context to less-represented regions, and the rising popularity of worker co-operatives and flexible working arrangements. As a result, the study makes several contributions. Firstly, policymakers can benefit from these findings when regulating unionization and forms of increased employee participation to further democratize workplaces. Additionally, practitioners and the academic community can benefit from the synthesized findings enriched with the invisible colleges framework for elevating the existing employee autonomy literature through a more comprehensive and objective review and analysis.

EXTENDED SUMMARY/IZVLEČEK

V obdobju po fenomenih velikega odstopa, tihega odstopa in vseprisotnega dela na daljavo, povezanimi z managementom človeških virov po COVID-19, se je zanimanje raziskovalcev za avtonomijo pri delu povečalo na rekordno visoko raven. Poleg naraščajoče znanstvene zrelosti področja obseg, v katerem bi morali zaposleni uživati avtonomijo pri oblikovanju svoje delovne obremenitve, izbiri metod dela in delovnega mesta ter vpliv na delovne rezultate, ni sintetiziran in je odprt za razprave. Obravnavamo evolucijsko razvojno pot tega koncepta z uporabo več tehnik bibliometrične analize hkrati in okvira nevidnih struktur raziskovalnega sodelovanja. Poleg tega raziskava predstavlja kombinacijo opisne bibliometrične analize, soavtorstva in analize sočasnega pojavljanja ključnih besed, da preuči najnovejše raziskave in pretekle usmeritve raziskovalcev o avtonomiji pri delu. Tako prispevamo k akademskemu raziskavanju z razkrivanjem inherentne intelektualne strukture avtonomije pri delu, raziskovanjem najvplivnejših konceptov in aktualnih tem ter prikazovanjem novih poti za prihodnje raziskave. Analiza je izpostavila osrednje teme, vključno s koristmi avtonomije zaposlenih, zadovoljstvom in dobrem počutju pri delu, okoljskim kontekstom, motivacijo, vedenjem zaposlenih, organizacijsko psihologijo, organizacijo dela, vodenjem, digitalizacijo in uspešnostjo ter pet poti za prihodnje študije. To pušča prostor za nadaljnje navzkrižno opraševanje teme z drugimi managerskimi koncepti. Ugotovitve imajo potencial, da koristijo oblikovalcem politik, praktikom in akademski skupnosti kot ključnim deležnikom na področju.

REFERENCES:

Ali, S.A.M., Said, N.A., Abd Kader, S.F., Ab Latif, D.S. & Munap, R. 2014. Hackman and Oldham's job characteristics model to job satisfaction. *Procedia-Social and Behavioral Sciences*, *129*, 46-52.

Alper, S., Tjosvold, D. & Law, K.S. 2000. Conflict management, efficacy, and performance in organizational teams. *Personnel psychology*, *53*(3), 625-642.

Ashforth, B.E. 1989. The experience of powerlessness in organizations. *Organizational behavior and human decision processes*, *43*(2), 207-242.

Bakker, A.B. & Bal, M.P. 2010. Weekly work engagement and performance: A study among starting teachers. *Journal of occupational and organizational psychology*, *83*(1), 189-206.

Bakker, A.B., Demerouti, E. & Sanz-Vergel, A.I. 2014. Burnout and work engagement: The JD–R approach. *Annual Review of Organizational Psychology and Organizational Behavior.*, *1*(1), 389-411.

Bell, S.J. & Menguc, B. 2002. The employee-organization relationship, organizational citizenship behaviors, and superior service quality. *Journal of retailing*, *78*(2), 131-146.

Bunjak, A., Černe, M., & Schölly, E. L. 2022. Exploring the past, present, and future of the mindfulness field: A multitechnique bibliometric review. *Frontiers in psychology*, *13*, 792599.

Butollo, F., Jürgens, U. & Krzywdzinski, M. 2019. *From lean production to Industrie 4.0: More autonomy for employees?* (pp. 61-80). Springer International Publishing.

Cabrera, A., Collins, W.C. & Salgado, J.F. 2006. Determinants of individual engagement in knowledge sharing. *The International Journal of Human Resource Management*, *17*(2), 245-264.

Calvo, R.A., Peters, D., Vold, K. & Ryan, R.M. 2020. Supporting human autonomy in AI systems: A framework for ethical enquiry. *Ethics of digital well-being: A multidisciplinary approach*, 31-54.

Chang, J., Travaglione, A. & O'Neill, G. 2017. Job attitudes between unionized and non-unionized employees. *International Journal of Organizational Analysis*, *25*(4), 647-661.

Cho, J., Schilpzand, P., Huang, L. & Paterson, T. 2021. How and when humble leadership facilitates employee job performance: the roles of feeling trusted and job autonomy. *Journal of Leadership & Organizational Studies*, *28*(2), 169-184.

Chung-Yan, G.A. 2010. The nonlinear effects of job complexity and autonomy on job satisfaction, turnover, and psychological well-being. *Journal of occupational health psychology*, *15*(3), 237.

Clausen, T., Pedersen, L.R.M., Andersen, M.F., Theorell, T. & Madsen, I.E. 2022. Job autonomy and psychological well-being: A linear or a non-linear association?. *European Journal of Work and Organizational Psychology*, *31*(3), 395-405.

De Clercq, D. & Brieger, S.A. 2021. When discrimination is worse, autonomy is key: How women entrepreneurs leverage job autonomy resources to find work–life balance. *Journal of Business Ethics*, 1-18.

De Cooman, R., Stynen, D., Van den Broeck, A., Sels, L. & De Witte, H. 2013. How job characteristics relate to need satisfaction and autonomous motivation: Implications for work effort. *Journal of Applied Social Psychology*, *43*(6), 1342-1352.

De Spiegelaere, S., Van Gyes, G. & Van Hootegem, G. 2016. Not all autonomy is the same. Different dimensions of job autonomy and their relation to work engagement & innovative work behavior. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *26*(4), 515-527.

Deci, E.L., Olafsen, A.H. & Ryan, R.M. 2017. Self-determination theory in work organizations: The state of a science. *Annual review of organizational psychology and organizational behavior*, *4*, 19-43.

Demerouti, E., Bakker, A.B. & Halbesleben, J.R. 2015. Productive and counterproductive job crafting: A daily diary study. *Journal of Occupational Health Psychology*, *20*(4): 457.

Demerouti, E., Mostert, K. & Bakker, A.B. 2010. Burnout and work engagement: a thorough investigation of the independency of both constructs. *Journal of occupational health psychology*, *15*(3), 209.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N. & Lim, W.M. 2021. How to conduct a bibliometric analysis: An overview and guidelines. *Journal of business research*, *133*, 285-296.

Dysvik, A. & Kuvaas, B. 2011. Intrinsic motivation as a moderator on the relationship between perceived job autonomy and work performance. *European journal of work and organizational psychology*, *20*(3), 367-387.

Dysvik, A. & Kuvaas, B. 2013. Perceived job autonomy and turnover intention: The moderating role of perceived supervisor support. *European Journal of Work and Organizational Psychology*, *22*(5), 563-573.

Federici, R.A. 2013. Principals' self-efficacy: Relations with job autonomy, job satisfaction, and contextual constraints. *European journal of psychology of education*, *28*, 73-86.

Fernet, C., Gillet, N., Austin, S., Trépanier, S.G. & Drouin-Rousseau, S. 2021. Predicting nurses' occupational commitment and turnover intention: The role of autonomous motivation and supervisor and coworker behaviors. *Journal of Nursing Management*, *29*, 2611-2619.

Frare, A.B. & Beuren, I.M. 2021. Job autonomy, unscripted agility and ambidextrous innovation: analysis of Brazilian startups in times of the Covid-19 pandemic. *Revista de Gestão*, *28*(3), 263-278.

Fürstenberg, N., Alfes, K. & Kearney, E. 2021. How and when paradoxical leadership benefits work engagement: The role of goal clarity and work autonomy. *Journal of Occupational and Organizational Psychology*, *94*(3), 672-705.

Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S. & Toscano, F. 2021. Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of occupational and environmental medicine*, *63*(7), e426.

Gao, A. & Jiang, J. 2019. Perceived empowering leadership, harmonious passion, and employee voice: the moderating role of job autonomy. *Frontiers in psychology*, *10*, 1484.

Halldén, K., Gallie, D. & Zhou, Y. 2012. The skills and autonomy of female part-time work in Britain and Sweden. *Research in Social Stratification and Mobility*, *30*(2), 187-201.

Hansen, C.D., Kahnweiler, W.M. & Wilensky, A.S. 1994. Human resource development as an occupational culture through organizational stories. *Human Resource Development Quarterly*, *5*(3), 253-268.

Ilgen, D.R. & Hollenbeck, J.R. 1991. Job design and roles. *Handbook of industrial and organizational psychology*, *2*, 165-207.

Khoshnaw, S. & Alavi, H. 2020. Examining the interrelation between job autonomy and job performance: A critical literature review. *Multidisciplinary Aspects of Production Engineering*, *3*(1), 606-616.

Kim, B., Liu, L., Ishikawa, H. & Park, S.H. 2019. Relationships between social support, job autonomy, job satisfaction, and burnout among care workers in long-term care facilities in Hawaii. *Educational Gerontology*, *45*(1), 57-68.

Kubicek, B., Paškvan, M. & Bunner, J. 2017. The bright and dark sides of job autonomy. *Job demands in a changing world of work: Impact on workers' health and performance and implications for research and practice*, 45-63.

Langfred, C.W. & Moye, N.A. 2004. Effects of task autonomy on performance: an extended model considering motivational, informational, and structural mechanisms. *Journal of applied psychology*, *89*(6), 934.

Lartey, F.M. 2021. Impact of career Planning, employee autonomy, and manager recognition on employee engagement. *Journal of Human Resource and Sustainability Studies*, *9*(02), 135.

Lin, B.Y.J., Lin, Y.K., Lin, C.C. & Lin, T.T. 2013. Job autonomy, its predispositions and its relation to work outcomes in community health centers in Taiwan. *Health promotion international*, *28*(2), 166-177.

Lu, J.G., Brockner, J., Vardi, Y. & Weitz, E. 2017. The dark side of experiencing job autonomy: Unethical behavior. *Journal of Experimental Social Psychology*, *73*, 222-234.

Martela, F., Gómez, M., Unanue, W., Araya, S., Bravo, D. & Espejo, A. 2021. What makes work meaningful? Longitudinal evidence for the importance of autonomy and beneficence for meaningful work. *Journal of vocational behavior*, *131*, 103631.

Metselaar, S.A., den Dulk, L. & Vermeeren, B. 2023. Teleworking at different locations outside the office: Consequences for perceived performance and the mediating role of autonomy and work-life balance satisfaction. *Review of Public Personnel Administration*, *43*(3), 456-478.

Mohammed, Z., Nandwani, D., Saboo, A. & Padakannaya, P. 2022. Job satisfaction while working from home during the COVID-19 pandemic: do subjective work autonomy, work-family conflict, and anxiety related to the pandemic matter?. *Cogent Psychology*, *9*(1), 2087278.

Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L.A. & Prisma-P Group, 2015. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*, *4*, 1-9.

Morgeson, F.P., Delaney-Klinger, K. & Hemingway, M.A. 2005. The importance of job autonomy, cognitive ability, and job-related skill for predicting role breadth and job performance. *Journal of applied psychology*, *90*(2), 399.

Muecke, S. & Iseke, A. 2019, July. How does job autonomy influence job performance? A meta-analytic test of theoretical mechanisms. In *Academy of management proceedings* (Vol. 2019, No. 1, p. 14632). Briarcliff Manor, NY 10510: Academy of Management.

Parker, S.K., Axtell, C.M. & Turner, N. 2001. Designing a safer workplace: importance of job autonomy, communication quality, and supportive supervisors. *Journal of occupational health psychology*, *6*(3), 211.

Pattnaik, S.C. & Sahoo, R. 2021. Employee engagement, creativity and task performance: role of perceived workplace autonomy. *South Asian Journal of Business Studies*, *10*(2), 227-241.

Peng, Q., Zhong, X., Liu, S., Zhou, H. & Ke, N. 2022. Job autonomy and knowledge hiding: the moderating roles of leader reward omission and person–supervisor fit. *Personnel Review*, *51*(9), 2371-2387.

Porter, A.L., Kongthon, A. & Lu, J.C. 2002. Research profiling: Improving the literature review. *Scientometrics*, *53*, 351-370.

Pursio, K., Kankkunen, P., Sanner-Stiehr, E. & Kvist, T. 2021. Professional autonomy in nursing: An integrative review. *Journal of Nursing Management*, *29*(6), 1565-1577.

Rice, B., Martin, N., Fieger, P. & Hussain, T. 2022. Older healthcare workers' satisfaction: managing the interaction of age, job security expectations and autonomy. *Employee Relations: The International Journal*, *44*(2), 319-334.

Ross, I.C. & Zander, A. 1957. Need satisfactions and employee turnover. *Personnel psychology*, *10*(3), 327-338.

Sacchetti, S. & Tortia, E.C. 2021. Governing cooperatives in the context of individual motives. *International Journal of Social Economics*, *48*(2), 181-203.

Sandrin, E., Morin, A.J., Fernet, C., Huyghebaert-Zouaghi, T., Suarez, M., Duarte, F. & Gillet, N. 2022. Nature, predictor, and outcomes of motivation trajectories during a professional training program. *European Journal of Work and Organizational Psychology*, *31*(2), 226-244.

Sewell, G. & Taskin, L. 2015. Out of sight, out of mind in a new world of work? Autonomy, control, and spatiotemporal scaling in telework. *Organization studies*, *36*(11), 1507-1529.

Taipale, S., Selander, K., Anttila, T. & Nätti, J. 2011. Work engagement in eight European countries: The role of job demands, autonomy, and social support. *International Journal of Sociology and Social Policy*, *31*(7/8), 486-504.

Tangirala, S. & Ramanujam, R. 2008. Exploring nonlinearity in employee voice: The effects of personal control and organizational identification. *Academy of Management Journal*, *51*(6), 1189-1203.

Theurer, C.P., Tumasjan, A. & Welpe, I.M. 2018. Contextual work design and employee innovative work behavior: When does autonomy matter?. *PloS one*, *13*(10), p.e0204089.

Tims, M., Derks, D. & Bakker, A.B. 2016. Job crafting and its relationships with person–job fit and meaningfulness: A three-wave study. *Journal of Vocational Behavior*, *92*, 44-53.

Tsen, M.K., Gu, M., Tan, C.M. & Goh, S.K. 2021. Effect of flexible work arrangements on turnover intention: does job independence matter?. *International Journal of Sociology*, *51*(6), 451-472.

Van Acker, B.B., Conradie, P.D., Vlerick, P. & Saldien, J. 2021. Employee acceptability of wearable mental workload monitoring: exploring effects of framing the goal and context in corporate communication. *Cognition, Technology & Work*, *23*, 537-552.

Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B. & Lens, W. 2010. Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the Work-related Basic Need Satisfaction scale. *Journal of occupational and organizational psychology*, *83*(4), 981-1002.

Van Eck, N. & Waltman, L. 2010. Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*(2), 523-538.

Van Gelderen, M. & Jansen, P. 2006. Autonomy as a start-up motive. *Journal of small business and enterprise development*, *13*(1), 23-32.

Van Raan, A.F. 2014. Advances in bibliometric analysis: research performance assessment and science mapping. *Bibliometrics Use and Abuse in the Review of Research Performance*, *87*, 17-28.

Vanbelle, E., Van Den Broeck, A. & De Witte, H. 2017. Job crafting: Autonomy and workload as antecedents and the willingness to continue working until retirement age as a positive outcome. *Psihologia Resurselor Umane*, *15*(1), 25-41.

Vansteenkiste, M., Neyrinck, B., Niemiec, C.P., Soenens, B., De Witte, H. & Van den Broeck, A. 2007. On the relations among work value orientations, psychological need satisfaction and job outcomes: A self-determination theory approach. *Journal of occupational and organizational psychology*, *80*(2), 251-277.

Vogel, R. 2012. The visible colleges of management and organization studies: A bibliometric analysis of academic journals. *Organization Studies*, *33*(8), 1015-1043.

Wallin, J.A. 2005. Bibliometric methods: pitfalls and possibilities. *Basic & clinical pharmacology & toxicology*, *97*(5), 261-275.

Willmott, H. 1993. Strength is ignorance; slavery is freedom: Managing culture in modern organizations. *Journal of management studies*, *30*(4), 515-552.

Wu, C.H., Griffin, M.A. & Parker, S.K. 2015. Developing agency through good work: Longitudinal effects of job autonomy and skill utilization on locus of control. *Journal of Vocational Behavior*, 89, 102-108.

Xanthopoulou, D., Bakker, A.B., Demerouti, E. & Schaufeli, W.B. 2009. Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of occupational and organizational psychology*, *82*(1), 183-200.

Zupic, I. & Cater, T. 2013. Bibliometric methods in management and organization: A review. In *Academy of Management Proceedings* (Vol. 2013, No. 1, p. 13426). Briarcliff Manor, NY 10510: Academy of Management.

Zychová, K., Šímová, T. & Fejfarová, M. 2023. A bibliometric analysis of team autonomy research. *Cogent Business & Management*, *10*(1), 2195024.

Vol. 13, No. 1, 71-84
doi:10.17708/DRMJ.2024.v13n01a05

Dynamic Relationships Management Journal

ATTRACTIVENESS, POWER AND AGGRESSIVENESS NETWORKS: USING MANPOWER EMPLOYMENT ORGANIZATION AS AN ILLUSTRATION

Maria Litsa
University of Thessaly, Greece
maria.litsa@hotmail.gr

Aleksandra Bekiari
University of Thessaly, Greece
sandrab@pe.uth.gr

Koustelios Athanasios
University of Thessaly, Greece
akoustel@uth.gr

Abstract

The purpose of this study is the investigation of attractiveness, power and aggressiveness. The authors aim to investigate attractiveness, power and aggressiveness as structural phenomena and the effects they have on organizational structures. The study focuses on a public organization implementing employment policies in Greece and draws on data from this context. A sample of 4 branches of the organization of totally 108 employees (49 male, 59 female) was examined through social network analysis concerning the behaviours of attractiveness, aggressiveness and power. Questionnaires consisting of non-network and network parts were distributed. Visone 1.1 software was implemented for calculating network variables (network analysis algorithms were used: indegree, outdegree, Katz status, PageRank, authority. Social Network Analysis and Spearman test (SPSS 26) have been applied. Main results: The socially and task attractive employees concentrate power in the organization developing the profile of a mentor, trusted by colleagues, but they may accept verbal aggressiveness in the form of irony and hurting comments. The study's results suggest that, at least in public organization contexts, practitioners should "exploit" the socially and task attractive employees as they seem to inspire trust in colleagues, affecting the overall culture of the organization. Also, knowing that socially and task attractive employees may be targeted verbally, they can implement strategies protecting the workplace from verbal aggressiveness use. The present study contributes to a better understanding of the informal relationships of attractiveness, aggressiveness and power developed among employees through their graphic representation via social network analysis in order to achieve effective organization structures in public sector.

Keywords: *organization, network analysis, attractiveness, aggressiveness, power*

1 INTRODUCTION

Robbins and Judge (2009) have defined the organization as a social unit consisting of two or more people who coordinate their actions in order to achieve a common goal. Many definitions of the organization have been proposed regarding their nature (Cyert and March 1963; Pfeffer and Salancik 1974; Lau and Murnighan 2005). However, in our study we approach organization as a social entity.

So far, research has dealt with the issue of attractiveness in the organizations, focusing mainly on the aspect of physical attractiveness. Attractiveness

and initial impressions have been an issue (Berscheid and Walster 1978; Eagly et al. 1991; Jackson et al. 1995). How physical attractiveness can affect one's evolution in the workplace in terms of qualifications (Quereshi and Kay 1986), hiring process (Gilmore et al. 1986), success and financial rewards (Spencer and Taylor 1988; Morrow et al. 1990; Frieze et al. 1991; Parrett 2015; Shtudiner and Klein 2019) or as a status characteristic (Wolbring and Riordan 2016) has been of interest in many studies about organizations as well. However, no studies so far have attempted to approach attractiveness in organizations as defined by McCroskey and McCain (1974) and McCroskey et al. (2006), consisting of three dimensions, physical attractiveness, based on outer characteristics, social attractiveness based on the desire to befriend others and task attractiveness, defined as the desire to collaborate with others.

"Work aggressiveness" can be defined as a behavior including verbal threats, ridicules, profanity, devaluation, deliberate but wrong accusations, propagations of malicious comments intended to harm others in the workplace (Neuman and Baron 1998: 393). Verbal aggressiveness is widely found in the workplace (Neuman and Baron 1998), and expressed through specific vocabulary, tone and manner with the aim of harming colleagues in the workplace because of gender, race, age or other personal characteristics (Chamberlain et al. 2008). Infante et al. (1994) examined seventy-four specific corporate disagreements and discovered that the ones with devastating effects were characterized by verbal aggressiveness. The majority of studies regarding verbal aggressiveness in the workplace deals with the effects managers' verbal aggressiveness has on the organizations' staff (Görden et al. 1988; Infante and Görden 1985; 1987; 1991; Heisel 2000; Infante 1987; Madlock and Kennedy-Lightsey 2009). Some research focuses on how abusive supervision negatively affects employee effectiveness (Tepper 2007; Harris et al. 2011; Vogel et al. 2015; Morsch et al. 2020), deterring promotive voice behavior (Rani et al. 2021) or on the role employees' cognitive reappraisal can have on handling abusive supervision (Dedahanov et al. 2020). However, no studies so far have examined verbal aggressiveness among colleagues of an organization.

Weber (1978) has defined power as forcing one's will on others. Popitz (1992) has attempted a typology of power consisting of the following: power of action (pushing), of external control (institutional dependence on a colleague), internalized control (trust based on advice or emotional influence through attractiveness and verbal aggressiveness). So far, organization research has focused on leadership (Epitropaki et al. 2017; Haslam et al. 2020) and on the personality traits that a leader may have (Bono and Judge, 2004; Ilies et al, 2005; Kashoven et al. 2011; Shahzad 2021). As Krug et al. (2021) have pointed out group membership is the context in which leadership burgeons and leaders are actually members of their group who acquire power, since every relationship no matter how friendly or not, is in fact a relationship of power (Popitz 1992). In our study, we attempt to show that leadership does not lie only in obvious horizontal hierarchies of an organization, but it may be latent in its informal hierarchies as well.

The aim of this study is the social network analysis of structures of a) attractiveness, b) power and c) verbal aggressiveness among employees in organizations, as well as the parameters that affect the above network variables (structures) as they are formed and perceived by employees of a public organization, Manpower Employment Organization in Thessaly, Greece. Hierarchy structures emerge in terms of: a) attractiveness b) power and c) aggressiveness. At the same time, individual factors as independent and non-network variables will be detected, such as age, gender, socio-economic parameters, etc. Social network analysis, takes place to highlight structures, considering employees as nodes (all employees of organization form a complete network, which is taken as a sample for examination). Using conventional statistics, the correlation of network variables with non-network variables will be investigated, thus we may identify the possible causes and conditions (e.g. age, gender, socio-economic characteristics, etc.) that favor or not the above behaviors and attitudes (attractiveness, power, aggressiveness), which tend to appear in organizations.

The main academic added value of network analysis lies in the fact that employees of the same organization are examined on equal terms (in a common hierarchy of the same kind of relationship) regarding the three types of relationships (attractiveness, power, aggressive behavior). Practically, the identification of

the nodes of main influence in attractiveness and power and of targets of aggressive behavior, is useful for taking preventive measures, limiting aggressive behaviour and making the most of the most influential nodes for the overall performance of the organization.

2 METHODOLOGY

2.1 Sampling and data collection

Complete social network analysis has been applied to 108 employees (49 male, 59 female) of Manpower Employment Organisation in Greece. Each employee community is a network of relationships, e.g., attractiveness, trust, emotional dependence (Popitz 1992; Bekiari & Hasanagas 2016). Standardized ("closed-ended") questionnaires for both network and non-network variables have been used. As network variables attractiveness, power and verbal aggressiveness have been measured. Each network has been imprinted as a polygon where its vertices correspond to the respondents (members of the network) and the (existing) diagonals constitute the various relationships. At the same time, basic types of power, such as trust and sympathy have been measured. Essentially, network analysis is a functionalization of Systems Theory. According to it, each node (member) of the network acquires its properties (power or weakness) through the interactions it has with the other nodes.

2.2 Measures

Using older tested questionnaires as role models (McCroskey et al. 2006; Popitz 1992; Infante and Wigley 1986) standardized questionnaires of complete network analysis have been developed and improved after a pilot application (Bekiari & Digelidis 2015; Bekiari & Spyropoulou 2016). They include network variables (relationships of attractiveness, power and aggressiveness) *e.g. "Who would you advise on work-related issues?" (trust-power), "Who has hurt you with their words?" (hurting- verbal aggressiveness), "Who is friendly with you? (social attractiveness), "Who would you ask to help you complete a task at work?" (task attractiveness)* and non-network variables (personal characteristics such as age, gender, social class, urbanity etc.). For the network part of the questionnaire each employee had a code number attached that replaced their name.

2.3 Statistical data processing

A plethora of algorithms, such as in-degree, outdegree, Katz status, pagerank, authority [1] highlight obvious, as well as more latent targeting structures for verbal aggressiveness and hierarchies of trust, dependencies. The algebraic indicators used are the following:

a) In-degree and Out-degree "occasional influence", which is the direct contact (influence) that one receives from the other nodes (in-degree) and the effect - influence that a node creates towards the others with which it comes into contact (outdegree).

---

[1] Their formulas are easily accessible in the web (https://visone.ethz.ch/wiki/images/6/67/VisoneTutorial-archeology.pdf)

- $p(G) = \frac{m}{n(n-1)}$ (***density***), [G=graph, m=number of links, n(n-1)=number of possible links]

- $c_{iD}(v) = \sum_{e=(u,v)} \omega(e)$ (***indegree***),

  $c_{oD}(v) = \sum_{e=(v,u)} \omega(e)$ (***outdegree***)

  [directed graph: G=(V,E), where V=nodes, E=links, ω=weights, number of links $E \subseteq VxV$, a link $e \in E$ connects 2 nodes $u, v \in V$, ω:$x \to R$, $X \in \{V, E\}$, $x \in X$, ω(x)]

- $c_{ks}(v) = a \cdot \sum_{(u,v)\in E(v)} \omega((u,v)) \cdot (1 + c_{ks}(u))$ (***Katz status***)

  where $\frac{1}{\alpha} = \min\{\max_{u\in V} in\deg_{\omega}(v), \max_{u\in V} out\deg_{\omega}(v)\}$

- $c_{PR}(v) = \alpha \frac{1}{n} + (1-a) \sum_{(u,v)\in E(v)} \omega((u,v)) \cdot c_{PR}(u)$

  (***pagerank***)

  where 0<a<1 is a free parameter

- $c_A(v) = \frac{1}{\lambda} \cdot \sum_{(u,v)\in E(v)} \omega((u,v)) \cdot (\sum_{(u,w)\in E_u} \omega((u,w)) \cdot c_E(w))$

  (***authority***)

  where λ is the largest eigenvalue of $A^T A$, A: the adjacency matrix of the graph G, T: natural numbers

(b) Katz status "cumulative influence". Influence is seen as a cumulative process in which it creates "chains" of relationships. The number and size of the "chains" that lead to a node also determine its influence, which is not just occasional but chained, and therefore has a greater depth.

c) Pagerank "partitioning influence" or "distributing influence", although similar to the Katz status, it monitors the influence that is transferred from node to node, measuring the number of nodes that come into contact with each other, overlooking the size – length of the chain – relationship.

d) Authority "special competitiveness" or "special dominance"; it points to the top those nodes that attract more nodes than the other nodes, in terms of a particular relationship. For example, when a node (student) is at the top of the hierarchy of specific competitiveness for task attractiveness, it has attracted other nodes (students) that consistently and not occasionally pursue task/scientific attractiveness. This indicator shows a general tendency to become a target in the context of a relationship within the network.

Network analysis software (Visone 1.1) has been used to visualize the various structures (pyramid hierarchies), highlighting who is first or last in them. Also, SPSS 26.0 was used for statistical tests like Spearman (correlations) to identify factors that affect (strengthen or weaken) one's position in each hierarchy. Spearman test was used [p0.01 (*) and p0.05(**)]. This bivariate test was preferable to multivariate analysis as it is a non-parametric test. The centrality values of nodes (not of ties) have been correlated with non-network variables and with each other (techniques like QAP or ERGM are not necessary in study, as it focuses on correlations concerning centralities of nodes and not ties among nodes) (Author, 2015).

2.4 Approval required

In order to carry out the research, relevant permissions have been requested from the participants and central administration of the Manpower Employment Organization.

2.5 Criteria for Participation in the Study

The survey has been conducted on all participants (employees), regardless of their gender, performance, particular interests, any duties, etc.

2.6 Exclusion Criteria

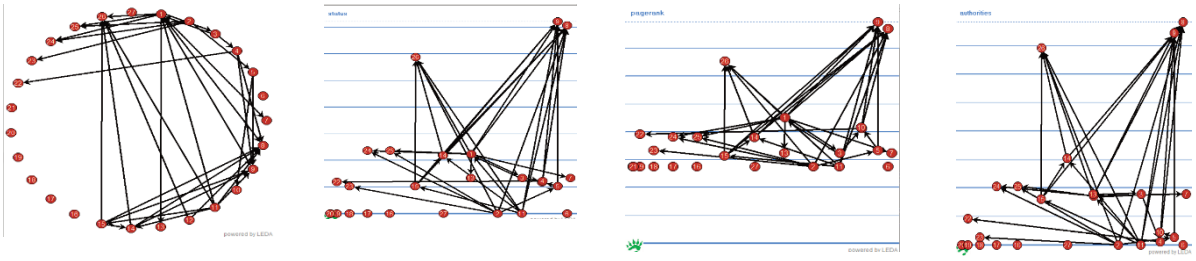
The criterion for exclusion from the survey is only the possible refusal of individuals to participate in it.

3 RESULTS

In figures 1, 2 and 3, networks of interpersonal attractiveness are depicted. Figure 4 depicts a network of power and figures 5 and 6 depict networks of verbal aggressiveness among employees. The analysis of social networks can be approached with the "community" analysis which at first place depicts the *density of the network* and is represented by a general indicator that shows how extensively or not the individuals of the network are connected, i.e., the ratio of direct connections in relation to the total possible number of connections, proving how intensive or not the presence of a particular activity within the network is. Therefore, high density values reflect densely connected networks and low prices sparsely connected networks (Scott,1987; Wasserman and Faust, 1994; Tabassum et al., 2018). In our study, the densest network is the one of social attractiveness (13.96%). This indicates that employees seek friendly relationships and aim to develop such relationships in the workplace. The sparsest network is the network of verbal aggressiveness in the form of irony (2.14%). This suggests that incidents of verbal aggressiveness despite existing, rarely occur in the workplace. The second densest network is that of social power expressed in the form of advice at work (it is power in the form of trust). It seems that employees tend to search for colleagues' advice and this is appreciated. Among the three networks of interpersonal attractiveness, the densest one is the network of social attractiveness (13.96%) and the sparsest is the one of physical attractiveness (2.84%). Probably, physical appearance is less valued in the workplace among colleagues and the development of friendly relationships may be considered critical. The network of task attrac-

tiveness can be characterized of medium density (4.84%) and it may be the case that employees are attracted by a friendly colleague at the first place and then by a colleague who may be willing to help them. Physical attractiveness seems to be of minor importance in the workplace. Also, between the two networks of verbal aggressiveness, both of them are of low density. However, the network of hurting at work (2.84%) is denser than that of irony at work (2.14%), indicating that employees may turn to that form of verbal aggressiveness more usually. The term "*centrality*" reflects the central role of each individual node by revealing its meaning or influence on the network. Therefore, the latter represents the core of social network analysis as there is possible dissolution of a network if a highly central node leaves (Barnes, 1954; Berkman and Glass, 2000). Top nodes of social and task attractiveness appear at the top of social power hierarchies as well. It could be argued that one gains social power in the workplace if they are considered socially attractive and they are opted for the completion of tasks at work. These nodes appear in the middle of physical attractiveness hierarchy, suggesting that physical attractiveness may not play a leading role in the development of social power. Social and task attractiveness appear to be correlated and may be the two main components of social power. Thus, the socially and task attractive colleague shapes a mentor profile. Another important thing to mention is that the socially attractive mentor who accumulates social power in the workplace is at the top of verbal aggressiveness networks of hurting and seems to accept ironic comments. It seems that the colleague who employees turn to in order to complete a task at work and avail themselves of their help, may be a target of hurting or ironic comments at times.

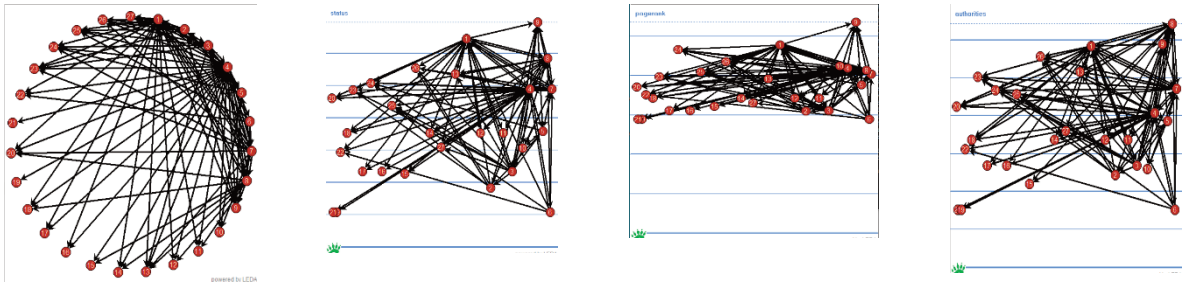
Figure 1: Network of Task Attractiveness



Basic form of network | Hierarchy of Katz status | Hierarchy of pagerank | Hierarchy of authority

Relation: Task attractiveness (help at work) Nodes 27. Links 51. Density: 4,84 %

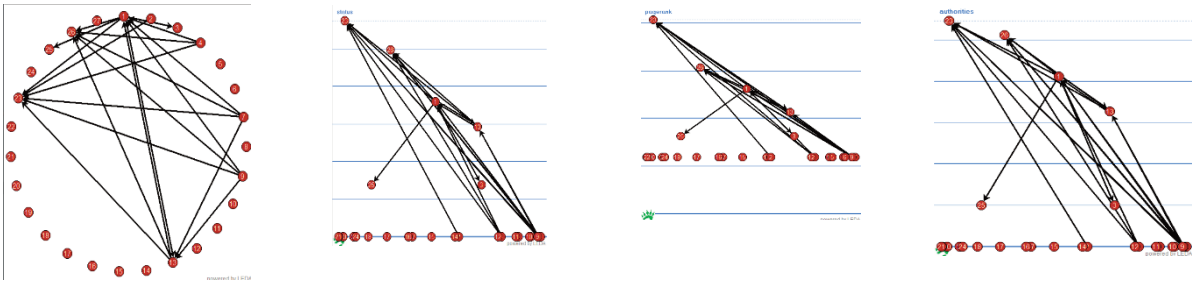
Figure 2: Network of social attractiveness



Basic form of network | Hierarchy of Katz status | Hierarchy of pagerank | Hierarchy of authority

Relation: Social attractiveness (friendly with you at work). Nodes 27. Links 139. Density: 13,96%

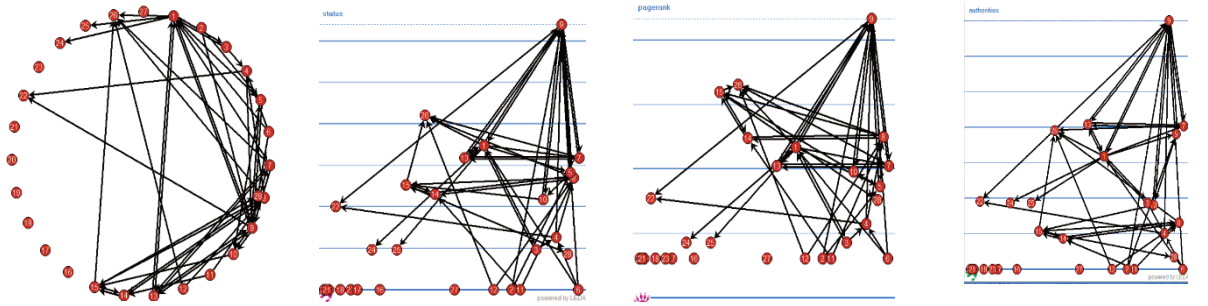
Figure 3: Network of physical attractiveness



Basic form of network | Hierarchy of Katz status | Hierarchy of pagerank | Hierarchy of authority

Relation: Physical attractiveness (attractive to you at work). Nodes 27. Links 20. Density: 2,84%

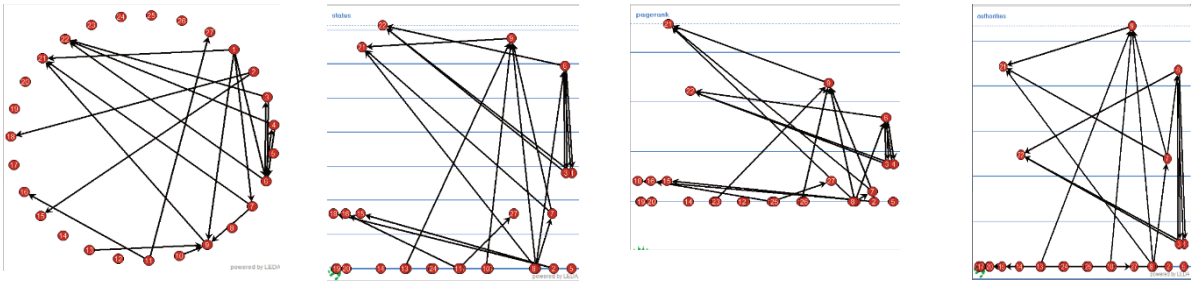
Figure 4: Network of power



Basic form of network | Hierarchy of Katz status | Hierarchy of pagerank | Hierarchy of authority

Relation: Network of power (advice at work). Nodes: 27. Links 45. Density: 6,08%

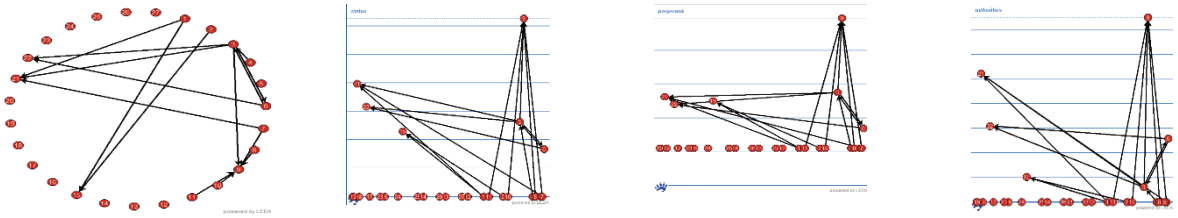
Figure 5: Network of verbal aggressiveness (a)



Basic form of network | Hierarchy of Katz status | Hierarchy of pagerank | Hierarchy of authority

Relation: Network of verbal aggressiveness (hurt at work). Nodes: 27. Links 20. Density: 2,84%

Figure 6: Network of verbal aggressiveness (b)

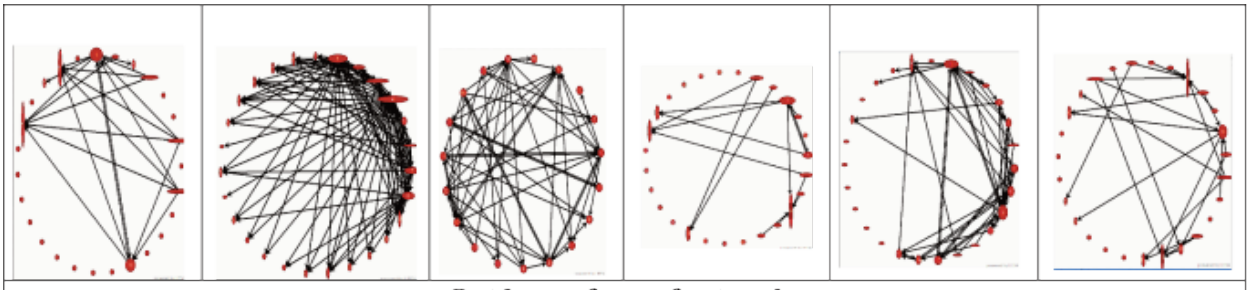


Basic form of network | Hierarchy of Katz status | Hierarchy of pagerank | Hierarchy of authority

Relation: Network of verbal aggressiveness (irony at work). Nodes: 27. Links 15. Density: 2,14%

Outdegree centrality calculates the degree to which other nodes consider a particular node as an actor. In social networks of verbal aggressiveness outdegree shows that a particular node acts or not as an aggressor verbally and in networks of interpersonal attractiveness the degree to which nodes have the tendency to be attracted by others. In the networks presented below in figure 7, outdegree centrality indicates that nodes practicing verbal aggressiveness, appear as mere aggressors who are not attracted by others interpersonally and do not show respectfulness for advice on academic or personal issues. On the other hand, nodes appearing to be attracted by others scientifically, socially, physically and show respectfulness for others' advice are at the bottom of verbal aggressiveness outdegree social network, avoiding verbal aggressiveness usage.

Figure 7: Outdegree networks of attractivness, aggressivness, social power and argumentativeness



Outdegree form of networks					
Relation: Attracted physically	Relation: Attracted socially	Relation: Attracted scientifically	Relation: Actor of verbal attractiveness	Relation: Respectfulness for advice at work	Relation: proness to weakness in discussion
Social network of being attracted physically	**Social network of being attracted socially**	**Social network of being attracted scientifically**	**Social network of acting verbal aggressiveness**	**Social network of being respected as a mentor**	**Social network of argumentative weakness in discussion**

In table 1, we see the relationship between network determinants of argumentativeness, power and attractiveness and non-network determinants. Argumentativeness seems to be affected by body characteristics and urbanity. Tall and heavy employees tend to agree with colleagues more easily. It could be the case that heavy employees are considered weak during a discussion. Obviously, living in town affects weakness during a discussion, with those living in rural areas being more argumentative. Attractiveness appears to be affected by height with tall employees being considered more attractive. It also tends to be affected by travelling abroad. One assumption could be that gaining experience abroad can add to one's profile making them more sympathetic and appealing to other colleagues.

In table 2, the relation between the network determinants is presented. Engaging in disagreements may turn you into accepting ironic comments (1.000), but does not deter you from being friendly (.678). Having the tendency to agree is correlated to task attractiveness (.642). Being weak during a discussion does not seem to affect one's profile as a mentor at the workplace (1.000) or their task attractiveness (1.000). It seems that task attractive mentors at the workplace may show weaknesses during a discussion due to argumentativeness deficiency. Being a mentor in the workplace appears to be related to all forms of personal attractiveness, i.e., task attractiveness (1.000), social attractiveness (.627, 1.000) and physical attractiveness (1.000). Being a target of irony may engage one into disagreements (1.000). An interesting finding is that those who concentrate power as mentors at workplace may accept hurting comments (1.000), indicating that verbal aggressiveness may affect mentors up to an extent. We could assume that a person trusted in work issues can be a victim of a certain amount of verbal aggressiveness and that kind of hurting comments' use may take place under certain circumstances. Another interesting finding is that task attractiveness is related to social power in the form of trusting and seeking advice in the workplace (1.000) but not in the form of trusting for personal issues. It seems that an employee concentrates power as a mentor at the workplace but this does not necessarily render them into people that peers would trust on personal issues. It appears that the two domains of work and personal life are kept distinguished. Social attractiveness favors agreement in the workplace (.678), social power in the form of trust regarding work related issues (.627), sympathy (.626) and task attractiveness (.708, 1.000), but is negatively correlated to verbal aggressiveness (-1.000). Someone who may be trusted in the workplace due to their mentor profile, they may experience a certain amount of verbal aggressiveness. Finally, physical attractiveness seems to be only correlated to social attractiveness (1.000).

Table 1: Relation among network determinants of argumentativeness, power and attractiveness and non-network determinants (Sum = indegree + status +pagerank + authority)

	Argumentativeness		**Power**	**Physical attractiveness**
	Agreement	Weakness in discussion	Sympathy	Attractive to you
Height	**,773****		0,093	**1,000****
	0,002		0,751	
Weight	**,669***	**-1,000****	-0,101	-0,500
	0,012		0,730	0,667
Live in town/village (1= town 2 = village)	0,364	**-1,000****	0,387	0,000
	0,222		0,172	1,000
Travel_abroad	-0,025	0,866	**,598***	**1,000****
	0,935	0,333	0,024	

Table 2: Relation among network determinants of attractiveness, aggressiveness, power and argumantativeness (SUM = indegree + status + pagerank + authority).

	DISAGREMENT_SUM	AGREEMENT_SUM	WEAKNESS_SUM	ADVICE_WORK	ADVICE_PERSONAL	SYMPATHY_SUM	IRONY_SUM	RUDENESS_SUM	HELP_WORK_SUM	HELP_WORK_OTHERS_SUM	FRIENDLY_U_SUM	FRIENDLY_OTHERS_SUM	ATTRACTIVE_TO_U_SUM
DISAGREMENT_SUM	1,000	0,348	-0,400	0,561	1,000	0,511	**1,000****		0,192		**,678***		0,544
		0,499	0,600	0,190		0,160			0,680		0,045		0,456
AGREEMENT_SUM	0,348	1,000	0,800	0,289	-0,400	0,359	0,500		**,642***	0,400	0,432	0,500	0,500
	0,499		0,200	0,338	0,600	0,172	0,667		0,033	0,600	0,084	0,667	0,391
WEAKNESS_SUM	-0,400	0,800	1,000	**1,000****	-1,000	0,086	-0,300	-1,000	**1,000****	**1,000****	-0,092		
	0,600	0,200				0,872	0,624				0,813		
ADVICE_WORK	0,561	0,289	**1,000****	1,000	0,600	**,793****	0,400		0,362	**1,000****	**,627***	**1,000****	**1,000****
	0,190	0,338			0,400	0,001	0,600		0,225		0,012		
ADVICE_PERSONAL	**1,000****	-0,400	**-1,000****	0,600	1,000	0,600	-0,500		-0,400	-1,000	-0,400		
		0,600		0,400		0,400	0,667		0,600		0,600		
SYMPATHY_SUM	0,511	0,359	0,086	**,793****	0,600	1,000	0,700		0,362	0,400	**,626****	**1,000****	0,588
	0,160	0,172	0,872	0,001	0,400		0,188		0,247	0,600	0,002		0,219
HURT_SUM	0,300	-0,211	0,400	0,872	**1,000****	0,203	0,700		0,316		-0,018		
	0,624	0,789	0,600	0,054		0,700	0,188		0,684		0,969		
IRONY_SUM	**1,000****	0,500	-0,300	0,400	-0,500	0,700	1,000	1,000	0,400	1,000	0,551		
		0,667	0,624	0,600	0,667	0,188			0,600		0,257		
RUDENESS_SUM			**-1,000****				**1,000****	1,000			-1,000		
HELP_WORK_SUM	0,192	**,642***	**1,000****	0,362	-0,400	0,362	0,400		1,000	0,400	**,708****	-0,500	0,500
	0,680	0,033		0,225	0,600	0,247	0,600			0,600	0,007	0,667	0,391
HELP_WORK_OTHERS_SUM		0,400	**1,000****	**1,000****	**-1,000****	0,400	**1,000****		0,400	1,000	0,800	1,000	
		0,600				0,600			0,600		0,200		
FRIENDLY_U_SUM	**,678***	0,432	-0,092	**,627***	-0,400	**,626****	0,551	**-1,000****	**,708****	0,800	1,000	-0,500	0,580
	0,045	0,084	0,813	0,012	0,600	0,002	0,257		0,007	0,200		0,667	0,228
FRIENDLY_OTHERS_SUM		0,500		**1,000****		**1,000****			-0,500	**1,000****	-0,500	1,000	1,000
		0,667							0,667		0,667		
ATTRACTIVE_TO_U_SUM	0,544	0,500		**1,000****		0,588			0,500		0,580	**1,000****	1,000
	0,456	0,391				0,219			0,391		0,228		
ATTRACTIVE_TO_OTHERS_SUM		0,211		0,866		-0,316			0,866		-0,632	**1,000****	0,949
		0,789		0,333		0,684			0,333		0,368		0,051

4 DISCUSSION

The aim of the research consists in the investigation of attractiveness, power and aggressiveness in organizations, examining correlations and structural analysis of social networks, showing that informal hierarchies are worth to consider in terms of power.

The first finding of this study is indicated by the density of networks, namely. Attractiveness and power networks prevail over networks of verbal aggressiveness. This may show that positive relationships are developed within organizations, despite the rare occurrence of verbal aggressiveness incidents that come in the form of irony and hurting comments. Social network studies show that formal structures in organizations are strengthened by personal networks and that informal contact between members of the organization reinforce the procedure of identification (Gruenfeld and Tiedens 2010). Employee identification with their organization positively affects the well-being of individuals and organization performance (van Dick and Kershcreiter 2016; van Dick et al. 2018; Krug et al. 2021). In our study, this kind of identification elicits from networks of attractiveness (social and task) and power (trust in colleagues).

The second conclusion comes from the hierarchical positions of the network nodes. It seems that socially and task attractive nodes concentrate power within the organization and develop a mentor profile. Gruenfeld et al. (1996) state that employees feel a certain amount of psychological safety when they are in groups with familiar others, which affects belongingness dynamics. Thus, the powerful employees in our study are socially and task attractive. They are the nodes that attract others socially, that is they have developed intimacy with others and prove a safe option for the completion of tasks due to their previous collaboration fame. Their power is drawn from the safety they achieve to inspire to other members of the group due to the familiarity they have developed with them along with their collaborative skills. This finding is in accordance with Hogg's (1992) definition of social attraction as shared membership of one's group. Hogg and Terry (2000) have also stated that workplace behaviour is supported by that kind of social attraction, which also agrees with the correlation of network determinants of our study, suggesting that mentors draw their power from all kinds of attractiveness (task, social and physical attractiveness), with task attractiveness being the main determining factor in the development of power in the organization. Likeable workers seem to have positive personal characteristics which makes them personally attractive, as also indicated in the study of Bown and Abrams (2003). As Shahzad et al. (2021) have shown, Big five personality traits, like extraversion, agreeableness, conscientiousness and openness are related to authentic leadership, that is a pattern of leadership that combines psychological and moral elements. In our research, the socially and task attractive mentor may act as a non-typical authentic leader, able to affect development in the organization, since they seem to foster collective learning, supporting the model of learning organization model (Oh and Koo 2021). The socially and task attractive mentor seems to prompt team learning and creativity, acting as a knowledge-oriented leader (Men and Jia 2021) at an informal hierarchy level. This kind of mentor has adopted a proactive attitude which is considered necessary for positive development and successful coping with changes in work (Uusiautti 2016) and simultaneously, this kind of mentor can contribute to knowledge sharing, an important dimension of organizational culture (Zakaria & Mehairi 2014).

Our study indicates that nodes may become targets for verbal aggressiveness when they are friendly (socially attractive), chosen by colleagues to complete a task at work (task attractive) and expose their opinions through arguments (in disagreements), i.e., the nodes who develop a mentor profile may be targets for verbal aggressiveness. This has also been verified in similar social network analysis studies in the education context (Litsa et al. 2021; Spanou et al. 2021). As Ridgeway and Correl (2006) have stated, status characteristics are those that symbolize the amount of power any member may hold in comparison to other members of the same group. In our study, we can assume that the social and task attractiveness are traits equal to status in the organization context that triggers verbal aggressiveness. We could assume that the socially and task attractive mentor draws their power from

information power (Kalpokas & Radivojevic 2021), that is empowering others by providing information, and probably that is a status targeted verbally at times.

4.1 Theoretical and practical implications

The current study expands our understanding of organizational culture examining the informal hierarchies of attractiveness, power and aggressiveness developed among employees. Social network analysis facilitates the visualization of informal relationships and the interdependence developed among employees.

The results may help Manpower Employment Organization and other public organizations to pay particular attention to informal hierarchies and take advantage of the "mentor employee profile", that is the socially and task attractive employee who can build trust at different hierarchical levels, thus improving organization function and performance. HR professionals could possibly draw from a pool of such employees to build a network of support that can sustain internal organization training aiming at the macro-level structures. Also, knowing that these particular employees may be targeted verbally facilitates the implementation of preventive measures to ensure a safe workplace for all employees.

4.2 Limitations and future directions

Expanding the sample to other organizations in order to achieve comparisons and adding qualitative methodology for the triangularization of methods may be a challenge for future studies. More specifically, interviewing those at the top and at the bottom of hierarchies may shed light on the reasons why relationship hierarchies are depicted in particular ways and why particular nodes appear at specific positions in their hierarchies.

Acknowledgement

We are grateful to the employees of Manpower Employment Organisation having participated in this research.

EXTENDED SUMMARY/IZVLEČEK

Namen te študije je raziskovanje privlačnosti, moči in agresivnosti. Avtorji si prizadevajo preučiti privlačnost, moč in agresivnost kot strukturne pojave ter učinke, ki jih ti imajo na organizacijske strukture. Študija se osredotoča na javno organizacijo, ki izvaja politike zaposlovanja v Grčiji, in temelji na podatkih iz tega konteksta. V raziskavi je bilo preučenih 4 podružnic organizacije s 108 zaposlenimi (49 moških, 59 žensk) z analizo družbenih omrežij v zvezi z vedenji privlačnosti, agresivnosti in moči. Razdeljeni so bili vprašalniki, ki so vključevali dele, ki niso povezani z omrežjem, in dele, ki so povezani z omrežjem. Za izračun omrežnih spremenljivk je bil uporabljen program Visone 1.1 (uporabljeni so bili algoritmi za analizo omrežja: indegree, outdegree, Katz status, PageRank, authority). Uporabljena sta bila tudi analiza družbenih omrežij in Spearmanov test v programu SPSS 26. Glavni rezultati so, da družbeno in delovno privlačni zaposleni koncentrirajo moč v organizaciji in razvijajo profil mentorja, ki mu kolegi zaupajo, vendar lahko sprejmejo verbalno agresivnost v obliki ironije in žaljivih komentarjev. Rezultati študije nakazujejo, da bi morali praktiki vsaj v kontekstih javnih organizacij "izkoristiti" družbeno in delovno privlačne zaposlene, saj se zdi, da v kolegih vzbujajo zaupanje, kar vpliva na splošno kulturo organizacije. Poleg tega, ker so lahko družbeno in delovno privlačni zaposleni verbalno ciljno usmerjeni, lahko izvajajo strategije za zaščito delovnega mesta pred uporabo verbalne agresivnosti. Ta študija prispeva k boljšemu razumevanju neformalnih odnosov privlačnosti, agresivnosti in moči, ki se razvijajo med zaposlenimi z njihovo grafično predstavitvijo prek analize družbenih omrežij, da bi dosegli učinkovite organizacijske strukture v javnem sektorju.

REFERENCES:

Barnes, J. A. (1954). Class and committees in a Norwegian island parish. *Human Relations*, *7*(1), 39-58.

Bekiari, A., & Digelidis, N. (2015). Measuring verbal aggressiveness in sport and education. *International Journal of Physical Education*, *52*(4), 112-121.

Bekiari, A., & Hasanagas, N. (2016). Suggesting indicators of superficiality and purity in verbal aggressiveness: An application in adult education class networks of prison inmates. *Open Journal of Social Sciences*, *4*(3), 279-292.

Bekiari, A., & Spyropoulou, S. (2016). Exploration of verbal aggressiveness and interpersonal attraction through social network analysis: Using university physical education class as an illustration. *Open Journal of Social Sciences*, *4*(6), 145-155.

Berkman, L. F., & Glass, T. (2000). Social integration, social networks, social support, and health. In L. F. Berkman & I. Kawachi (Eds.), *Social Epidemiology* (pp. 137-173). Oxford University Press.

Berscheid, E., & Walster, E. (1978). *Interpersonal attraction*. Addison-Wesley.

Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology*, *89*(5), 901-910.

Bown, N. J., & Abrams, D. (2003). Despicability in the workplace: Effects of behavioral deviance and unlikeability on the evaluation of in-group and out-group members. *Journal of Applied Social Psychology*, *33*(1), 2413-2426.

Chamberlain, L. J., Crowley, M., Tope, D., et al. (2008). Sexual harassment in organizational context. *Work and Occupations*, *35*(3), 262-295.

Cyert, R., & March, J. G. (1963). *A behavioral theory of the firm*. Prentice Hall.

Dedahanov, A. T., Miao, S., & Semyonov, A. A. (2021). When does abusive supervision mitigate work effort? Moderating roles of cognitive reappraisal and rumination. *Leadership & Organization Development Journal*, *42*(3), 467-479.

Eagly, A. H., Ashmore, R. D., Makhijani, M. G., et al. (1991). What is beautiful is good, but…: A meta-analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin*, *110*(1), 109-128.

Epitropaki, O., Kark, R., Mainemelis, C., & Lord, R. G. (2017). Leadership and followership identity processes: A multilevel review. *The Leadership Quarterly*, *28*(1), 104-129.

Frieze, I. H., Olson, J. E., & Russell, J. (1991). Attractiveness and income for men and women in management. *Journal of Applied Social Psychology*, *21*(13), 1039-1057.

Gilmore, D. C., Beehr, T. A., & Love, K. G. (1986). Effects of applicant sex, applicant physical attractiveness, type of rater and type of job on interview decisions. *Journal of Occupational Psychology*, *59*(2), 103-109.

Gorden, W. I., Infante, D. A., & Graham, E. E. (1988). Corporate conditions conducive to employee voice: A subordinate perspective. *Employee Responsibilities and Rights Journal*, *1*(2), 101-111.

Gruenfeld, D. H., Mannix, E. A., Williams, K. Y., et al. (1996). Group composition and decision making: How member familiarity and information distribution affect process and performance. *Organizational Behavior and Human Decision Processes*, *67*(1), 1-15.

Gruenfeld, D. H., & Tiedens, L. Z. (2010). Organizational preferences and their consequences. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of Social Psychology* (pp. 1252–1287). John Wiley & Sons, Inc.

Harris, K. J., Harvey, P., & Kacmar, K. M. (2011). Abusive supervisory reactions to coworker relationship conflict. *The Leadership Quarterly*, *22*(5), 1010-1023.

Haslam, S. A., Reicher, S. D., & Platow, M. J. (2020). *The new psychology of leadership: Identity, influence, and power*. Routledge.

Heisel, A. (2000). *Strategic verbal aggression: Attacking the self-concept to enhance motivation in the classroom*. (PhD thesis, West Virginia University Libraries, USA).

Hogg, M. A. (1992). *The social psychology of group cohesiveness: From attraction to social identity*. Harvester Wheatsheaf.

Hogg, M. A., & Terry, D. J. (2000). The dynamic, diverse, and variable faces of organizational identity. *Academy of Management Review*, *25*(1), 150-152.

Ilies, R., Morgeson, F. P., & Nahrgang, J. D. (2005). Authentic leadership and eudaemonic well-being: Understanding leader–follower outcomes. *The Leadership Quarterly*, *16*(3), 373-394.

Infante, D. A. (1987). Aggressiveness. In *Personality and Interpersonal Communication* (pp. 157-192).

Infante, D. A., & Gorden, W. I. (1991). How employees see the boss: Test of an argumentative and affirming model of supervisors' communicative behavior. *Western Journal of Communication (includes Communication Reports)*, *55*(3), 294-304.

Infante, D. A., & Gorden, W. I. (1985). Benefits versus bias: An investigation of argumentativeness, gender, and organizational communication outcomes. *Communication Research Reports*, *2*(1), 196-201.

Infante, D. A., & Gorden, W. I. (1987). Superior and subordinate communication profiles: Implications for independent-mindedness and upward effectiveness. *Communication Studies*, *38*(2), 73-80.

Infante, D. A., Myers, S. A., & Buerkel, R. A. (1994). Argument and verbal aggression in constructive and destructive family and organizational disagreements. *Western Journal of Communication (Includes Communication Reports)*, *58*(2), 73-84.

Infante, D. A., & Wigley III, C. J. (1986). Verbal aggressiveness: An interpersonal model and measure. *Communications Monographs*, *53*(1), 61-69.

Jackson, L. A., Hunter, J. E., & Hodge, C. N. (1995). Physical attractiveness and intellectual competence: A meta-analytic review. *Social Psychology Quarterly*, 108-122.

Kalpokas, N., & Radivojevic, I. (2021). Maneuvering without offending on the road to democracy: The role of leaders' power in bringing greater freedom to all. *Leadership & Organization Development Journal*, *42*(6), 912-925.

Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. (2011). Ethical leader behavior and big five factors of personality. *Journal of Business Ethics*, *100*(2), 349-366.

Krug, H., Geibel, H. V., & Otto, K. (2021). Identity leadership and well-being: Team identification and trust as underlying mechanisms. *Leadership & Organization Development Journal*, *42*(1), 17-31.

Lau, D. C., & Murnighan, K. J. (2005). Interactions with groups and subgroups: The effects of demographic faultlines. *Academy of Management Journal*, 48, 645-659.

Litsa, M., Bekiari, A., & Spanou, K. (2021). Social Network Analysis in Physical Education Classes: Attractiveness of Individuals and Targets of Verbal Aggressiveness. *The International Journal of Interdisciplinary Educational Studies*, *16*(1), 151-162.

Madlock, P. E., & Kennedy-Lightsey, C. (2010). The effects of supervisors' verbal aggressiveness and mentoring on their subordinates. *The Journal of Business Communication*, *47*(1), 42-62.

Men, C., & Jia, R. (2021). Knowledge-oriented leadership, team learning, and team creativity: The roles of task interdependence and task complexity. *Leadership & Organization Development Journal*, *42*(6), 882-898.

McCroskey, J. C., & McCain, T. A. (1974). The measurement of interpersonal attraction. *Speech Monograph*, *41*(3), 261-266.

McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of the measurement of interpersonal attraction and homophily. *Communication Quarterly*, *54*(1), 1-31.

Morrow, P. C., McElroy, J. C., Stamper, B. G., et al. (1990). The effects of physical attractiveness and other demographic characteristics on promotion decisions. *Journal of Management*, *16*(4), 723-736.

Morsch, J., van Dijk, D., & Kodden, B. (2020). The impact of perceived psychological contract breach, abusive supervision, and silence on employee well-being. *Journal of Applied Business and Economics*, *22*(2).

Neuman, J. H., & Baron, R. A. (1998). Workplace violence and workplace aggression: Evidence concerning specific forms, potential causes, and preferred targets. *Journal of Management*, *24*(3), 391-419.

Oh, S. Y., & Koo, S. (2021). Protean career attitude and organisational commitment in learning organisation climate. *Leadership & Organization Development Journal*, *42*(6), 837-855.

Parrett, M. (2015). Beauty and the feast: Examining the effect of beauty on earnings using restaurant tipping data. *Journal of Economic Psychology*, *49*, 34-46.

Pfeffer, J., & Salancik, G. R. (1974). Organisational decision making as a political process: The case of a university budget. *Administrative Science Quarterly*, *19,* 135-151.

Popitz, H. (1992). *Phänomene der Macht*. Mohr Siebeck.

Qureshi, M. Y., & Kay, J. P. (1986). Physical attractiveness, age, and sex as determinants of reactions to resumes. *Social Behavior and Personality: An International Journal*, *14*(1), 103-112.

Rani, H., Shah, S. M. M., Umrani, W. A., Syed, J., & Afshan, G. (2021). Employee state paranoia: Linking abusive supervision with employee voice behavior. *Leadership & Organization Development Journal*, *42*(7), 1053-1070.

Ridgeway, C. L., & Correll, S. J. (2006). Consensus and the creation of status beliefs. *Social Forces*, *85*(1), 431-453.

Robbins, S. P., & Judge, T. (2009). *Essentials of Organization Behavior*. Prentice Hall.

Scott, J. (1987). *Social Network Analysis: A Handbook*. Sage Publications.

Shahzad, K., Raja, U., & Hashmi, S. D. (2020). Impact of Big Five personality traits on authentic leadership. *Leadership & Organization Development Journal*, *42*(2), 208-218.

Shtudiner, Z., & Klein, G. (2019). The impact of gender and attractiveness on judgment of accountants' misbehaviors. Available at SSRN: http://dx.doi.org/10.2139/ssrn.3391257

Spanou, K., Bekiari, A., & Litsa, M. (2021). Unveiling negative behaviors in the academic arena. *The International Journal of Interdisciplinary Educational Studies*, *15*(2), 29-43.

Spencer, B. A., & Taylor, G. S. (1988). Effects of facial attractiveness and gender on causal attributions of managerial performance. *Sex Roles*, *19*(5-6), 273-285.

Tabassum, S., Pereira, S. F., Fernandes, S., et al. (2018). Social network analysis: An overview. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, *8*(5), 1256.

Tepper, B. J. (2007). Abusive supervision in work organizations: Review, synthesis, and research agenda. *Journal of Management*, *33*(3), 261-289.

Uusiautti, S. (2016). How do positive acts influence success at work? A case study of enterprise leaders' and employees' perceptions of success. *Organizational Cultures: An International Journal*, *16*(3), 13-26. doi:10.18848/2327-8013/CGP/v16i03/13-26.

Van Dick, R., & Kerschreiter, R. (2016). The social identity approach to effective leadership: An overview and some ideas on cross-cultural generalizability. *Frontiers of Business Research in China*, *10*(3), 363.

Van Dick, R., Ciampa, V., & Liang, S. (2018). Shared identity in organizational stress and change. *Current Opinion in Psychology*, *23*, 20-25.

Vogel, R. M., Mitchell, M. S., Tepper, B. J., Restubog, S. L., Hu, C., Hua, W., & Huang, J. C. (2015). A cross-cultural examination of subordinates' perceptions of and reactions to abusive supervision. *Journal of Organizational Behavior*, *36*(5), 720-745.

Wasserman, S., & Faust, K. (1994). *Social Network Analysis: Methods and Applications*. Cambridge University Press.

Weber, M. (1978). *Economy and Society: An Outline of Interpretive Sociology* (Vol. 1). University of California Press.

Wolbring, T., & Riordan, P. (2016). How beauty works: Theoretical mechanisms and two empirical applications on students' evaluation of teaching. *Social Science Research*, *57*, 253-272.

Zakaria, N., & Al Mehairi, H. A. (2014). Understanding organizational culture for effective knowledge sharing behaviors in the workplace. *Organizational Cultures: An International Journal*, *13*(3), 33-52.

Vol. 13, No. 1, 85-104
doi:10.17708/DRMJ.2024.v13n01a06

Dynamic Relationships Management Journal

EFFECTS OF SHIFTING FROM IN-PERSON TO DISTRIBUTED WORK ON ROUTINE, CREATIVE, AND SOCIAL COLLABORATION

Sara Rotter Šešok
Google
sarasesok@google.com

Dejan Uršič
School of Economics and Business, University of Ljubljana
dejan.ursic@ef.uni-lj.si

Amadeja Lamovšek
School of Economics and Business, University of Ljubljana
amadeja.lamovsek@ef.uni-lj.si

Anja Svetina Nabergoj
School of Economics and Business, University of Ljubljana
anja.svetina@ef.uni-lj.si

Abstract

This study explores how the transition to distributed work environments has impacted collaboration processes, team dynamics and overall productivity in Microsoft, Google, Facebook, and Salesforce, all global technology companies included in the Fortune 500 top US companies list. It also examines the role of corporate culture, leadership, social and psychological factor, technological infrastructure, and individual customization in shaping these outcomes. In addition, it discusses strategies for optimizing collaboration in distributed forms of work that balance technological advances with the need for interpersonal interaction. This study contributes to the growing discourse on distributed work and provides valuable insights for organizations navigating this evolving work landscape. The research uses a qualitative approach that enables a deep investigation of the impact that distributed work has had on different types of employee collaboration (i.e., routine, creative and social) and the key factors contributing to a successful transition to distributed work. The findings reveal a differentiated landscape in which distributed work offers flexibility and potential individual productivity gains, but also presents challenges in maintaining effective team cohesion and spontaneous communication.

Keywords*: distributed work, routine collaboration, creative collaboration, social collaboration, collaboration tools*

1 INTRODUCTION

Advances in technology and digital transformation have changed the working environment (Allen et al., 2015). As modern technologies enable the constant and continuous communication and cooperation between co-workers, distributed work gained significant attention and changed the working environment. There are many different forms of distributed work (e.g., remote work, virtual work, hybrid work, telework, telecommuting), mainly distinguished by the use of information-communication technologies (ICT), geographical distribution and location of work. Practitioners and academics mainly differentiate between

three forms of work, namely on-site, hybrid and remote (Lamovšek & Černe, 2023). The data shows that distributed forms of work are the future of work, which is why it is crucial for organizations to understand and adapt to them (Malhotra, 2021). One aspect that is significantly impacted by distributed work is employee collaboration. A study by Dahik et al. (2020) found that the switch to distributed work did not result in a loss of productivity on individual tasks for 75% of respondents. However, almost half stated that productivity decreased for collaborative tasks such as information sharing, teamwork and customer contact. This decline in collaboration productivity was most evident among employees who switched from office environments to distributed work. The emergence of distributed work has therefore brought both challenges and opportunities for employee collaboration (Allen et al., 2015; Olson & Olson, 2000).

Despite extensive research on distributed work, a comprehensive understanding of its impact on employee collaboration remains elusive. Existing studies have predominantly concentrated on the effects of various forms of distributed work on individual productivity and well-being (e.g. Allen et al., 2014, 2015; Grant et al., 2013). Additionally, research has explored how ICT influence collaboration in strategic processes, including new product development (Manca et al., 2018) and innovation processes within collaborative work environments (Bala et al., 2017). While understanding how ICT has transformed work environments and processes within companies is crucial, the literature focusing specifically on the effects of distributed work on collaboration is sparse. Moreover, this body of work often considers employee collaboration as a monolithic construct (Karis et al., 2016), neglecting the nuanced differences between types of collaboration. In this paper, we aim to fill this gap by examining how distributed work affects the dynamics of collaboration in four companies, specifically Microsoft, Google, Facebook, and Salesforce, all included in the Fortune 500 list of top US companies. The Fortune 500 is an annual list that ranks the 500 largest United States corporations by total revenue for their respective fiscal years. Therefore, we will try to answer the following research questions: 1) What is the impact of the transition to distributed work on routine, creative and social collaboration among employees? 2) What factors influence the success of collaboration in distributed forms of work? 3) What are the tools and techniques that promote effective and successful collaboration in distributed forms of work?

We contribute to the scholarly discussion by presenting new insights into the complex relationship between distributed work environments and collaborative processes. We intend to advance the literature on distributed work by introducing the phenomenon of employee collaboration and highlighting how various forms of collaboration are reshaped within contemporary work settings. Drawing on the work by Olson and Olson (2000), our findings resonate with the idea that collaboration in distributed work can be effective, however, certain types of collaboration should be carried out in face-to-face environments. Furthermore, our work not only corroborates the insights of Manca et al. (2018) regarding the enabling factors for successful distributed work but also expands upon them by exploring these dynamics across diverse functional areas within organizations, beyond the innovation process alone. It also complements the existing literature by integrating empirical data from a unique context of Fortune 500 top US companies. Our research findings carry both theoretical as well as practical implications as they provide a deeper understanding of how distributed work environments can be optimized for improved collaboration, thus contributing to the broader discourse in organizational and management research.

2 THEORETICAL BACKGROUND

2.1 Collaboration

Collaboration is defined as an evolving process where two or more entities actively engage in joint activities to achieve a common goal (Bedwell et al., 2012). It requires combining complementary skills and resources to achieve results that would be unattainable individually (Hartono, 2004). The quality of collaboration demands deep, frequent, intense interaction and a high level of mutual awareness (Frost, 2007). Successful collaboration needs clear goals, mutual respect, communication, openness to learning, and new information (Liedtka et al., 1998).

Effective collaboration positively impacts financial success, customer satisfaction, employee motivation, productivity, and innovation (Frost, 2007). In the following paragraphs, we will provide descriptions of the three types of employee collaboration (Obstfeld, 2012; Sandow & Allen, 2005):

Routine collaboration. When work is carried out within repetitive processes or clearly defined steps with the aim of completing a project or task, we speak of routine work (Obstfeld, 2012). Routine collaboration is about coordinating existing processes and making minor adjustments to them. It is based on utilizing existing ideas, inputs, experiences and steps to achieve a predefined, routine goal and its outcomes. Routine collaboration is tactical and process-orientated and relies on the use of existing ideas (Sutton, 2002). Although it also involves adapting and improving processes, its goal is always at least partially predictable (Obstfeld, 2012). Routines deliver proven results, mature processes and proven technologies that generate profit. To be successful in the long term, organizations need new processes to satisfy customer demand and maintain a competitive advantage (Sutton, 2002).

Creative collaboration. In order to remain relevant in the market, organizations must foster creativity and promote innovation. Creative tasks are activities that initiate and discover new ideas and routines (Obstfeld, 2012). Therefore, creative collaboration is a process that requires the coordination of new processes and ideas. Creative, innovative or non-routine collaboration takes place outside the usual routines of the organization. Creative projects are about "introducing change with an evolving vision or projection of a new end state and pursuing that anticipated end state through new actions and new ways of working" (Obstfeld, 2012). Creative collaboration is an important source of organizational change and change of routines. Creativity is the generation of new ideas, and innovation is their successful implementation (Nahavandi et al., 2013).

Social collaboration. Social collaboration in an organization involves networking, sharing experiences, knowledge, ideas and advice. Networking and knowledge sharing improve the social capital of the organization and vice versa – employees in an organization with strong social capital work better together (Sandow & Allen, 2005). The social capital of an organization consists of resources that are available to individuals and groups, members of social networks (Villalonga-Olives & Kawachi, 2015). Collaboration in terms of social capital is "socially coordinated action that takes place in a system of social relationships in which everyone contributes to a common purpose" (Sandow & Allen, 2005). The flow of relationships that results from collaboration enables each individual in the network to access the knowledge of the whole.

2.2 Distributed work, collaboration barriers and enabling factors

Distributed work refers to "an arrangement that allows employees and their tasks to be distributed away from the physical location of the company" (Gajendran & Harrison, 2007). It comes with many benefits for both the employees and companies, such as reduced costs and access to a larger talent pool (Karis et al., 2016). However, it also has some disadvantages, such as blurred boundaries between personal and professional life and affect mental health (Kniffin et al., 2021). As we move from the broader concept of distributed work, with its benefits and challenges, to the more focused area of collaboration in distributed forms of work, we see how these principles are applied in the formation and operation of virtual teams.

Collaboration in distributed forms of work typically takes place through regular, intensive face-to-face virtual meetings, followed by less intensive, shorter interactions using faster communication methods such as email and chat tools (Maznevski & Chudoba, 2000). The rhythm of interactions is key to the success of collaboration in distributed forms of work as it allows for a regular exchange of information and prevents duplication of effort. Successful virtual teams are those that can adapt their mode of interaction and communication to the decision-making process, the degree of interdependence and the complexity of the problem. Ineffective virtual teams often work in reverse – they use long video conferences for routine coordination instead of email or virtual chat tools. Virtual teams encounter social and communication challenges (Martins et al., 2004).

Virtual environment offers fewer opportunities for spontaneous interactions, such as impromptu encounters and discussions in the hallway, conversations in the kitchen, meetings in cafés and informal gatherings. Thus, employees miss out on rich informal interactions, lack opportunities to build emotional connection, psychological safety and trust, all of which foster collaboration (Alexander et al., 2020). Moreover, the loss of spontaneous interactions leads to a lack of feedback (Kniffin et al., 2021) and feelings of loneliness and isolation (Choudhury et al., 2021), loss of motivation a feeling of missing out (Grant et al., 2013). The same applies to creative work, since there is less face-to-face interaction in a virtual work environment (Allen et al., 2015), which leads to fewer spontaneous creative collisions (Alexander et al., 2020).

2.2.1 Cultural and structural factors

2.2.1.1 The culture of openness and decentralization of the company

According to Frost (2007), a culture of openness is the strongest factor for quality collaboration. Similarly, Manca et al. (2018) underscore the imporantance of organizational culture in collaborative workplaces. Companies with a high level of collaboration cultivate an entrepreneurial culture of openness and are decentralized, which enables effective virtual strategic planning. Factors such as the ability to communicate with all employees, their accessibility regardless of hierarchy and the frequency of collaboration between different departments are crucial. An open organizational culture is characterized by organizational norms and values based on collaboration, respect, trust, interculturality, constructiveness and sharing (Duarte & Snyder, 2011). Companies that foster a culture of adaptability, openness and accessibility are easier to adapt to change (Staples & Zhao, 2006). Flexible and technologically advanced, non-hierarchical organizations perform better in a virtual environment (Duarte & Snyder, 2011).

2.2.1.2 Leadership in distributed forms of work

Distributed work requires clearly defined rules and methods of collaboration within the company. Just because a manager has led successfully in an in-person setting it does not mean that they will be equally successful in a virtual environment (Alexander et al., 2020). Managers have less control over employees due to distance, which requires different methods of evaluation and reward. In virtual teams, evaluation and rewards are usually based on results (Kniffin et al., 2021). Virtual teams often work together in cross-functional and cross-organizational environments, so it is important that goals and indicators are clearly defined (Duarte & Snyder, 2011).

2.2.2 Social and psychological factors

Successful collaboration in distributed forms of work requires first and foremost effective communication between employees and their managers (Staples & Zhao, 2006). For effective communication, employees must be connected and cultivate a culture of trust; the organization must invest in building social capital and an appropriate leadership style. Strong social connectedness among employees is key to team culture in virtual and hybrid teams (Alexander et al., 2020). Highly connected teams are more productive (Dahik et al., 2020). The building blocks of trust are clear and timely communication, concern for a positive atmosphere in the team, building solidarity, friendliness and belonging, predictable patterns of behavior, and equal inclusion and encouragement of all participants (Coppola et al., 2004).

2.2.3 Technological factors

Appropriate information technology facilitates communication between the members of a unit, department or the entire organization. It is the most important building block for virtual teams, which could not exist without the internet, email, video conferencing and audio bridges (Daim et al., 2012). Choosing the right technology is critical to the success of interactions, teamwork, collaboration and leadership (Kahai et al., 2012). Technology improves productivity, efficiency and collaboration (Avolio et al., 2014). Employees who are satisfied with their work tools and technology are up to twice as productive compared to those who do not have access to high-quality tools such as video conferencing tools, virtual whiteboards for idea sharing and project management software (Dahik et al., 2020).

There is a wide range of high-quality information and communication technologies on the market that promote close collaboration. However, technology is only effective if employees know how to use it properly (Duarte & Snyder, 2011). The simpler the technology is, the more popular it is (Karis et al., 2016).

2.2.4 Collaboration tools

There is no standardized classification of collaboration tools. In the literature, collaboration tools are often differentiated according to their purpose. The collaboration process comprises three elements – communication, coordination and cooperation (Fuks et al., 2008). Communication is used to exchange messages and negotiate between people. Coordination is used to manage people, activities and resources. Cooperation serves the production of products and ideas. Collaboration tools cover all three aspects of collaboration and enable both routine, social and creative-innovative collaboration. They can be divided into communication tools (i.e., synchronous and asynchronous communication, networking, and information exchange, e.g., email, Zoom), coordination tools (i.e., coordination of teamwork and results; e.g., Google drive) and tools for creation (i.e., execution of ongoing tasks, collaborative writing, and editing). Most collaboration tools today are integrated into systems that bring all the necessary programs together in one place, reducing technological noise. Collaboration systems in companies are 'socio-technical systems that support employees in their daily work and facilitate mutual collaboration' (Schubert, 2019). Examples of such systems include Google Workplace and Microsoft Teams. Modern systems often include internal social networks that are a mix of messaging tools and interactive versions of intranets (e.g. Facebook's Slack and Blue Jeans) – employees use them to share best practices and news, documents, and ideas, find relevant stakeholders, highlight important messages and follow relevant stakeholders and topics. In addition to sending messages, such tools also enable tagging, liking, sharing and other interactive functions (Schubert, 2019). The choice of collaboration tools depends on the context of the collaboration, as shown in Table 1.

In the literature, the instruments are often differentiated according to the synchronous and asynchronous nature of communication. Geographically dispersed teams often communicate via asynchronous tools such as email and shared documents. For intensive collaboration, however, occasional synchronous communication is required, so such teams often meet in the early morning or late evening hours (Karis et al., 2016). Table 1 shows that the choice of tools depends, among other things, on the required communication density of the interaction. Some communications are better conducted face-to-face, especially when it comes to building trust, solving problems, sensitive issues and

Table 1: Software components for communication, dependent on the context of collaboration

		Synchronicity of communication			
		Asynchronous communication		Synchronous communication	
		Duration of interaction		Richness of the communication medium	
		Message: short-term	Written communication: long-lasting	Written communication	Multimedia communication
Communication patterns" and "intensity of collaboration	1:1, intensive collaboration	Email	Documents	Chat (messaging)	Screen sharing
	Group collaboration	Blogs, groups	Shared web pages, databases, and instructions (wiki)	Group chat (messaging), social networks	Video conference
	Mass informing	Websites, portals	Official databases, reports, and instructions	Microblog, social networks	Video streaming content

Source: Adapted from Schubert (2019, p. 48).

conflicts. On the other hand, written communication is sometimes even better, as it shortens the time for the individual, allows time for reflection and enables a structured response (Alexander et al., 2020). Microsoft found a 72% increase in the use of messaging apps and a 10% increase in time spent on video conferencing. This is confirmed by the literature in the field of computer science (Hu et al., 2020), which found an increase in the use of video conferencing tools such as Zoom, WebEx, Google Meet and Skype. While the aforementioned technologies became a necessity, the use of tools for project management and creative collaboration is still not widespread. In 2016, Karis, Wildman and Mané found that few organizations were using virtual tools to promote drawing and brainstorming.

3 METHODOLOGY

In this research we conducted a study of how distribtued work affects employee collaboration in international Fortune 500 top US companies. We used the qualitative research method of semi-structured in-depth interviews. This method offers ample opportunity to discover new constructs, factors, dynamics and contexts, and enables a spontaneous flow of conversation (Saunders et al., 2009). Due to its flexibility and openness, this method is suitable for exploring new and not yet well understood phenomena. The analysis of the semi-structured in-depth interviews provides a comprehensive picture of collaboration in distributed forms of work and offers answers to the research questions posed in the introduction. We chose a purposive sampling method to conduct semi-structured interviews with professionals in different business units of Fortune 500 top US companies in Ireland. The interviews were conducted from June 2021 to August 2021 with ten employees holding leading positions in Microsoft, Google, Facebook, or Salesforce. These organizations were selected due to their progressive adoption of distributed work and advanced collaborative technologies. The interviews were designed to explore personal experiences, challenges and adaptations associated with distributed work. Sample data and interview information can be seen at Table 2.

First, we gathered a purposive sample of ten people employed in international technology companies in Ireland. We contacted the participants via the LinkedIn platform. At the same time, we identified the main themes based on a literature review and individual experiences of distributed working and formulated the initial questions for conducting semi-structured interviews. In the next step, we conducted a test interview and adapted the questionnaire accordingly. Due to the pandemic, the interviews were conducted via the Google Meet platform. We informed the interviewees about the purpose and topic of the research and ensured their anonymity. We explained that the results of the interviews would be published and obtained permission to record them. We recorded the interviews. As researchers, we played an active role

Table 2: Sample Data and Interview Information

Person	Company	Gender	Age	Position	Date of Interview	Duration (minutes)
1	Microsoft	F	30	Key Account Manager	28. 6. 2021	31
2	Salesforce	F	29	New Customer Sales	18. 6. 2021	29
3	Facebook	M	31	Key Account Manager	29. 7. 2021	26
4	Google	F	27	Partner Manager	30. 7. 2021	30
5	Google	F	26	Key Account Manager	4. 8. 2021	20
6	Microsoft	M	33	Sales Specialist	1. 7. 2021	34
7	Google	F	32	Customer Segment Manager	28. 7. 2021	28
8	Google	M	41	Sales Team Leader	4. 8. 2021	32
9	Facebook	F	47	Sales Team Leader	7. 7. 2021	30
10	Salesforce	F	31	Marketing	29. 7. 2021	27

during the interviews. We asked follow-up questions, asked for clarifications, and paid attention to verbal and non-verbal reactions. The interviews were then transcribed. We analyzed the transcripts using thematic analysis. Thematic analysis, or the method of condensing meaning, enables the discovery of similarities (common themes), differences and unexpected findings from semi-structured interviews (Kiger & Varpio, 2020). Although thematic analysis is primarily a descriptive method, the researcher must interpret the results by selecting codes and forming themes. We have broken down and categorized the results of the interviews according to their common meanings. We assigned keywords or codes to these meanings. We took an inductive approach to coding as we identified themes based on the findings from the transcripts. In the next step, we grouped parts of the transcripts with the same code to form common meanings – themes.

4 FINDINGS

The results of the study indicate that the influence of distributed work on employee collaboration in international Fortune 500 top US companies is multifaceted. It emphasizes that while distributed work offers flexibility and potential productivity gains, it also presents challenges in maintaining team cohesion and spontaneous communication. The study also highlights that different experiences are contingent upon factors such as company culture, technological infrastructure and individual role in the organization. These findings offer fresh and valuable perspectives for adapting strategies and tools to improve collaboration in distributed forms of work in the tech industry.

4.1 The impact of the transition to distributed work on routine, creative and social collaboration among employees

4.1.1 Routine collaboration

Most interviewees noted that self-efficacy in performing routine tasks which require independent and focused work increased during the transition to distributed work. In the home working environment, employees were exposed to less noise and were less distracted, allowing them to concentrate better. Motivation to get the job done was higher as they desired more free time. Productivity in the home working environment was highly dependent on personal circumstances. The aforementioned respondents lived without children, while the experience of a mother working from home was more challenging.

During the distributed work period, respondents conducted meetings virtually, saving time for commuting and traveling that they could use for other tasks. Most respondents believed that collaborating on simple tasks remotely was efficient, while collaborating on complex problems required more time and planning. Tasks that require synchronous collaboration took longer. Remote work reduced the frequency of collaborative interactions and hindered the free flow of information, leading to an increase in routine administrative tasks and reporting. The distributed work environment required more meetings. Meeting overload was most noticeable in the early months of remote work, but over time, companies have adapted and optimized. Google introduced meeting-free days and weeks. However, respondents were generally dissatisfied with the number and inefficiency of virtual meetings, as they enabled multitasking and thus reduced the attention of participants. The overload caused by meetings was particularly noticeable among Google and Facebook employees, while Microsoft employees noticed an inundation of email messages. For people who have joined the company during the COVID-19 period, collaboration in distributed forms of work presented a particular challenge.

Consequently, distributed work enabled efficient collaboration on routine tasks, but only when the tasks were straightforward. Collaboration in distributed forms of work on complex tasks required more time and planning. Participants noted a general decrease in collaboration; when they could complete a task independently, they did it so. Distributed work had a positive impact on independent routine tasks, as for most respondents the noise in the office was a distraction that had a negative impact on concentration.

4.1.2 Creative collaboration

Most interviewees noticed a decrease in creative collaboration and lower efficiency of creative-collaborative interactions when transitioning to distributed work. Although the virtual environment offered faster organization and international accessibility, employees in business positions had pushed creative work to the sidelines. The lack of face-to-face interactions lead to overwork and demotivation, which had a negative impact on creativity and the desire for it. The most common form of creative collaboration among interviewees was brainstorming. Brainstorming was more difficult in a distributed work environment, especially when there were more participants. Most respondents missed the informal meetings that were used in the past to develop new ideas. Virtual interactions often felt forced.

4.1.3 Social collaboration

Building new relationships and getting to know people was more difficult in the distributed work environment due to the lack of informal interactions. It was more difficult for employees to form an impression of colleagues they had only met virtually, which could lead to conflicts more quickly. The interviewees missed spontaneous interactions, such as having coffee together and socializing. Due to the general overload, they took a more considered approach to socializing. Just like building relationships within the company, building relationships with customers was also more difficult. Distributed work offered fewer opportunities for networking and building informal relationships. Meetings needed to be planned and put in the calendar. Due to the lack of spontaneity, people were not motivated to build additional networks. They relied on the networks they built up before distributed work. Collaboration in distributed forms of work with the aim of building a personal network and sharing best practices required a higher level of proactivity than collaboration between employees in the office. The transition to distributed work had a strong negative impact on employees' social collaboration. Table 3 shows the key findings on the impact of distributed work on employees' routine, creative and social collaboration.

Table 3: The impact of distributed work on employee work, tasks and collaboration

	Key findings
Independent routine work	• Distributed work positively affects the efficiency of independent work. • Fewer distractions and noise increase employees' concentration. • Work efficiency depends on the individual's personal circumstances.
Routine collaboration	• Participants notice a general decline in collaboration. • Distributed work enables efficient collaboration on routine tasks, but only when tasks are uncomplicated. • Collaboration on complex tasks remotely requires more time and planning. • There is a decrease in spontaneous interactions, with an increase in the number of formal interactions.
Routine tasks	• Distributed work increases the amount of routine administrative tasks and reporting. • Distributed work increases the number of meetings and negatively impacts their productivity. • Computer-based meetings allow multitasking and are less effective. • Including and educating new employees is more difficult and takes longer in a virtual environment. • Building a work network, seeking help, exchanging knowledge, processes, and responses in a virtual environment takes longer.
Creative collaboration	• Creative interactions are less frequent and more difficult in a virtual environment. • Overload and lack of personal interactions lead to decreased creativity.
Creative tasks	• Due to a lack of spontaneity, brainstorming in a virtual environment is difficult.
Social collaboration	• Distributed work reduces the frequency of social-collaborative interactions. • Employees find it more challenging to form perceptions of their colleagues, leading to more conflicts. • In a virtual environment, opportunities for networking and informal connections are reduced.
Social tasks	• Virtual networking must be planned and intentional. • Lack of spontaneity demotivates employees. • Employees rely on networks built in offices.

To sum up, the findings reveal that the transition to distributed work has different implications for the different types of collaboration between employees. Overall, while distributed working has certain advantages for independent routine tasks, it poses a major challenge for routine, creative and social collaboration. The lack of physical presence and spontaneous interactions in a shared workspace significantly dampens the potential for creative output and building strong interpersonal relationships, emphasizing the need for innovative solutions to foster these essential aspects of work in a distributed environment.

Specifically, in the area of routine collaboration, there has been a notable improvement in self-efficacy in tasks that require independence and concentration, largely due to the quieter, distraction-free home environment. This environment has increased motivation and, for some, productivity, especially for tasks that can be completed alone. However, this increase in productivity is closely linked to personal circumstances, with those without caring responsibilities generally performing better than those with children. When it comes to collaborating on complex tasks, the distributed work model presents significant challenges. The efficiency of such collaboration often suffers as more time and careful planning is required. The frequency of collaborative interactions decreases, and the shift to distributed work complicates the synchronous collaboration, which is essential for more difficult, complex problem-solving. This scenario has led to an increase in routine administrative tasks and a perceived need for more meetings, which initially led to an overwhelming number of virtual meetings. Although companies such as Google have taken steps to address this issue by introducing meeting-free days, the general dissatisfaction with the number and efficiency of virtual meetings remains a problem.

Creative collaboration in particular has suffered as a result of the changeover. The shift away from physical office spaces has led to a decline in creative collaboration and the efficiency of creative endeavors, with the lack of face-to-face interaction playing a major role in this decline. While the virtual environment allows for faster organization and international accessibility, it often crowds out creative work due to overwork and demotivation. Brainstorming sessions, a cornerstone of creative collaboration, have become more challenging, especially with a larger number of participants. The absence of informal meetings, which used to serve as fertile ground for the germination of new ideas, is clearly felt, and virtual interactions often feel forced and are less conducive to creativity.

Social collaboration has been most affected by the transition to distributed work. Building new relationships and maintaining existing ones has become much more difficult without the organic, informal interactions that office environments naturally provide. The lack of spontaneous interactions such as coffee or casual get-togethers has not only made it harder for employees to get to know their colleagues but has also reduced opportunities for networking and building informal relationships with clients. Meetings have become something that needs to be scheduled and planned, losing the spontaneity that often leads to personal networking. This has had a very negative impact on employees' ability to collaborate socially and requires a greater degree of proactivity to build and maintain personal networks and share best practice.

4.2 Factors that influence the success of collaboration in distributed forms of work

The analysis of the interviews identified the following factors for successful collaboration in distributed forms of work: experience with distributed work and education, culture and leadership of openness and trust, clarity of communication and goals, hybridity of collaborative interactions, psychological and external motivators, and appropriate technology and work environment.

4.2.1 Experience with distributed work and training

Geographically collaboration in distributed forms of work in Fortune 500 top US companies is widespread. The extent of company's past engagement with distributed work and collaboration tools significantly influenced its ability to foster collaboration in distributed forms of work. The longer individuals worked remotely, the easier and more efficient collaboration became. Individuals learned from the

experience and optimized their collaboration processes. To successfully integrate collaboration in distributed forms of work within an organization, it was crucial to allocate resources for training and teach employees effective techniques for collaboration in distributed forms of work. Participants emphasized the need for training soft skills, such as how to conduct virtual meetings effectively or how to resist digital distractions.

4.2.2 Culture and leadership of openness and trust

The culture of an organization played an important role in a virtual environment. When the company's culture was strong, employees were more motivated to work together. A company must consciously create a virtual culture and reward adaptability, openness, and trust, and encourage sharing and receiving of feedback. In the absence of physical meetings and shared physical space, maintaining and building a team culture in a virtual environment is more challenging. Companies need to consciously approach virtual culture, promote it and adapt to the new circumstances. Hybrid work brought additional challenges. In addition to culture, leadership also played an important role in promoting collaboration in distributed forms of work. Superiors have less control over employees in a virtual environment, so it is crucial to adapt the leadership style accordingly. In a virtual setting, micromanagement proves ineffective. Our research highlights that trust and adaptability serve as the primary motivators for individuals.

4.2.3 Clear communication and objectives

To achieve a culture of trust and adaptability, clear and transparent communication is important. In a distributed work environment, it is more difficult to understand non-verbal cues, so it is crucial for managers and employees to promote openness and clarity of communication channels. Alongside effective communication, well-defined objectives play a crucial role in collaboration in distributed forms of work. The distributed work environment demands distinct goals compared to traditional office settings. Additionally, successful collaboration necessitates a precise division of roles and responsibilities.

4.2.4 Hybridity of collaborative interactions

The interviewees note that sustaining exclusive distributed work in the long run would be challenging for them. Successful collaboration requires interpersonal relationships, which are easier to build when meeting in the same room. The hybrid future of work will make it possible to build personal relationships while taking advantage of distributed work.

4.2.5 Psychological and external motivators

The ability of a company and an individual to collaborate remotely is influenced by environmental and personal circumstances. Most interviewees noticed fatigue and a general decrease in motivation when working remotely, which affected their willingness to collaborate. As a result, some companies offered additional psychological support to their employees. Distributed work, especially when done from home, blurs the boundaries between personal and professional life. For some people, this form of work is suitable as it offers them flexibility. For others, distributed work means additional stress. An individual's predisposition to such a form of work has a major influence on their desire to collaborate.

4.2.6 Technology and workspace

Collaboration in distributed forms of work would not be possible without technology. The interviewees noted that their companies provided good technology and adequate technological support. In addition to appropriate technological tools, interviewees emphasized the importance of appropriate office equipment and space. Interviewees recognized that having the necessary equipment at home promotes a comfortable and focused work environment. Initially, interviewees took advantage of financial support from their employers, who provided funds to purchase the needed equipment. A comfortable work environment positively impacted the motivation of the respondents.

To sum up, the findings highlighted several factors that influence successful collaboration in distributed forms of work. The success of collaboration in distributed work arrangements depends on sev-

eral critical factors that were identified in extensive interviews. First, an organization's prior engagement with distributed work and collaboration tools has a significant impact on its ability to foster effective remote collaboration. The more familiar employees are with distributed work, the smoother and more productive collaboration tends to be. Training plays a central role here, focusing on equipping employees with the necessary skills for remote collaboration, including how to effectively conduct virtual meetings and strategies to resist digital distractions.

The culture within an organization of openness and trust is another important component. In a virtual environment where physical interactions are limited, a strong, adaptable culture that rewards flexibility, openness and trust can significantly motivate employees to work together effectively. Leadership style must also adapt in this context, moving away from micromanagement to fostering an environment of trust and adaptability. Clear communication and clearly defined goals are also fundamental to successful collaboration in distributed forms of work. Since there are no non-verbal cues in virtual interactions, it is imperative that both managers and employees maintain open and clear channels of communication. Setting clear goals and clarifying roles and responsibilities are equally important to ensure that everyone is pulling in the same direction and can contribute effectively. The hybrid nature of future work environments, combining face-to-face and remote interactions, is recognized as a key factor in building interpersonal relationships that are critical to collaboration. While pure remote work makes it difficult to maintain these relationships, a hybrid approach enables the benefits of both face-to-face and remote work to be leveraged.

Psychological and external motivators have a significant impact on an individual's ability to collaborate remotely. Factors such as remote work-related fatigue, motivation levels and the blending of personal and professional life can either hinder or encourage the willingness to collaborate. Companies that offer psychological support and acknowledge these challenges can help mitigate the negative effects. Finally, technology and the appropriateness of the workspace are also fundamental. Effective collaboration in distributed forms of work is not possible without the right technology and support. In addition, setting up a suitable home working space, supported financially by the employer if required, can significantly increase productivity and motivation.

4.3 The tools and techniques that promote effective and successful collaboration in distributed forms of work

Most interviewees named appropriate tools as one of the most important factors for collaboration in distributed forms of work. All four companies – Microsoft, Google, Facebook, and Salesforce – use cloud technologies. Most of the tools used by interviewees are integrated into systems. The companies in the sample are also providers of collaboration technologies. Therefore, interviewees mainly used tools developed by their employers (Microsoft: Microsoft Teams, Google: Google Workspace, Facebook: Workplace and Bluejeans, and Salesforce: Slack and Quip). Regardless of the brand of the tools, interviewees use video conferencing, chat and cloud documents most frequently. Respondents were satisfied with the tools, although there were no significant differences in satisfaction between the providers.

Merely having access to these tools was not a guarantee for successful collaboration. Effectively collaborating remotely necessitates well-established guidelines – employees should be aware of the designated tool for communication, the platform for document sharing, and the efficient means to access the necessary information. Companies worked with external stakeholders and customers, so it was important to allow employees to use different tools. Restricting access to tools makes collaboration with external stakeholders and networking more difficult. Video conferencing, chats and documents are the most commonly used collaboration tools. They are used for routine, creative, and social collaboration. The use of specific tools for creative collaboration, such as virtual whiteboards, was not common among employees in business positions. Only a third of interviewees occasionally used tools such as Google Jamboard and Quip.

While collaboration on routine tasks was essential for successful work, interviewees note that social and creative collaboration is less common.

Companies were trying to compensate for the lack of informal interactions and team culture in the office through virtual events, weekly team meetings and office hours. Respondents believed that networking and building a team culture online, especially in large groups, was ineffective as virtual interactions lack spontaneity. Respondents viewed virtual events as unnecessary noise or extra time spent on the computer.

Office hours and occasional social team meetings were more effective as people come together more easily in smaller groups. Company respondents did not notice any programs that encourage virtual creative collaboration. Companies should plan time for creative exchange and approach it in a targeted manner. Creativity requires differently set goals, and the corporate culture must allow for risk and failure.

Employees most frequently use video conferencing, chats, and cloud documents for collaboration. Respondents primarily used tools developed by their employers, with no significant differences found in effectiveness. Successful collaboration in distributed forms of work required clearly defined rules – employees need to know when to use which tool. Participants did not identify effective methods to encourage collaboration in distributed forms of work; routine collaboration occurs as needed, while creative and social collaboration occurs less frequently in the virtual world. Companies were trying to encourage social collaboration with virtual events, informal meetings and office hours, but were not successful in doing so. Respondents could not identify any particular incentives for virtual creative collaboration but felt that companies could encourage this collaboration by allocating formal time, workshops and relaxing strictly set targets.

Table 4 offers an overview of perceived tools and techniques for encouraging collaboration in distributed forms of work.

To sum up, successful collaboration in distributed work environments is supported by a combination of appropriate technological tools and strategic techniques. These include clear guidelines for the use of tools, encouraging small group interactions to improve social relationships, and deliberately creating space and opportunities for creative collaboration. The effectiveness of these tools and techniques is highly dependent on the underlying corporate culture, which must emphasize openness, trust and flexibility in order to adapt to the challenges of distributed collaboration. Explored companies use cloud technologies and have developed their own collaboration tools, including Microsoft Teams, Google Workspace, Workplace and Bluejeans from Facebook, and Slack and Quip from Salesforce. The most commonly used tools in these companies are video conferencing, chat and cloud document platforms. These tools are essential for routine, creative and social collaboration, although there are no significant differences in satisfaction between the different providers. The use of specific tools for creative collaboration, such as virtual whiteboards, is less common: only a third of respondents occasionally use tools such as Google Jamboard and Quip for creative tasks. Par-

Table 4: Tools and Techniques for Encouraging Collaboration in Distributed Forms of Work

	Key findings
Tools for encouraging collaboration	• Employees most frequently use video conferences, chat, and cloud documents for collaboration. • Clear rules of collaboration are more important than the choice of provider.
Techniques for encouraging social collaboration	• Larger virtual team events online are ineffective, virtual interactions lack spontaneity. • Employees desire in-person socializing. • Office hours are an effective way for exchanging knowledge and best practices. • Occasional informal team meetings facilitate easier connection among employees.
Techniques for encouraging creative collaboration	• Companies do not offer programs that encourage virtual collaboration. • Companies should dedicate time to creative exchanges and approach them intentionally. • Creativity requires differently set goals; the company culture should allow for risk and failure.

ticipants noted that effective collaboration in a distributed environment goes beyond simply having access to these tools. Well-established policies are needed so that employees know which tools are intended for communication, sharing documents and accessing necessary information. When it comes to social and creative collaboration, which is less common in remote environments, companies are trying to compensate for the lack of informal office interactions through virtual events, weekly team meetings and office hours. However, respondents considered large virtual team events to be ineffective due to their lack of spontaneity and viewed them as an additional burden rather than an opportunity for real contact. In contrast, office hours and smaller, informal team meetings were seen as more effective in fostering connections between employees. Despite these efforts, there is a lack of formal programs to promote creative collaboration in distributed work. The text suggests that organizations could better foster this type of collaboration by formally scheduling time for creative exchange, conducting workshops, and setting goals that allow for risks and failures.

5 DISCUSSION AND CONCLUSION

5.1 Discussion

There have been many successful examples of implementing distributed work. Despite possessing robust technological infrastructure and prior exposure to flexible work arrangements, the majority of interviewees have indicated a preference for a hybrid return to the office. This desire for a balance between flexibility and face-to-face interactions with colleagues underscores the appropriateness of the decision made by companies such as Microsoft, Google, Facebook, and Salesforce to transition to a hybrid work model in the coming years. The literature emphasizes flexibility as a key advantage of distributed work (Frost, 2007), indicating that technologically advanced and non-hierarchical organizations thrive in virtual environments (Duarte & Snyder, 2011). This was supported by our study participants, who affirm that distributed work provides them with a greater flexibility including schedule, location of work, better life-work integration and flexibility to customize workspace.

Our study reveals that distributed work results in substantial time savings, as employees no longer need to dedicate time to daily commuting as well as spend less time for business trips. Respondents with well-equipped home offices and conducive work environments, characterized by a quiet atmosphere, demonstrate higher efficiency compared to working in a traditional office setting. They also emphasized a greater autonomy in task execution and increased focus while working on a task. These findings align with the conclusions drawn in other studies, such as those by Allen et al. (2014). It's important to note that personal circumstances and the psychological state of individuals play a significant role in determining the effectiveness of distributed work. While interviewees did not identify a negative impact of distributed work on independent tasks, they did express that distributed work diminishes the frequency and efficacy of collaborative exchanges. This observation aligns with the findings from the BCG study conducted by Dahik et al. (2020), where approximately half of the respondents reported a decline in effectiveness while working remotely. Furthermore, our interviewees observed that, when working remotely and having the ability to complete a task independently, they often opt for individual execution, even though collaboration could potentially improve its quality. While independent task completion can be effective, striking a balance with collaborative work is crucial for achieving optimal company performance, fostering innovation, and maintaining a cohesive and engaged workforce. Consequently, it is essential for companies to develop strategies to encourage and promote collaboration among their employees.

Distributed work has significantly increased the number of meetings and notably extended the cumulative time interviewees spend in meetings. Interviewees believe that meetings in a virtual format are less effective, attributing this to ease and attractiveness of digital multitasking, technology fatigue and employee overload. These findings resonate with similar conclusions drawn in other studies, such as the work conducted by Frisch and Greene in 2020. While participants acknowledge that routine collaboration on simple tasks remains as effective remotely as it is in the office, engaging in collaboration on complex tasks and addressing un-

foreseen issues becomes more challenging. Complex collaboration demands additional time and planning, and the process of obtaining feedback tends to be prolonged. These observations align with existing literature findings (Alexander et al., 2020; G. M. Olson & Olson, 2000). Participants also note substantial increase in reporting as supervisors exert less control over their work, which adds additional workload on employees. These findings are in line with previous research by Kniffin et al. (2021).

There are more challenges for creative collaboration. Participants noted that successful brainstorming requires a spontaneous and physical environment that cannot be created when working remotely. This is also confirmed in the literature. In a distributed work environment, there is less face-to-face interaction (Allen et al., 2015) and therefore fewer spontaneous creative clashes (Alexander et al., 2020). Respondents attribute the decrease in creative collaboration to general overwork and increased reporting requirements. Employees who are overwhelmed with work find it difficult to be creative (Nahavandi et al., 2013). Despite previous findings by Thompson (2021), which suggested that the absence of collaborative interactions may not necessarily lead to a negative impact on creativity in the virtual environment, our interviewees did not corroborate this theory. Instead, our study uncovered a general decline in creativity when individuals are working remotely. It should be noted that most interviewees associate creative work with brainstorming and perceive it as a collective and synchronous activity. However, the process of generating new ideas can also be done asynchronously, which, if done properly can also offer some benefits. For example, asynchronous collaboration allows individuals to think about a problem in their own way and avoid the influence of the group (groupthink) and thus a more diverse input, there is less time pressure and more time to deeply think about the topics and lastly, some studies report increased participation as more introverted participants find it easier to express their thoughts in writing.

Another reason for the general decline in creativity that our respondents identified as important is the increase in multitasking during meetings (Marchewka et al., 2020). Previous study by De Bruin and Barber (2019), distinguishes between relevant multitasking and irrelevant multitasking and while the former is perceived as more acceptable and less rude. However, multitasking during virtual meetings can generally lead to decreased focus, lower engagement, and reduced overall productivity. Participants who engage in multitasking may miss important information, contribute less effectively to discussions, and negatively impact the overall dynamics of the meeting. Creative collaboration in distributed forms of work requires not only appropriate technical equipment, but also undivided attention, as well as high level of psychological safety and trust between team members. In order to achieve that despite distractions and noise that accompany virtual meetings, several companies choose active facilitation of important creative meetings. important. Social collaboration in remote setting brings similar challenges - interviewees note that it is more difficult to socialize and build relationships in a virtual environment. The diminished visibility into colleagues' work and efforts can give rise to conflicts. Furthermore, the absence of spontaneous exchanges, like corridor chats or coffee breaks, necessitates a more proactive and intentional approach to networking and sustaining professional connections (Sarker et al., 2011).

Our results show that distributed work adversely affects both the creative and social collaboration among employees. As companies are striving to address the lack of social collaboration by organizing virtual events, office hours, and informal meetings it is important to note that respondents tend to perceive these virtual informal interactions as staged or fabricated and generally tend to avoid them. Respondents believe that their employers provide appropriate tools for collaboration. Collaboration in distributed forms of work is most commonly done via video conferencing, chats and cloud documents. Although email communication is still prevailing, respondents in our study do not consider email to be an effective collaboration tool due to congestion. The use of specialized tools for creative collaboration is rare among respondents and it seems companies in our sample are mainly promoting collaborations tools that support productivity. Despite using tools from various developers, there are no discernible differences in the satisfaction levels reported by the interviewees. The interviews confirm the results of the theoretical

part that clearly defined guidelines are required for successful collaboration in distributed forms of work – employees need to understand when to use which tool (Duarte & Snyder, 2011).

Numerous studies have underscored the significance of technology (Zhao et al., 2022). To foster effective collaboration, it is crucial for these organizations to ensure the availability of the necessary technology and tools. In our sample the respondents received a laptop and financial support from their employers to purchase suitable office equipment, such as a screen, desk, chair, keyboard, and mouse. The companies in the research sample provide adequate technological support and tools for collaboration. Employees in the sample have access to chat, video conferencing, cloud documents, telephone, and email. Openness, trust, and adaptability of the corporate culture are important prerequisites for effective collaboration within the company. Companies that want to create a conducive environment for collaboration in distributed forms of work need to invest in building an appropriate culture and social capital. They should also promote charismatic leadership that rewards results and effort. Successful collaboration in distributed forms of work requires clearly defined and achievable goals, effective communication, and well-defined processes within the organization (Alexander et al., 2020; Duarte & Snyder, 2011; Frost, 2007; Makarius & Larson, 2017). Companies should be careful when setting targets. This research has shown that an excessive focus on routine tasks stifles creativity, which was previously shown an important building block for an organization's long-term success (Obstfeld, 2012). Companies need to make creative time available and consciously encourage creativity. The analysis of the interviews shows that companies should adapt their goals more closely to the dynamics of distributed work.

This research has shown that the amount of time spent in meetings increases significantly when distributed work. Virtual meetings are often ineffective as participants multitask (Frisch & Greene, 2020). The virtual nature of meetings can quickly exhaust employees. Organizations can improve meetings by training employees on effective online presentations, the importance of rules, defining the purpose of the meeting, and encouraging feedback (Frisch & Greene, 2020). Organizations can reduce employee overload by implementing weeks or days without meetings. Previous experience of distributed work plays an important role in the success of collaboration in distributed forms of work (Dahik et al., 2020). Companies that are not used to this type of work can gradually transition to distributed work and test a hybrid model first. To achieve effective collaboration in distributed forms of work, employees need to be trained (Duarte & Snyder, 2011). In addition to the use of collaboration tools, soft skills are also important. Respondents expressed a desire for training in effective virtual communication, presentations and virtual brainstorming. In a virtual environment, it is more difficult to understand individual challenges and problems due to the lack of non-verbal communication. As the boundaries between work and leisure are blurred, employees can burn out. For companies opting for remote or hybrid working, it is advisable to invest in training and psychological support for employees (Dahik et al., 2020). It is also important that companies implement programs that ensure respect and inclusion of all employees.

What respondents miss most about distributed work is the spontaneity of relationships and live interactions. Social connections are easier to make when teams spend some time in the same place. Occasional face-to-face meetings build trust and make it easier to ask less awkward questions and receive feedback (Karis et al., 2016). Face-to-face meetings allow for getting to know each other, building personal relationships and spontaneity. Especially when integrating new team members, training sessions, team events and creative collaboration should take place in a shared location wherever possible. Companies should encourage office hours, informal team meetings and occasional team events. To make it easier to maintain the culture of collaboration, companies can choose a hybrid working model that gives employees freedom while allowing for sufficient face-to-face contact and lively collaborative interactions (Alexander et al., 2020).

5.2 Theoretical implications

The paper advances the literature on distributed work and extends the classic discussion on modern work enviroments by offering insights into their impact on employee collaboration. Our theoretical con-

tributions are threefold. First, we argue that collaboration should be regarded as a multifaceted construct, segmented into various subtypes rather than viewed as a monolithic entity, as suggested in previous literature (Frost, 2007; Karis et al., 2016). Drawing upon the works of diverse scholars (Obstfeld, 2012; Sandow & Allen, 2005; Sutton, 2002), we introduce a novel classification of employee collaboration, segmented into three distinct types: routine, creative, and social. While distributed work has been shown to be an effective arrangement (Olson & Olson, 2000), the efficacy of such arrangements for collaborative tasks remains unclear. We posit that individual tasks and routine collaboration can be conducted with comparable efficiency in distributed settings as in traditional face-to-face arrangements. Conversely, creative and social collaborations necessitate in-person interactions to yield substantive outcomes.

As our second contribution, we highlight the importance of enabling factors that contribute to successful transition and collaboration to distributed work. We confirm that organizational culture, HR practices, ICT and physical layouts are critical for colloborative workplaces (Manca et al., 2018). We further emphasize that psychological and social factors are as equally important for successful employee collaboration (Alexander et al., 2020; Coppola et al., 2004). In addition, we provide an overview of tools that make colloboration easier.

Last, our study makes a significant empirical contribution by situating the analysis within the context of the Fortune 500 top US companies. This approach not only enhances the relevance and applicability of our findings but also affords a comprehensive understanding of how distributed work and employee collaboration are operationalized at the highest levels. By focusing on these leading companies, we are able to draw from a rich dataset that includes a variety of industries, organizational structures, and work cultures, thereby providing a robust and nuanced view of the current state of distributed work. Moreover, the inclusion of these companies allows us to examine the intersection of advanced technological infrastructures, organizational strategies, and collaboration outcomes, offering invaluable insights for both academic research and practical application in understanding the evolving dynamics of the modern workplace.

5.3 Practical implications

The findings of this study on distributed work have several practical implications for managers who want to optimize collaboration and the distributed working environment.

Firstly, managers should provide their employees with the necessary technology tools and support to set up an efficient home office. This includes hardware such as laptops and ergonomic office furniture, but also software and collaboration tools. The suitability of the workplace and the adequacy of hardware and office equipment play an important role in distributed work (Dahik et al., 2020). A high degree of technology acceptance is typical for companies with a high degree of cooperation (Frost, 2007). Investment in education and development and the provision of appropriate technical support play an important role in this (Duarte & Snyder, 2011). In addition to technical training, companies need to provide their employees with appropriate information about working from home, support programs and psychological resources to encourage collaboration in distributed forms of work. The latter include feedback, support and maintaining connection through regular video calls (Kniffin et al., 2021). They should also provide training and support to help employees adapt to distributed working environments, which includes training on effective virtual communication, managing work-life boundaries and supporting mental health.

Secondly, managers should ensure that employees have access to effective communication tools and understand how to best utilize them. This includes video conferencing, chat applications and document sharing in the cloud. Managers need to also provide guidance on when and how to use these tools effectively for different tasks. They can encourage the use of technology through training and appropriate technical support and ensure that all employees have equal access to technology regardless of their position or location (Duarte & Snyder, 2011).

Thirdly, managers should address collaboration in distributed forms of work challenges. For example, they should recognize that distributed working can reduce the efficiency of collaborative exchanges and brainstorming sessions. Therefore, they have to develop strategies to encourage collaboration and creativity, even in a distributed environment. This

could include setting aside time for creative work and ensuring that meetings are focused and facilitated effectively. They could possibly introduce 'meeting-free' days or weeks to reduce overload. Organizations in which managers encourage individuals to network and collaborate with each other are more successful (Sandow & Allen, 2005).

Fourthly, managers should promote social interaction and team building. Strong social connectedness among employees enables collective productivity and is an essential prerequisite for effective communication, efficiency, knowledge acquisition and innovation within the organization (Dahik et al., 2020). Therefore managers should create opportunities for informal virtual interactions and, where possible, organize face-to-face meetings or events to strengthen team cohesion. To maintain motivation, employees need to feel safe and heard. Such a space can be created through virtual calls, shared calendars, updates and joint planning of goals and outcomes (Karis et al., 2016). Spontaneous interactions are also key to building collegial relationships, social capital and trust. While social bonds often form spontaneously in a physical environment, the virtual environment requires a more targeted approach. Leaders can encourage interactions through team experiences and organizing sufficient group events (Alexander et al., 2020). Social bonding happens more easily when teams spend some time in the same place, so it's a good idea for virtual teams to organize occasional face-to-face meetings. Such events encourage spontaneous communication and collaboration, integrate distributed team members into the central team, simplify handover and coordination in event planning and allow easy access to each other. Occasional meetings build trust, which makes it easier to ask less awkward questions and receive feedback (Karis et al., 2016).

Fifthly, managers should clearly set the goals and expectations and make sure they align with the dynamics of distributed work. Managers should avoid overemphasizing routine tasks at the expense of creative and collaborative work. For collaboration in distributed forms of work to take place across team boundaries, it is important that the entire organization embraces this way of working. An organization can ensure the acceptance of distributed work with the mechanisms, such as effective communication (e.g., managers must make it clear that distributed work is not just a passing trend, but a new way of doing business that leverages knowledge and skills and embraces diversity), and clearly defined procedures and objectives (Duarte & Snyder, 2011).

Last but not least, managers should adapt leadership style and organizational culture to support distributed work. This includes promoting trust, openness, adaptability and a results-oriented approach. Duarte and Snyder (2011) identify the following competencies of successful virtual team leaders: coaching and managing for success without traditional forms of feedback, appropriate selection and use of collaboration and communication tools, leading in an international environment, the ability to develop team members, building and maintaining trust, networking across hierarchies and organizations, developing successful organizational processes to support the virtual team. Team leaders play an important role in building trust. They should foster a culture that values teamwork, communication, learning and diversity, is open to change and supports collaboration (Duarte & Snyder, 2011). Collaboration on routine and creative tasks is easier when there are clear processes and communication rules within the team (Makarius & Larson, 2017). Rules shorten the time it takes to start a collaborative task and prevent unnecessary reinvention (Duarte & Snyder, 2011). Successful distributed work requires appropriate human resource policies that enable hands-on work (Duarte & Snyder, 2011). The organization must ensure the integration of systems and provide employees same level of recognition, support, and rewards to all employees regardless of where they work.

5.4 Limitations and future research directions

The study is based on insights gained from a purposive sample of ten individuals employed in international Fortune 500 top US companies, namely Microsoft, Google, Facebook, and Salesforce, that are known for high levels of digitalization. The provided sample enables the attainment of the study objective, namely the development of guidelines for successful collaboration in distributed forms of work. Because these companies are incredibly advanced in their ways of working and have due to their global nature had extensive prior experience

with virtual collaboration, we were able to identify both benefits as well as disadvantages of distributed work. The small and purposive sample comes with limitations. The opinion of ten people employed in one sector is difficult to generalize to the entire population. While interviewees answered some questions similarly, certain answers vary depending on the company in which they are employed. Experiences of remote creative collaboration would likely be different if the sample included employees from the creative industries. Responses would likely differ depending on the level of digital transformation in the company and the country of employment.

The results of the semi-structured interviews can be used for further research – to understand the general impact of distributed work on employee collaboration, the results of the study could be summarized in a survey and tested for general significance on a broad, representative sample. Survey data collection would also enable structural equation modeling analysis to test the causal relationships between different types of collaboration in distributed forms of work and employee outcomes, including job performance, job satisfaction, work engagement, and innovative behavior. Moreover, multilevel analysis could be conducted to understand how employee collaboration is affected by team characteristics and firm characteristics. While the literature review and the analysis of the interviews answer the research questions, new questions arise regarding the future of distributed work, for example: What impact will distributed work have on employees' creative, routine, and social collaboration in five years' time?, How can companies cultivate a successful long-term virtual culture?, What impact will the transition to distributed work have on employee collaboration in the creative industries?, What is the impact on employees in less digitized companies?, How do different types of collaboration in distributed forms of work affect individual, team, and firm level outcomes?

5.5 Conclusion

In conclusion, this study has shed light on the complexities of collaboration in distributed forms of work. While the rapid development of information and communication technologies has prompted numerous companies to endorse virtual and hybrid work environments, it is important to better understand the nuances of different types of collaborative interactions. Virtual setting has definitely empowered independent work and routine collaborations, while engaging in collaboration for more complex tasks, as well as creative and social collaboration within a virtual environment, presents greater challenges.

The success of collaboration in distributed forms of work is influenced by technological factors (appropriate technology and work environment), cultural and structural factors (experience with distributed work, training, culture and leadership of openness and trust, clarity of communication and goals, hybridity of collaborative interactions) as well as social and psychological factors (motivation, safety, isolation, etc). Organizations need to approach collaboration in distributed forms of work consciously and consider these factors of collaboration. Providing appropriate technologies for collaboration, investing in employees' soft skills, building a culture of openness and trust, setting clear goals and offering psychological support will go a long way in increasing individuals' commitment to the organization and thus their willingness to collaborate.

In essence, as companies navigate the evolving landscape of collaboration in distributed forms of work, the profound need for genuine human connection is emerging as more important than ever. Successful collaboration, rooted in trust, feedback exchange, and the spark of spontaneity vital for creativity, thrives on social contact. Therefore, for virtual teams seeking to amplify their collaborative efforts, a suggestion surfaces—to intentionally allocate moments for shared physical presence. Occasional face-to-face meetings become not merely a formality but a cornerstone, fostering the bonds that drive collaborative success online and offline. Companies, recognizing the transformative power of such encounters, weave them into the fabric of their work culture through initiatives like regular team building activities, office hours, regular all team meetings, offsite events and retreats. By streamlining reporting processes and embracing a flexible or hybrid working model, organizations can transcend the constraints of distance, empowering teams to unleash their creative potential and forge connections that endure.

EXTENDED SUMMARY/IZVLEČEK

V študiji avtorji raziskujejo učinke porazdeljenega dela na sodelovanje zaposlenih v Fortune 500 podjetjih, kot so Microsoft, Google, Facebook in Salesforce. Cilj raziskave je proučiti, kako prehod v decentralizirano delovno okolje vpliva na procese sodelovanja, dinamiko skupin in produktivnost. Raziskava uporablja kvalitativni pristop, ki omogoča poglobljeno preučevanje vpliva porazdeljenega dela na različne vrste sodelovanja zaposlenih (npr. rutinsko, ustvarjalno in družbeno) ter ključne dejavnike, ki prispevajo k uspešnemu prehodu na porazdeljeno delo. Rutinsko sodelovanje na daljavo je sicer lahko učinkovito, a je mnogo kompleksnejše. Ustvarjalno in družbeno sodelovanje pa je v virtualnem okolju oteženo. Ugotovitve kažejo, da čeprav je samostojno delo na daljavo zaradi napredka tehnologij učinkovito in vpliva na povečano individualno produktivnost, pa le-to hkrati zmanjšuje sodelovanje med zaposlenimi. Največji izziv je vzdrževanju učinkovite skupinske povezanosti in spontane komunikacije. Na uspeh porazdeljenega dela vplivajo tehnološki, kulturni, strukturni, družbeni in psihološki dejavniki. Podjetja morajo za uspešno sodelovanje na daljavo razumeti in upoštevati te dejavnike, zagotavljati ustrezno tehnologijo, graditi kulturo odprtosti in zaupanja, jasno postavljati cilje in nuditi psihološko podporo. Integracija novih zaposlenih, izobraževanja in ustvarjalno delo naj, če je mogoče, potekajo v živo. Za uspešno sodelovanje je pomembna družbena povezanost, zato naj virtualni timi del časa preživijo skupaj. Občasna srečanja v živo krepijo zaupanje in spodbujajo ustvarjalnost. Podjetja lahko sodelovanje spodbujajo z virtualnimi dogodki in sestanki ter zmanjšajo poudarek na poročanju, saj s tem omogočajo več časa za ustvarjalno delo. Rezultati raziskave jasno kažejo na zaželjenost prehajanja na hibridni model dela. Ta študija prispeva k vse bolj popularnim razpravam o porazdeljenem delu in ponuja dragocen vpogled v izzive sodelovanja na daljavo ter hkrati predlaga strategije za optimizacijo porazdeljenega dela v organizacijah.

REFERENCES

Alexander, A., De Smet, A., & Mysore, M. (2020). Reimagining the postpandemic workforce. *McKinsey Quarterly*.

Allen, T. D., Cho, E., & Meier, L. L. (2014). Work–family boundary dynamics. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*, 99–121.

Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How Effective Is Telecommuting? Assessing the Status of Our Scientific Findings. *Psychological Science in the Public Interest*, *16*(2), 40–68.

Avolio, B. J., Sosik, J. J., Kahai, S. S., & Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. *The Leadership Quarterly*, *25*(1), 105–131.

Bala, H., Massey, A. P., & Montoya, M. M. (2017). The Effects of Process Orientations on Collaboration Technology Use and Outcomes in Product Development. *Journal of Management Information Systems, 34*(2), 520–559. https://doi.org/10.1080/07421222.2017.1334494

Bedwell, W. L., Wildman, J. L., DiazGranados, D., Salazar, M., Kramer, W. S., & Salas, E. (2012). Collaboration at work: An integrative multilevel conceptualization. *Human Resource Management Review*, *22*(2), 128–145.

Choudhury, P. (Raj), Foroughi, C., & Larson, B. (2021). Work-from-anywhere: The productivity effects of geographic flexibility. *Strategic Management Journal*, *42*(4), 655–683.

Coppola, N. W., Hiltz, S. R., & Rotter, N. G. (2004). Building trust in virtual teams. *IEEE Transactions on Professional Communication*, *47*(2), 95–104.

Dahik, A., Lovich, D., Kreafle, C., Bailey, A., Kilmann, J., Kennedy, D., Roongta, P., Schuler, F., Tomlin, L., & Wenstrup, J. (2020). What 12,000 employees have to say about the future of remote work. *Boston Consulting Group*, 1–12.

Daim, T., Ha, A., Reutiman, S., Hughes, B., Pathak, U., Bynum, W., & Bhatla, A. (2012). Exploring the communication breakdown in global virtual teams. *International Journal of Project Management - INT J PROJ MANAG*, *30*.

De Bruin, R., & Barber, L. K. (2019). Social judgments of electronic multitasking in the workplace: The role of contextual and individual factors. *Computers in Human Behavior*, *94*, 110–121.

Duarte, D. L., & Snyder, N. T. (2011). *Mastering virtual teams: Strategies, tools, and techniques that succeed*. John Wiley & Sons.

Frisch, B., & Greene, C. (2020). What it takes to run a great virtual meeting. *Harvard Business Review. Https://Hbr. Org/2020/03/What-It-Takes-to-Run-a-Great-Virtual-Meeting*.

Frost, S. (2007). Meetings around the world: the impact of collaboration on business performance. *Frost & Sullivan White Papers*, 1–19.

Fuks, H., Raposo, A., Gerosa, M. A., Pimental, M., & Lucena, C. J. P. (2008). The 3c collaboration model. In *Encyclopedia of E-collaboration* (pp. 637–644). IGI Global.

Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology*, *92*(6), 1524.

Grant, C. A., Wallace, L. M., & Spurgeon, P. C. (2013). An exploration of the psychological factors affecting remote e-worker's job effectiveness, well-being and work-life balance. *Employee Relations*, *35*(5), 527–546.

Hartono, E. (2004). *Knowledge, technology, and inter-firm collaboration: a model and empirical study of collaborative commerce*. University of Kentucky.

Hu, W.-C., Bansal, B., & Kaabouch, N. (2020). *Using Mobile and Wireless Computing to Facilitate Virtual Collaboration During a Pandemic*.

Kahai, S. S., Huang, R., & Jestice, R. J. (2012). Interaction effect of leadership and communication media on feedback positivity in virtual teams. *Group & Organization Management*, *37*(6), 716–751.

Karis, D., Wildman, D., & Mané, A. (2014). Improving remote collaboration with video conferencing and video portals. *Human-Computer Interaction*, *31*(1), 1–58.

Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical Teacher*, *42*(8), 846–854.

Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., Bamberger, P., Bapuji, H., Bhave, D. P., & Choi, V. K. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, *76*(1), 63.

Kumar, K., van Fenema, P. C., & Von Glinow, M. A. (2005). Intense collaboration in globally distributed work teams: Evolving patterns of dependencies and coordination. In *Managing multinational teams: Global perspectives* (pp. 127–153). Emerald Group Publishing Limited.

Lamovšek, A., & Černe, M. (2023). Past, present and future: A systematic multitechnique bibliometric review of the field of distributed work. *Information and Organization*, *33*(2), 100446.

Liedtka, J. M., Whitten, E., & Sorrells-Jones, J. (1998). Enhancing care delivery through cross-disciplinary collaboration: A case study/practitioner response. *Journal of Healthcare Management*, *43*(2), 185.

Makarius, E., & Larson, B. (2017). Changing the Perspective of Virtual Work: Building Virtual Intelligence at the Individual Level. *The Academy of Management Perspectives*, *31*, 159–178.

Malhotra, A. (2021). The Postpandemic Future of Work. *Journal of Management*, *47*(5), 1091–1102.

Manca, C., Grijalvo, M., Palacios, M., & Kaulio, M. (2018). Collaborative workplaces for innovation in service companies: barriers and enablers for supporting new ways of working. *Service Business, 12*(3), 525–550. https://doi.org/10.1007/s11628-017-0359-0

Marchewka, M., Nesterak, J., Sołtysik, M., Szymla, W., & Wojnarowska, M. (2020). *Multitasking effects on individual performance: an experimental eye-tracking study*.

Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, *30*(6), 805–835.

Maznevski, M. L., & Chudoba, K. M. (2000). Bridging space over time: Global virtual team dynamics and effectiveness. *Organization Science*, *11*(5), 473–492.

Nahavandi, A., Denhardt, R. B., Denhardt, J. V, & Aristigueta, M. P. (2013). *Organizational Behavior*. SAGE Publications.

Obstfeld, D. (2012). Creative Projects: A Less Routine Approach Toward Getting New Things Done. *Organization Science*, *23*(6), 1571–1592.

Olson, G. M., & Olson, J. S. (2000). Distance Matters. *Human–Computer Interaction*, *15*(2–3), 139–178.

Sandow, D., & Allen, A. M. (2005). The nature of social collaboration: how work really gets done. *Reflections: The SoL Journal*, *6*(2–3), 2–3.

Sarker, S., Ahuja, M., Sarker, S., & Kirkeby, S. (2011). The Role of Communication and Trust in Global Virtual Teams: A Social Network Perspective. *Journal of Management Information Systems*, *28*(1), 273–310.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Schubert, P. (2019). Joint Work and Information Sharing in the Modern Digital Workplace: How the Introduction of "Social" Features Shaped Enterprise Collaboration Systems. In K. Riemer, S. Schellhammer, & M. Meinert (Eds.), *Collaboration in the Digital Age: How Technology Enables Individuals, Teams and Businesses* (pp. 45–59). Springer International Publishing.

Staples, D. S., & Zhao, L. (2006). The Effects of Cultural Diversity in Virtual Teams Versus Face-to-Face Teams. *Group Decision and Negotiation*, *15*(4), 389–406.

Sutton, R. I. (2002). Weird ideas that spark innovation. *MIT Sloan Management Review*, *43*(2), 83.

Thompson, L. (2021). Virtual collaboration won't be the death of creativity. *MIT Sloan Management Review*, *62*(2), 42–46.

Villalonga-Olives, E., & Kawachi, I. (2015). The measurement of social capital. *Gaceta Sanitaria*, *29*(1), 62–64.

Zhao, X., Wang, C., & Hong, J. (2022). Evaluating the individual, situational, and technological drivers for creative ideas generation in virtual communities: A systematic literature review. *Frontiers in Psychology*, *13*.

AUTHOR GUIDELINES

1. GENERAL INFORMATION

All articles submitted to the Dynamic Relationships Management Journal are double-blind reviewed. The manuscript should submitted via e-mail to the editor (matej.cerne@ef.uni-lj.si). Send two files: one that contains author contact information along with the text, references, tables, figures, and exhibits; and one where author contact information will be deleted. Authors should keep an exact, extra copy of the manuscript for future reference.

Manuscripts are reviewed with the understanding that they are original, not under consideration by any other publisher, have not been previously published in whole or in part, have not been previously accepted for publication, and will not be submitted elsewhere until a decision is reached regarding their publication in the Dynamic Relationships Management Journal.

Manuscripts must be written in English. Authors are responsible for the quality of written English and proof reading of the text is required.

Manuscripts should be double-spaced (including references) in 12 point font, with pages numbered consecutively throughout the entire paper. (The title page is page one.) Text alignment should be justified. Margins should be one inch (2.5 cm) at the top, bottom and sides of the page. Manuscripts inclusive of all text, references, tables, figures, appendices etc. should be no longer than 30 pages and should not exceed 60.000 characters including spaces. Authors should provide a summary, which will be published in Slovene (for foreign authors, translation will be provided by editors).

Manuscripts that report quantitative analyses of data should typically include descriptive statistics, correlation matrices, the results of statistical tests and so forth. If these items are not included in the manuscript, they should be reported in a separate technical appendix. Authors of manuscripts that report data dependent results also must make available, upon request, exact information regarding their procedures and stimuli (excluding data).

If we receive files that do not conform to the above requirements, we will inform the author(s) and we will not begin the review process until we receive the corrected files.

The author(s) submitting the manuscript for review should clearly indicate to the editor the relation of the manuscript under review to any other manuscripts currently under review, in press or recently published by the authors. The editor may ask the authors to submit copies of such related papers to the Editorial Board.

2. GENERAL INSTRUCTIONS

1. First page: Name of author(s) and title; author(s) footnote, including present positions, complete address, telephone number, fax number, email address, and any acknowledgment of financial or technical assistance.
2. Second page: Title of paper (without author's name) and an abstract of no more than 250 words substantively summarizing the article. Also include up to six keywords that describe your paper for indexing and for web searches in your manuscript.

3. Next: Text alignment justified with major headings and subheadings flush with the left margin. The introduction should state clearly the objective of the paper as well as the motivation and the context of the research. The literature review should be limited to the articles, books and other items that have a direct bearing on the topic being addressed. In empirical papers, details of the empirical section tests should not be included in the paper itself. The conclusion should summarize key findings and state their importance to the field. Footnotes should be kept to an absolute minimum and must be placed at the foot of the page to which they refer. They should not be used for citing references.
4. Then: Tables, numbered consecutively, each on a separate page. If tables appear in an appendix, they should be numbered separately and consecutively, as in Table A-1, A-2, and so on.
5. Next: Figures, numbered consecutively, each placed on a separate page. If tables appear in an appendix, they should be numbered separately, as in Figure A-1, A-2, etc.
6. After conclusion: Longer summary (1-2 pp, depending on length of article) in Slovenian language (for foreign authors, translation will be provided by editors).
7. Last: References, typed in alphabetical order by author's last name and in APA style.

3. TABLES

1. The table number and title should be centered and placed above the table.
2. Source(s) should also be provided and centered below the table: i.e. Mabey & Gooderham, The impact of management development on perceptions of organizational performance in European firms, 2005: 136.
3. Designate units (e.g., %, $) in column headings.
4. Align all decimals.
5. Refer to tables in the text by number only. Do not refer to tables by "above," "below," and "preceding."
6. If possible, combine closely related tables.
7. Clearly indicate positions of tables within the text on the page where they are introduced: e.g. Table 1 about here.
8. Measures of statistical significance should be reported within the table.

4. FIGURES, PHOTOGRAPHS AND CAMERA-READY ARTWORK

1. For graphs, label both vertical and horizontal axes. The ordinate label should be centered above the ordinate axis; the abscissa label should be placed beneath the abscissa.
2. Place all calibration tics inside the axis lines, with the values outside the axis lines.
3. The figure number and title should be typed on separate lines, centered and placed above the figure.
4. When appropriate, source(s) should also be provided and centered below the figure (see example under the Tables section).
5. Clearly indicate positions of figures within the text on the page where they are introduced.

6. Once a manuscript has been accepted for publication, complex tables and all figures must be submitted both electronically and as camera-ready (hard) copy. Do not embed figures in the Word file; instead, submit them separately in the program in which they were created (i.e., PDF, PowerPoint, Excel).
7. Lettering should be large enough to be read easily with 50% reduction.
8. Any art not done on a computer graphics program should be professionally drafted in India ink.
9. Do not submit photographs or camera-ready art until your manuscript has been accepted. If the photograph or artwork is completed, submit copies.

5. MATHEMATICAL NOTATION

1. Mathematical notation must be clear and understandable. Since not all journal readers are mathematically proficient, the authors should ensure that the text (i.e., words) also conveys the meaning expressed by the mathematical notation. We recommend that extensive mathematical notation (e.g., proofs) should be provided in a separate technical appendix.
2. Equations should be centered on the page. Equations should be numbered; type the number in parentheses flush with the left margin. If equations are too wide to fit in a single column, indicate appropriate breaks.

   Unusual symbols and Greek letters should be identified by a note.

6. REFERENCE CITATIONS WITHIN THE TEXT

Cite all references at the appropriate point in the text by the surname of the author(s), year of publication, and pagination where necessary. Pagination (without 'p.' or 'pp.') to give the source of a quotation or to indicate a passage of special relevance, follows the year of publication and is preceded by a colon, i.e. Parsons (1974: 238). Page numbers should be given full out, i.e. 212-230 not 212-30. When providing quotes, these should be in italics. In general, references to published works must be cited in text according to the guidelines for APA style (for more information see the DRMJ website).

7. REFERENCE LIST STYLE

1. **Single Author:** Last name first, followed by author initials.

   Berndt, T. J. (2002). Friendship quality and social development. *Current Directions in Psychological Science, 11*, 7-10.
2. **Two Authors:** List by their last names and initials. Use the ampersand instead of “and.”

   Wegener, D. T., & Petty, R. E. (1994). Mood management across affective states: The hedonic contingency hypothesis. *Journal of Personality & Social Psychology, 66*, 1034-1048.
3. **Three to Six Authors:** List by last names and initials; commas separate author names, while the last author name is preceded again by ampersand.

   Kernis, M. H., Cornell, D. P., Sun, C. R., Berry, A., & Harlow, T. (1993). There’s more to self-esteem than whether it is high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology, 65*, 1190-1204.

4. **Organization as Author**

   American Psychological Association. (2003).

5. **Unknown Author**

   Merriam-Webster's collegiate dictionary (10th ed.).(1993). Springfield, MA: Merriam-Webster.

6. **Two or More Works by the Same Author:** Use the author's name for all entries and list the entries by the year (earliest comes first).

   Berndt, T. J. (1981).
   Berndt, T. J. (1999).

   References that have the same first author and different second and/or third authors are arranged alphabetically by the last name of the second author, or the last name of the third if the first and second authors are the same.

For other examples, see the DRMJ website.