DETERMINING THE ROLE OF COMPANY CHARACTERISTICS AS INNOVATION DRIVERS IN CREATIVE INDUSTRIES IN THE CZECH REPUBLIC

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Abstract: This study investigates the impact of specific company characteristics on the innovation performance of creative industries in the Czech Republic. Data were collected through a questionnaire survey of 355 private enterprises across all creative industry sub-sectors. Structural equation modelling was employed to develop a measurement model for innovation in these industries. The findings reveal that participation in conferences or workshops and involvement in writing scientific publications are among the company characteristics with the greatest positive impacts on innovation performance. Conversely, business age, company location in an urbanised centre, public funding, and workforce gender diversity did not have significant impacts. These results underscore the importance of knowledge sharing and continuous professional development for innovation in creative industries.

Keywords: creative industries, cultural industries, innovation, innovation performance, company characteristics, knowledge sharing, structural equation modelling

1 Introduction

Creative industries can be considered as contemporary phenomena that are inherently linked to modern lifestyles, economic development, and innovation (Kontrimienė and Melnikas, 2017). The dynamically changing global environment, coupled with the influence of new technologies and globalisation, has led to a significant shift from traditional manufacturing sectors to the development of services and an increasing emphasis on innovation. Creative industries and their untapped potential enable the creation of economic growth and jobs (European Commission, 2010). Their primary input is the creativity of individuals, in contrast to many other sectors of the economy that require additional inputs in the form of various raw materials.

However, the concept of creative industries has largely been artificially created through combining several sub-sectors into a single sector. Through this process, creative industries became sufficiently large to attract the attention of politicians and investors representing advanced economies (Goueva and Vora, 2018). Yet, this step also had negative consequences. An example is the absence of a universally accepted definition, stemming from the fact that creative industries have different sub-sector compositions in different countries. At present, there is no consensus on the structure of creative industries. The creative industries in the Czech Republic comprise three main sectors: the traditional and artistic sector (including Cultural Heritage, Performing Arts, Visual Arts, Arts Education, and Artistic Crafts), the audiovisual and media sector (encompassing Film and Video, Music, Radio, Television, Video Games, and Books and Print), and the creative sector (consisting of Architecture, Advertising, and Design) (NIPOS, 2024). Each of these sub-sectors has unique creative processes, business models, and target audiences. Therefore, research must be based on local conditions, and the findings from research in one country may not automatically apply to others.

Despite their relatively long history, creative industries became the subject of more intensive research only after the turn of the millennium (Jones et al., 2016). Traditional research on creative industries focused on their contributions to economic development, urban agglomeration development, regional development, or the study of their macroeconomic impacts (Cho et al., 2018). In addition to direct positive impacts on a country's gross domestic product growth, reducing unemployment, creating and supporting social cohesion among the population, and promoting creativity and innovation, creative industries also have additional positive impacts in the form of so-called spill-over effects (Kloudova and Chwaszcz, 2014; Castro-Higueras and de Aguilera-Moyano, 2018).

Innovation is one of the main driving forces of creative industries, which are among the most innovative sectors of the economy (Müller et al., 2009). Flew and Cunningham (2010) emphasised that creative industries are increasingly at the centre of economic interest in developed countries, as their development brings innovation, increased employment, and the development of a knowledge society. Moreover, their economic significance gradually increases over time (Kloudova and Chwaszcz, 2014). Despite this general recognition of the importance of creative industries, the current understanding of how specific company characteristics influence innovation performance remains significantly limited. This article aims to identify, through constructing a model for measuring innovation performance, the company characteristics that serve as innovation drivers of companies in creative industries.

2 Theoretical Framework

Researchers have long strived to achieve the most accurate measurement possible of a company's innovation performance. The most common indicators of innovation performance include new products and services, organisational and process changes, or the acquisition of new intellectual property. These are often supplemented by additional indicators. The aim of adding further variables to the measurement of innovation performance is to capture these innovations as precisely as possible (Hagedoorn and Cloodt, 2003).

Only recently has the innovation potential of companies in creative industries, within the context of the broader economy, become the subject of more intensive research (Protogerou et al., 2016). However, innovations are understood differently in creative industries, when compared to traditional economic sectors. In contrast to innovations in other economic sectors, which often involve technological and process improvements, innovations in creative industries focus more on developing new concepts, aesthetics, artistic expressions, and modes of presentation. Given their impacts on culture, society, and the economy, researchers and analysts have focused on a deeper understanding and utilisation of the innovation potential of these creative sectors.

Research on innovation in creative industries is usually divided into two parts. The first examines the role of creative industries as a contributor to innovation in the context of the broader economy, primarily through outputs from creative industries (Bakhshi and McVittie, 2009). The second line of research focuses directly on innovations in companies belonging to creative industries (Miles and Green, 2008; Müller et al., 2009; Protogerou et al., 2016). Gohoungodji and Amara (2023), in their review article, identified three basic approaches used in researching innovations in companies operating in creative industries. The first assimilation approach adopts the traditional perception of innovations, which are technology-driven and take the form of new products, services, or organisational changes in companies. The second differentiation approach rejects the traditional perception of innovation and prefers to understand innovation in the context of the differences between creative industries and more traditional sectors of the economy. In this approach, innovations do not necessarily bring new or improved products, services, or processes. They can take the form of, for example, artistic innovations that bring new artistic values, or aesthetic innovations that bring changes without affecting the functional aspect of the resulting product or service. The third approach to defining innovations in creative industries is a mixed approach, in which authors respect the traditional perception of innovation but add additional contextual metrics to traditional metrics that can better capture innovations in the specific analysed sub-sector(s) of creative industries.

The mixed approach is currently the most widespread approach to researching innovations in creative industries in the scientific

literature (Gohoungodji and Amara, 2023). Nevertheless, this article adheres to the assimilation approach, based on the definitions of innovation provided in the Oslo Manual (OECD, 2018). The reason for choosing the assimilation approach is the great heterogeneity of creative industries, which encompass a large number of different sub-sectors, each with its own specificities. Given that the main objective of this article is to create a model for measuring innovation in creative industries, it would be counterproductive to include specific metrics in this model to capture innovations in only some of the creative industry sub-sectors. The resulting model would lack validity for the entire creative industries sector; conversely, if parameterised only for a specific sector, the model would not be statistically representative for the chosen sub-sector, as it would not be based on a representative sample of companies. The innovation performance of companies is represented in this article using a latent factor, which is composed of three manifest variables: new product and service innovations over the past three years, new organisational and process innovations over the past three years, and the acquisition of new intellectual property over the past three years (DCMS, 2001; Hotho and Champion, 2011; Hassanien and Dale, 2012; Battisti et al., 2015; Protogerou et al., 2017; Cestino and Berndt, 2017; OECD, 2018; Jiao et al., 2019).

The choice of company characteristics stems from the specificities of creative industries, which distinguish many of the companies operating in creative industries from companies in more traditional sectors of the economy. The first described area, which is presumed to influence the innovation performance of companies in creative industries, is the entrepreneurial identity of the company's founder or manager. This is amplified in the case of creative industries by the fact that these are, in most cases, small and micro companies. Formal education and previous work experience play a key role in their ability to identify and exploit innovative opportunities in this dynamic business environment (Shane, 2000; Brandellero and Kloosterman, 2010; Lampel and Germain, 2016; Hennekam and Bennet, 2017; Protogerou et al., 2017). Although we are talking about highly educated individuals in the case of workers in creative industries, research points to a certain level of dissatisfaction among some workers, regarding how their education prepared them for the practical demands of daily work responsibilities in this sector (Hennekam, Bennet, 2017). Therefore, the manifest variables in the theoretical model will include, in addition to the level of education attained, satisfaction with this education and, in the case of previous work experience, the respondent’s assessment of the importance of this work experience.

The second area presumed to affect the innovation performance of companies is company management, which builds upon entrepreneurial identity. Management in creative industries has undergone significant professionalisation over recent decades (Boorsma, 2006; Win, 2014; Lee, Lee, 2017). The identification of market and innovation opportunities, an "open mind," and a proactive approach are now automatically expected from managers in creative industries (Cantarello et al., 2011; Parkman et al., 2012). However, it is not possible to speak of adopting the classic managerial approach known from other sectors. Excessive attempts to manage creative employees may have an undesirable effect in suppressing their artistic and creative integrity (Eikhof and Haunschild, 2007), which can subsequently affect the innovation performance of companies in creative industries. The organisational culture and management approach in the company, therefore, have significant impacts on the company's innovation performance (Nauwelaerts and Hollaender, 2012; Li et al., 2017; Prima Lati et al., 2020). To identify the level of management in the company, manifest variables are used, with the aim of determining the presence of planning in the company, which is one of the main functions of management. Specifically, the presence of set goals and strategies to achieve these goals is verified in the analysed companies. Additionally, a manifest variable is included to identify the use of a democratic approach to management and decision-making in the analysed companies, which could be considered to be a prerequisite for maintaining the artistic integrity of employees (Eikhof and Haunschild, 2007).

The third analysed area presumed to impact the innovation performance of companies in creative industries is research and development. One of the traditional indicators included in models for measuring innovation performance is investment into research and development (Evangelista, et al., 1998; Lee and Drever, 2013). Investments in research and development are often perceived differently in creative industries, compared to traditional economic sectors. Instead of investments in technology, design, processes, or infrastructure, in creative industries, we more often speak of investments in projects (Benghozi and Salvador, 2016). One of the observed manifest variables under the latent factor research and development is the amount of profit re-invested into research and development by the analysed companies. Another area presumed to impact innovation is collaboration with other entities. In practice, it is very rare for an entrepreneur to be able to independently plan the entire innovation process from its inception to implementation. Therefore, in creative industries, there is a common effort to build functioning partnerships, aimed at effectively sharing and coordinating common resources (Wilson and Stokes, 2005; Yamada and Yamashita, 2006; Parida et al., 2017; Loots et al., 2018). Company collaboration is captured in the resulting model from two perspectives: the existence of direct long-term collaboration with another company and indirect collaboration, which also involves the sharing of important knowledge and experience in the sector in which the analysed company operates. Indirect collaboration or willingness to share information and knowledge is captured by two manifest variables: the company's participation in conferences and workshops, and the publication of scientific publications by employees of the analysed companies. The final manifest variable, belonging to the area of research and development, is formulated in terms of the use of external funding sources by the analysed companies. Support for creative industries is particularly important during their inception (Drab-Kurowska, 2018). One way in which the state can support the development of creative industries is through providing public funding sources. There is, thus, an assumption that if a company in creative industries uses external public funding sources, it will have a positive impact on its innovation performance (Nauwelaerts and Hollaender, 2012; Vicente et al. 2012). The reason for this is that obtaining public funding sources can represent (at least temporary) financial stability and predictability for the company. Public grant schemes and grants aim to support the development of culture and cultural events, as well as promoting the social inclusion that the development of art and culture brings. It is, therefore, possible that companies can receive grants for riskier projects where economic return may not be the primary factor in assessing the project application.

The final analysed group of variables in the model are independently functioning company characteristics. In this case, the existence of an explanatory latent factor is not assumed, and the direct impacts of these variables on the company's innovation performance are analysed. The first manifest variable is the age of the company, with the assumption of lower innovation performance as the company's age increases. The reason for this is that younger companies make greater use of interactions with their surroundings to gain knowledge, and they can more effectively utilise the positive spill-over effects that companies in creative industries bring. Conversely, in older companies, the number of these interactions decreases, which reduces their absorptive capacity (Müller et al, 2009; Lee and Drever, 2013; Rodríguez-Gulías, 2020). The second manifest variable is company size. In the case of company size, it is conversely assumed that, as the size of the company increases (in terms of the number of its employees), the company's innovation performance will also increase. The assumption is that larger companies tend to have more resources available, especially human resources (Müller et al, 2009; Camarero et al., 2011; Lee and Drever, 2013; Li et al., 2017; Protogerou et al., 2017; Rodríguez-Gulías, 2020). The third analysed manifest variable is

the location of the company in a highly urbanised centre. One of the specific characteristics of creative industries is their concentration in highly urbanised places. The creative class—that is, employees of creative industries—are a specific group of employees who appreciate diversity, tolerance, culture, and creative stimuli that urbanised areas often bring (Florida, 2005; Zakova et al., 2015; Dörry et al., 2016; Goueva and Vora, 2018). However, spatial concentration is not the same across different countries or regions. Thus, the spatial concentration of creative industries considers the local specificities of the given area (Lazzeretti et al., 2008). In the Czech Republic, creative industries are concentrated primarily in the capital city of Prague, followed by Brno. In these two urbanised centres, creative industries are concentrated across all sub-sectors while, in other urbanised areas, typically only some of the sub-sectors of creative industries are represented (Slach et al., 2013; Zenka and Slach, 2018). The fourth and final analysed manifest variable, which is presumed to impact the company's innovation performance, is the presence of a gender diverse workforce. Gender diversity has a positive impact on a greater diversity of opinion within the company, which subsequently stimulates broader discussion (Cumming et al., 2015). From the perspective of creative industries, there is an assumption that, if the workforce of a company is gender diverse, it will have a positive impact on the innovation performance of the company (Protogerou et al., 2017).

3 Materials and Methods

3.1 Theoretical Model Creation

Based on the theoretical research above, it is possible to describe the presumed functionality of the theoretical model in more detail, which is composed of four latent factors: innovation performance, entrepreneurial identity, management, and research and development. An assimilation approach was chosen to measure innovation performance, based on which three manifest variables were assigned to the innovation performance factor: the existence of new organisational or process innovations over the last three years (INO_ORG), the existence of new products and services over the last three years (INO_PR), and the existence of new intellectual property acquired over the last three years (INO_IP). All three manifest variables falling under the latent factor of innovation performance were dichotomous in nature, with respondents able to agree or disagree with the statement.

Four manifest variables were assigned to the latent factor entrepreneurial identity: the existence of previous work experience of the questionnaire respondent in the field of business (WORK), evaluation of the importance of this previous work experience (WORK_EVAL), level of education attained (EDU), and evaluation of the importance of education attained from the perspective of job content in creative industries (EDU_EVAL). For the manifest variable WORK, respondents chose answers on a three-point scale, with options of previous work experience, partial previous work experience, and no previous work experience. For the manifest variable EDU, respondents had the option of selecting primary, secondary or tertiary education. For the manifest variables WORK_EVAL and EDU_EVAL, respondents chose the level of importance of previous work experience and education on a five-point Likert scale.

Three manifest variables were assigned to the latent factor management: the existence of set goals in the company (GOAL), the existence of strategies in the company to achieve these set goals (STR), and decision-making based on achieving consensus (DEM). For all three manifest variables falling under the latent factor management, respondents answered the level of agreement on a five-point Likert scale.

Five manifest variables were assigned to the fourth and final latent factor, research and development: the amount of profit reinvested into research and development (RND_INV), scientific publications by company employees (PUB), participation in conferences and workshops (CONF), long-term collaboration with another business entity (COL), and obtaining external public funding (FUN_EXT). The manifest variable RND_INV is based on the responses of respondents who could choose the level of re-invested profit on an 11-point scale. The remaining manifest variables falling under the latent factor research and development were dichotomous in nature.

For the last four manifest variables, with regard to the theoretical part of the article, a direct impact on the company's innovation performance is assumed. These manifest variables are the age of the company (AGE), number of employees (EMP), existence of the company in a highly urbanised centre (URB), and gender diversity of the workforce (GEN_DIV). For the manifest variable AGE, respondents chose from five predefined company age categories. For the manifest variable EMP, respondents chose from eight predefined number of employees categories. To evaluate the impact of a company's location in an urbanised centre (URB), it was necessary to create a dummy variable based on the question regarding the region in which the company is registered. From previous research concerning the concentration of creative industries in the Czech Republic, it was possible to identify regions that can be designated as highly urbanised, specifically, the capital city of Prague and the South Moravian Region (Zenka and Slach, 2018). If a company was registered in one of these two administrative territorial units, it was identified as a company located in a highly urbanised centre. Similar logic was applied in the creation of the GEN_DIV dummy variable. Respondents chose the composition of the work team in the company on a ten-point scale, with the left side of the scale indicating a female work team and the right side of the scale indicating a male work team. In case the respondents chose the middle 4 options on a ten-point scale, i.e. a work team without a clear inclination towards the predominant gender, the firm's work team was labelled as gender-diverse.

3.2 Model Implementation and Evaluation

Structural equation modelling (SEM) tools were used to implement the theoretical model, allowing for modelling of the complex relationships between selected variables and evaluation of the presumed relationships between the chosen company characteristics and innovation performance. SEM tools were chosen as, compared to regression analysis tools, they allow for the analysis of both direct and indirect effects, making them suitable for the more complex models that often arise in social science research. The SPSS Amos 21 software was used to implement the theoretical model. Within structural equation modelling, the most commonly used estimation technique is ML (Maximum Likelihood). This technique attempts to find the maximum value of the likelihood function based on the analysed data. The disadvantage of this function is that it assumes the use of normally distributed cardinal variables. Nevertheless, it is most frequently used in practice, and its application to data other than cardinal data with a normal distribution result in poor model performance. This means that, if the model is functional even with ML, its values would be higher when using other more appropriate estimation techniques that SPSS Amos does not provide (Soukup, 2022).

The model evaluation also took into account the modification indices provided by SPSS Amos in its outputs. Where these identified indices were justified, logically fitted the developed model and met the requirements of statistical significance, they were accepted. The SPSS Amos program also allows for the calculation of indirect effects, along with an evaluation of their statistical significance. If the direct impacts of latent factors on the innovation performance factor were not confirmed in the resulting model, the indirect impacts and their statistical significance were analysed.

A large number of tests and parameters were used to evaluate the functionality of the model. The basic test describing the suitability of the model with respect to the analysed data is the chi-square test. Comparative criteria, represented by the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root

Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Square Residual (SRMR), were also used to evaluate the model's capability. The comparative criteria were supplemented with an information criterion, namely, the Akaike Information Criterion (AIC). Specific values along with minimum required values (Soukup, 2022) are presented in the results section of this article.

3.3 Distribution and Collection of Questionnaires

To obtain all the variables necessary for constructing the model, it was first necessary to send a questionnaire to the selected companies. A rigorous approach was applied when compiling the questionnaire, in order to ensure the validity and reliability of the collected data. For questions concerning specific aspects of innovation, the standardised Community Innovation Survey questionnaire used by Eurostat (2024) was utilised as a template for creating questions. The advantage of using a standardised questionnaire is its proven functionality and high validity; however, due to the absence of standardised procedures for creative industry research, this approach could only be applied to this part of the questionnaire. The final form of the questionnaire was consulted with university colleagues and creative industry representatives. Based on their valuable feedback, the questionnaire was adjusted, and the formulation of some questions was changed. An example is the use of the word "collaboration" in the original version of the questionnaire, which was changed to "cooperation" based on negative feedback from creative industry representatives stemming from the historical connotation of this word.

Based on the Satellite Account of Culture existing in the Czech Republic (NIPOS, 2024) and the three-sector division of culture, NACE codes belonging to individual sectors of creative industries were identified. In the traditional and artistic sector, which includes Cultural Heritage, Performing Arts, Visual Arts, Arts Education, and Artistic Crafts, 984 privately owned companies were identified. In the audiovisual and media sector, which includes Film and Video, Music, Radio, Television, Video Games, and Books and Press, 2453 companies were identified. In the last creative sector, which includes Architecture, Advertising, and Design, 4653 companies were identified. In total, 8090 companies were identified within creative industries.

The questionnaire was distributed to identified companies in electronic form in the spring of 2023. Based on the identified NACE codes, a list of companies was requested from the Czech Statistical Office. Contact email addresses for these companies were then searched for in the Orbis database. However, not all contact email addresses for the companies were found in this database, so a manual search was subsequently conducted. The study targeted all companies for which email contact information could be obtained, and each of these companies was invited to participate in the research. The questionnaire was specifically intended for owners/managers/directors of private companies in creative industries. The total number of respondents was 355, representing a completed questionnaire response rate of 4.4%. Given the size of the sample, it is possible to consider this sample of companies as representative.

4 Results and Discussion

4.1 Innovation Performance

The first latent factor is innovation performance, composed of three manifest variables: INO_ORG, INO_PR, and INO_IP. In the case of the INO_ORG variable, more than 50% of the analysed companies experienced significant organisational or process changes in the last three years. Nearly 55% of companies recorded a product or service innovation in the last three years. Over 48% of respondents stated that their company had acquired new intellectual property in the last three years. In this case, the high rate of innovation inherent to creative industries was confirmed (Müller et al., 2009).

4.2 Entrepreneurial Identity

The second factor is entrepreneurial identity, composed of four manifest variables: WORK, WORK_EVAL, EDU, and EDU_EVAL. Nearly 58% of respondents had previous work experience. Almost 51% of respondents indicated that their previous work experiences were important for their current role in creative industries. An additional 21% described their previous work experiences as rather important. This means that nearly 72% of respondents expressed some degree of importance of their previous work experiences with respect to their current role in creative industries.

The third variable, EDU, which is linked to the latent factor entrepreneurial identity, indicates the level of education attained. Employees in this industry tend to be highly educated, with a much higher percentage having university degrees compared to the national average (Hennekam and Bennet, 2017; Campbell, 2020). The results of the questionnaire survey confirmed this, as 70% of respondents stated that they had achieved a university education, while only 1% of respondents had completed only primary education. One of the reasons for such a large representation of people with higher education may be the fact that the questionnaire was addressed to people in the highest positions in companies. Another reason may be the focus of the research on private companies, which do not form such a large part of creative industries, in which 84% of all entities in the Czech Republic are self-employed individuals (Zakova et al., 2015). Nearly 43% of respondents rated their previous education as important, and almost 23% of respondents as rather important. This means that over 66% of respondents expressed some degree of satisfaction with the importance of their previous education.

4.3 Management

The third latent factor is management, comprising three manifest variables: GOAL, STR, and DEM. A total of 49% of respondents agreed with the existence of clearly defined goals in the analysed companies, and 22% expressed at least partial agreement. This means that up to 71% of respondents expressed some degree of agreement with the existence of goals in their company. The second manifest variable, STR, logically follows from the previous variable. Almost 36% of respondents agreed with the existence of strategies and plans in the analysed companies, and over 30% of respondents at least partially agreed with such existence. In total, more than 66% of respondents expressed some degree of agreement. This represents a slight decrease, compared to the GOAL variable.

The last manifest variable belonging to the latent management factor, DEM, focused on the democratic approach of leadership when discussing important decisions concerning the company. This question complements the overall picture of the management style in the company: if decisions in the company were to be made without consensus, there is a risk of disrupting the artistic integrity and internal motivation of employees in the company, which could have a negative impact on their work performance. More than 58% of respondents expressed some degree of agreement with the existence of a democratic leadership style in the company.

4.4 Research and Development

The fourth and final latent factor is research and development. This factor includes not only the level of investment in research and development (RND_INV) but also additional manifest variables that were posed to the respondents of the questionnaire survey, specifically, PUB, CONF, COL, and EXT_FUN. Only approximately 5% of the analysed companies reported re-investing more than 80% of their profit into research and development, in contrast to more than 60% of companies that re-invested 20% or less of their profit into research and development.

The second manifest variable is the existence of publications by employees of the analysed companies, PUB. Working on

scientific publications leads to a deepening and development of the professional knowledge and skills of employees. It can also increase the internal motivation of publishing employees, which may have a positive impact on the company's innovation performance. In the analysed sample of companies, professional publications were produced in a surprisingly high 23% of them. Logically following is the manifest variable that inquired about the participation of analysed companies in conferences and workshops, CONF. In this case, it is also assumed that the participation of companies in such events has a positive impact on their innovation performance. The reason for this is that employee participation in conferences and workshops contributes to their better awareness of current trends and technologies in the industry in which their company conducts its business activities. At the same time, such events also allow for the informal sharing of ideas and experiences with colleagues from other companies, resulting in the expansion of contact networks through networking. Almost 60% of the analysed companies had participated in conferences and workshops in the past, indicating a willingness to share information and knowledge in this industry.

Long-term collaboration brings a positive synergistic effect that results from sharing information and experiences, but also brings new opportunities. In total, 80% of the analysed companies reported long-term collaboration with another company. The willingness of the analysed companies in creative industries to collaborate with other companies is a fundamental prerequisite for sharing knowledge, information, and know-how in the industry. For this reason, the COL variable is strongly logically linked to the CONF and PUB variables, which also represent a form of knowledge sharing, albeit through different communication channels.

The last manifest variable is FUN_EXT, which investigated whether the analysed company had attempted to obtain public funding. Only approximately 22% of the analysed companies had applied for public funding. One of the reasons for this is the fact that any application submission represents a significant administrative burden for the company as, in the case of companies in creative industries, we are primarily talking about micro-enterprises. Within the analysed sample, up to 66% of companies had fewer than five employees. Micro-enterprises predominate in creative industries, and the findings in the analysed sample of companies confirm previous research conducted in the Czech Republic (Zakova et al., 2015). The p-value for the regression relationship of this variable was equal to 0.082 and, for this reason, the manifest variable FUN_EXT was removed from the final model.

4.5 Additional Selected Company Characteristics

In addition to the latent factors, the theoretical model also includes four manifest variables that are assumed to have a direct impact on the innovation performance factor: EMP, AGE, URB, and GEN_DIV. The first selected company characteristic is the number of employees in the company, EMP. Within the analysed sample, up to 66% of companies had fewer than five employees, confirming the results of previous research (Zakova et al., 2015). Of the four analysed company characteristics, the p-value of the regression relationship was lower than 0.05 only in the case of the EMP variable.

The second selected company characteristic, which directly affects the latent factor of innovation performance in the theoretical model, is the age of the company, AGE. Approximately one-fifth of the analysed companies were younger than five years, whilst companies younger than ten years accounted for approximately 50% of the data set. Meanwhile, companies aged between 11 and 20 years constituted approximately 28% of the analysed sample of companies, and those over 20 years old made up approximately 23% of the analysed companies.

The third selected company characteristic, URB, is the location of the company in highly urbanised centres in the Czech Republic. Of the total number of respondents, more than 52% of companies were registered either in Prague or in the South Moravian Region. It is, therefore, evident that the international phenomenon of concentration of creative industries in large cities and highly urbanised locations is also prevalent in the Czech Republic.

The last selected company characteristic, assumed to have a direct impact on the innovation performance factor, is the gender diversity of the workforce in the analysed companies (GEN_DIV). Up to 71% of companies in the analysed sample had a gender-diverse workforce, while the workforce in 29% of companies was inclined towards being either predominantly male or female. Upon closer analysis of the regression weights and corresponding p-values for the manifest variables AGE, URB, and GEN_DIV, it was concluded that they do not have statistically significant impacts on the company's innovation performance. Therefore, these three manifest variables were removed from the final model.

4.6 Evaluation of the Final Model

The following Tab. 1 lists the standardised and unstandardised regression weights, standard errors, critical ratios, and p-values for all regression relationships in the final version of the model for measuring innovation performance in creative industries. Latent factors names are replaced by abbreviated following labels in the Tab. 1, Entrepreneurial identity (F1), Management (F2), Research and development (F3) and Innovation performance (F4).

Tab. 1: Description of the model for measuring innovation performance in creative industries

Anal. Relat.	Std. Reg. Weight	Reg. Weight	Std. Error	Crit. Ratio	p-value
F1 → F2	0.805	5.632	2.043	2.757	0.006
F2 → F3	0.378	0.371	0.086	4.318	<0.001
F3 → F4	0.500	0.108	0.028	3.852	<0.001
EMP → F4	0.221	0.034	0.011	3.170	0.002
F1 → WORK	0.201	1.000			
F1 → WORK_ EVAL	0.550	4.814	1.441	3.340	<0.001
F1 → EDU	0.377	1.108	0.407	2.722	0.006
F1 → EDU_ EVAL	0.433	3.585	1.290	2.779	0.005
F2 → GOAL	0.937	1.000			
F2 → STR	0.780	0.854	0.063	13.457	<0.001
F2 → DEM	0.296	0.379	0.074	5.138	<0.001
F3 → RND_INV	0.451	1.000			
F3 → PUB	0.406	0.152	0.034	4.447	<0.001
F3 → CONF	0.652	0.298	0.061	4.851	<0.001
F3 → COL	0.190	0.068	0.026	2.585	0.010
F4 → INO_ ORG	0.485	1.000			
F4 → INO_PR	0.712	1.455	0.224	6.509	<0.001
F4 → INO_IP	0.589	1.212	0.197	6.149	<0.001

(Source: Author)

Based on these results, it can be stated that all regression relationships in the final model for measuring innovation performance were statistically significant. It is also possible to confirm that the latent factor entrepreneurial identity has a significant impact on the latent factor management, with a standardised regression weight of 0.805 and a p-value equal to 0.006. The management factor subsequently has a statistically significant impact on the latent factor research and development, with a standardised regression weight of 0.378 and a p-value less than 0.001. Finally, the research and development factor has a significant impact on the latent factor Innovation Performance, with a standardised regression weight of 0.500 and a p-value less than 0.001.

In addition to these relationships, the theoretical model also assumed direct impacts of the entrepreneurial identity and management factors on the innovation performance factor. However, these direct relationships were not evaluated as statistically significant from the perspective of model functionality. In the case of the indirect influence of the latent factor entrepreneurial identity on the latent factor innovation performance, the path of this influence is through the latent factors management and research and development. The standardised regression weight of this indirect relationship is equal to 0.152 with a p-value of 0.003. In the second analysed case, the indirect influence of the latent factor management on the latent factor innovation performance is through the latent factor research and development, where the standardised regression weight of this indirect relationship is equal to 0.189. This relationship is statistically significant with a p-value of 0.004. Based on these results, it can be stated that the latent factors of entrepreneurial identity and management have statistically significant indirect effects on the latent factor innovation performance.

Two modification indices were accepted in the development of the model. The first modification index suggested interconnecting the WORK and WORK_EVAL variables with a covariance link. Given the wording of the questions, this modification index was evaluated as justified, and this link was added to the final model. The standardised value of the covariance link was 0.140 with a p-value less than 0.001. The second modification index suggested interconnecting the EDU and EDU_EVAL. The standardised value of the covariance link was 0.390 with a p-value lower than 0.001.

The final part of model creation using structural modelling methods involved an evaluation of the model's ability to correctly interpret the analysed data. Several metrics and indices were utilised to verify this ability. The specific measured values for the final model, along with the recommended minimum values (Soukup, 2022), are provided in the following Tab. 2.

Tab. 2: Evaluation of the model for measuring innovation performance in creative industries

Criterium	Recommended Value	Created Model	
X^2/df	<2	1.542	
CFI	>0.9	0.947	
TLI	>0.9	0.934	
RMSEA	<0.06	0.039	
SRMR	<0.08	0.057	
		Saturated model	Analysed model
AIC	A.M. < S.M.	270.000	231.075

(Source: Author)

Based on the results of the evaluation criteria used, it can be concluded that the final model for measuring the innovation performance of companies in creative industries met all the recommended values for these evaluation criteria. The final form of the model, along with all statistical relationships, is depicted in the following Figure 1.

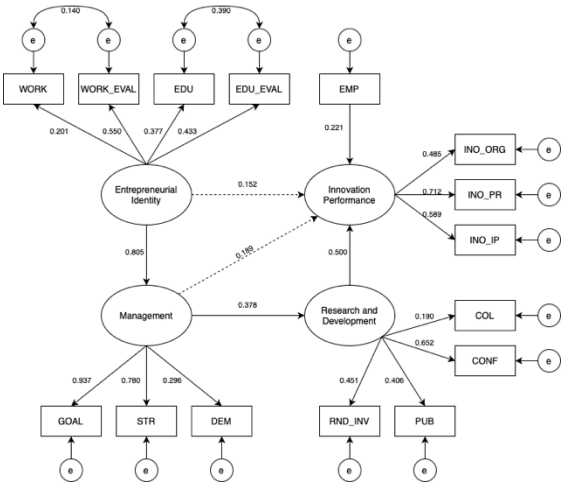

Figure 1: Model for measuring innovation performance in creative industries (Source: Author)

4.7 Application of the Model

The resulting model assigns a value of the latent factor innovation performance to each company, which represents its innovation performance in the context of all analysed companies. The values of this variable were backinputted into the data matrix, allowing for further analysis. Given the way in which the analysed manifest variables were oriented, a lower value means higher innovation performance and, conversely, a higher value means lower innovation performance of the analysed companies. Through quartile analysis, it was possible to divide the companies according to their innovation performance into three groups. The first group of companies, with above-average innovation performance, represents the first quartile of analysed companies with the lowest values of the inputted latent factor. The second group of companies, with average innovation performance, represents the second and third quartiles. The last third group of companies, with below-average innovation performance, comprises the last quartile with the highest measured values of the inputted latent factor Innovation Performance. The following Figure 2 shows the average values of all manifest variables entering the final model for measuring innovation performance in creative industries. For all variables, it is possible to observe the lowest average values for companies with above-average innovation performance and, conversely, the highest average values for companies with below-average innovation performance.

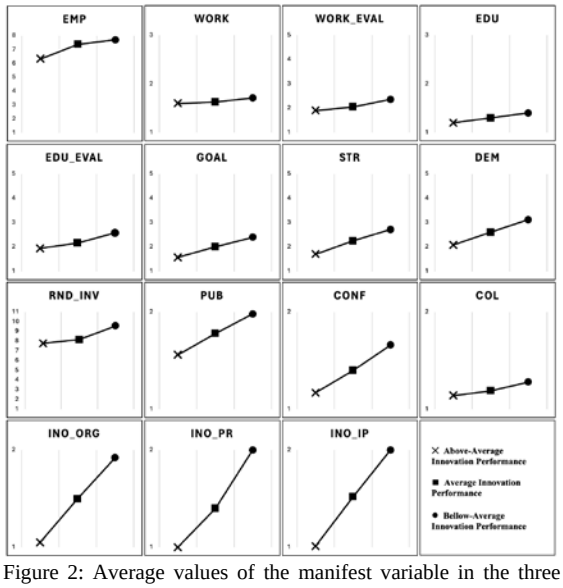

Figure 2: Average values of the manifest variable in the three performance groups of companies (Source: Author)

When looking at the average values of manifest variables entering the final model, it is evident that the differences between the three groups of companies (divided according to their innovation performance) are larger for some of the variables than for others. This partially indicates the significance of certain variables in measuring a company's innovation performance. Upon closer analysis of the factor scores for all analysed manifest variables, it can be stated that all variables in the final model positively influence the innovation performance of the analysed companies. Nevertheless, some variables had a more significant impact on the innovation performance of the analysed companies. The most significant impacts on innovation performance logically derive from direct manifestations of innovations, in the form of the variables INO_ORG, INO_PR, and INO_IP. This confirms that the model functions correctly as, on the basis of the grouping of the companies, it is clear from Figure 2 that companies with above-average innovation performance achieved real innovation, while companies with below-average innovation performance tend not to innovate.

Other manifest variables with a higher impact on innovation performance, based on their factor scores, include CONF, PUB, and EMP. In the case of the EMP variable (i.e., the number of employees), its higher impact on the company's innovation performance is logical: the larger the number of employees an analysed company has, the greater the amount of human resources available to the company. However, as mentioned earlier, micro-enterprises with fewer than five employees predominate in the analysed sample of companies, so hiring new employees to increase the innovation performance of companies might not be in the interest and financial capabilities of the analysed companies.

In the case of variables such as publishing scientific articles (PUB) and participating in conferences (CONF), it appears that an effective way for a company to increase its innovation performance is through sharing information and knowledge. Authorship or co-authorship of scientific publications by company employees, their participation in conferences and workshops, and the company's willingness to cooperate long-term with other firms are all variables that support the exchange of knowledge and experience among participants in creative industries. When creating scientific publications, employees continuously educate themselves and keep up to date with current trends and the latest knowledge in their industry. Moreover, the creation of publications often occurs in collaboration with universities or public institutions, which further strengthens the positive impact on employee education. Participation in conferences and workshops serves to further develop the professional knowledge and skills of employees, with these events providing space for gaining new contacts, exchanging information and ideas, and gaining inspiration or new perspectives. The willingness to cooperate only underlines the willingness of employees to share and receive new information, experiences, and know-how with other entities in creative industries, thus supporting a synergistic effect that is beneficial to all stakeholders regarding creative industries in the Czech Republic.

5 Conclusion

The inherent connection between creative industries and innovation has long been known, yet many processes at the company level remain unexplored. The aim of this article was to identify company characteristics that influence the innovation performance of companies. The created model for measuring the innovation performance of companies in creative industries in the Czech Republic identified company characteristics that positively influence the innovation performance of companies. The added value of this article and possible theoretical or managerial implications for creative industries lie primarily in identifying variables that have the greatest impact on the innovation performance of companies in creative industries. The willingness to share experiences and knowledge at conferences and workshops, the existence of long-term cooperations with other companies in the industry, and cooperation with other institutions (e.g., universities) in publishing scientific articles appear to be the best ways to increase the innovation performance of companies in creative industries.

From the perspective of public policy, there is an opportunity to increase the innovation performance of creative industries through systematic support and the development of platforms, such as conferences or workshops, designed to share knowledge in specific creative industry sub-sectors. Similarly, the results indicated the significance of cooperation in creative industries. The creation of grants and programmes or the establishment of innovation hubs to support cooperation and knowledge exchange between companies in creative industries and public and academic institutions could also positively contribute to increasing the innovation potential of creative industries.

Most of the analysed company characteristics were found to affect innovation in creative industries; however, some characteristics did not show such an influence. Specifically, the use of external public funding sources, the location of a company in a highly urbanised centre, the age of the company, and the gender diversity of the workforce were excluded from the final model. For these manifest variables, their statistically significant influence on innovation performance in the analysed sample of companies was not confirmed.

Given its focus on overall creative industries, this study adopted an assimilation approach to define innovation, in which we understand innovations as traditional indicators, such as new products or services, or organisational or process changes in companies (Gohoungodji and Amara, 2023). The main reason for choosing this approach is the significant heterogeneity of creative industries, which contain a large number of diametrically different sub-sectors. In future research, it would be possible to verify and parameterise the model with respect to selected sub-sectors of creative industries to capture all the nuances accompanied with innovation in selected sub-sector. In this way, it would be possible to identify other manifestations of innovations that are valid only for the analysed sub-sector, thus complementing the traditional manifestations of innovation considered in this article.

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Primary Paper Section: A

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