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THE RELATIONSHIPS BETWEEN ORGANISATIONAL CULTURE AND MANAGEMENT INNOVATION IN POLISH ENTERPRISES

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Abstract:
Organisational culture is considered to be one of the key elements in both enhancing and inhibiting innovation. Various research works have been conclusive as to the key role of culture in innovation (Ahmed, 1998; Dobni, 2008; Higgins & Mcallaster, 2002; Jassawalla, Sashittal, 2002; Lau & Ngo, 2004; Martins & Terblanche, 2003; Mumford, 2000). Researchers have studied empirically the relationships among organisational culture and product innovation or organizational innovation, but fewer researchers have studied management innovations as being impacted by organisational culture. Management innovation consists of changing a firm's organisational form, practices and processes in a way that is new to the firm and/or industry and results in leveraging the firm's technological knowledge base and its performance in terms of innovation, productivity and competitiveness (Volberda & Van Den Bosch & Heij, 2013). In other words, management innovations are changes in how managers work. The aim of our paper is to assess the relationships between organizational culture and management innovation. We base on Dobni's concept of innovative organisational culture, who defines it as a multidimensional context which consists of four dimensions: Innovation Intention, Innovation Infrastructure, Innovation Influence and Innovation Implementation (Dobni, 2008; Dobni, 2010). In terms of management innovation, we assume that it is a multidimensional construct comprising five dimensions: a strategic dimension, a structural dimension, employee motivation and development methods/practices, interorganisational relations and an ICT dimension (Kraśnicka et al., 2014). Data for the study were collected in 2014 through a survey from 301 enterprises in Poland. Responses were analyzed to assess the relationships between organizational culture and management innovation.

Keywords: management innovation, innovation, organisational culture, innovation culture, Poland

1. INTRODUCTION

Nowadays, management practitioners and theoreticians alike take great interest in the innovativeness of modern organisations. It is recognised that the success of an organisation, in particular a knowledge-based organisation, and its survival depend on creativity, innovation, and inventiveness (Martins, Terblanche, 2003, p. 64). Innovation is perceived as the source of an enterprise's long-term competitiveness and a factor contributing to its improved effectiveness). Accordingly, innovation has become the key goal of many organisations because of its potentially significant impact on organisational performance (Lee, 2008). Fostering innovation in the long run, however, requires a certain cultural foundation, which is permanently built in within management processes and which pervades the entire organisation. Growing competition, internationalisation and the constantly changing business environment cause that innovation becomes a prerequisite not only for the growth and success of every organisation, but primarily for its survival.

2. THEORETICAL FRAMEWORK

One of the first definitions of innovation comes from Schumpeter, who recognised the aspect of novelty in 1920 (Hansen, Wakonen, 1997). According to Schumpeter, innovations are reflected in a new product, a new production method; the opening of a new market, a new supply source; or the creation of a new organisational structure. Innovation on an organisational level is defined as a new product, service, idea, technology, process or structure and it encompasses its invention, development or implementation (Damanpour, 1991). A shift in understanding innovation and its conceptual significance occurred only at the end of the 20th century. The currently adopted broad sense of innovation involves such a definition of innovation that goes beyond technological innovations and accounts for both organisational innovations (in simple terms, these affecting the sphere of "organisation and management") and innovations in an organisation's relations with the environment

Contemporary definitions of innovation underline that the core value of innovation is that it enables meaningful change, the change that improves a given organisation's products/services, its processes, procedures and business model, while simultaneously creating new value for stakeholders (according to the Criteria for Performance Excellence National Institute of Standard and Technology) (Timmerman, 2008). The definition (and the classification at the same time) that is recommended for the purposes of research ad comparative analysis was developed by OECD experts and is included in the Oslo Manual. It defines innovation as the implementation of an entirely new or significantly improved product (a good or a service) or process, a new marketing method or a new organisational method in a business practice, workplace organisation or in a firm's external relations (Oslo Manual, 2005). The confirmation that the definition of innovation has been expanded can be found in modern definitions of innovation and its numerous typologies (Mayle 2006, p. 202; Sundbo & Gallina & Serin & Davis, 2006, pp. 185-187; Wickham, 2006, p. 105). Different definitions clearly point to the existence of innovation in management, although it is not often identified as a separate category referred to as management innovation (Birkinshaw & Hamel & Mol, 2008).

Hamel classifies management innovation (MI) as a departure from conventional management principles, processes and practices or a departure from solutions universally used in organisations, which has a considerable effect on how organisations operate (Hamel, 2006, pp. 75-76). In other words, management innovations are changes in how managers work. Therefore, MI refers to an organisation adopting new technologies, new ideas and processes to change or implement in managerial section such as computer based administrative innovations, new employee reward/training schemes (Vijande & Gonzalez, 2007). Vaccaro et al. define innovation management in a similar way, when they identify it as "the implementation of a management practice, process, or structure that is new to the adopting organization. New practices, processes, and structures that change the nature of managerial work at the firm level" (Vaccaro, Jansen, Van den Bosch, Volberda, 2010). Walker, Damanpour, and Devece define management innovation as new approaches to devise a strategy and structure in the organisation, modify the organisation's management processes, and motivate and reward its employees (Walker & Damanpour & Devece, 2010). In the current state of the art on innovation in management, innovation tends to be defined as the generation and implementation of meaningfully new solutions in the area of: processes, procedures, techniques, and structures in an organisation's management which significantly change how the organisation's goals are achieved (Birkinshaw, Hamel, Mol 2008, p. 825). Thus, it can be assumed that these are meaningfully new solutions, which have not been applied in a given organisation and they can be both adapted

(e.g. management techniques used in other organisations) and invented exclusively to meet the needs of the organisation.

The growing role of management innovations encourages research in this area. First, in the context of changes in the environment of modern firms and increasing global competition – innovations in management can become a major source of competitive advantage – they cannot be easily copied (if at all). Second, they may play a crucial role in adjusting the organisation to changing conditions in the environment, enabling its flexibility and creating new competencies. It is also expected that they create conditions conducive to technological innovation and its stimulation/launch through the absorption of external knowledge and the use of internal and external resources, thereby contributing to improved efficacy and efficiency of these processes. As a result, they may have an impact on the firm's achievements and performance. Moreover, the prime goal of innovative management is to create innovation that strategic in nature, for example new business models, which is not sufficiently accounted for in the most popular approaches to the innovativeness of organisations.

There exist numerous definitions of organisational culture in the subject literature. According to Schein organisational culture is "a pattern of shared basic assumptions that a group learns as it solves its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems" (Schein, 1985). According to another popular definition organisational culture is "the sum of the main assumptions which are adopted by employees of the organization" (Martins & Terblanche, 2003), while Lundy and Cowling claim that organisational culture represents the type of activities naturally occurring in the organisation (Lundy & Cowling, 1996). Organisational culture is crucial as it is an important driver of critical outcomes of an organisation's functioning, such as innovation, productivity, and financial performance (Uzkurt & Kumar & Kimzan & Eminoglu, 2013). What is more, organizational culture can have an influence on employee motivation, employee morale and 'good will', productivity and efficiency, the quality of work, innovation and creativity and the attitude of employees in the workplace (Campbell & Stonehouse, 1999). As Dobni notices, culture in organisations is defined as the deeply seated (and often unconscious) values and beliefs shared by employees at all levels, and it is manifested in the characteristics (traits) of the organisation (Dobni, 2008).

Organisational culture plays an important role in the functioning of the organisation. It manifests itself as a factor having a major impact on the behaviour of members of the organisation, due to the fact it can stimulate innovative behaviour of employees and thus provide a context for the emergence of ideas and their implementation. This occurs through a number of functions attributed to organisational culture – integrating, coordinating and communication function (Martins & Terblanche, 2003, p. 65; Koźminski & Jemielniak 2008, pp. 286-287). Culture can affect both the willingness and ability of employees to accept innovation as a fundamental value of the organisation, as well as their greater involvement (Hartmann, 2006, p. 163). Thus, it may contribute to generating new solutions or absorbing them from the outside. What is more, organisational culture sets out the extent to which creative solutions will be stimulated, supported and implemented. This view is shared by van der Panne, who claims that success of innovation is largely determined by the appropriate organisational culture (Van Der Panne & Van Beers & Kleinknecht, 2003, p. 315). Sometimes it is even argued that organisational culture is at the heart of an innovative organization (Tushman & O'Reilly, 1997; Dobni, 2008, p. 544). As noticed by Dobni (Dobni, 2008, p. 544), culture supporting innovation (so called pro-innovation culture) incites trust and respect in employees, values teamwork and is characterised by a search for solutions and quick decision-making. Many studies regarding organisational innovation, which include organisational culture, propose other dimensions of culture (Wang & Ahmed, 2004, p. 308; Malaviya & Wadhwa, 2005, p. 8). Among concepts of innovation taking into account the dimension of organisational culture an approach worth mentioning does Dobni, who, based on extensive literature studies, adopt the approach defines innovative culture as a multidimensional construct consisting of four dimensions (Dobni, 2008, p. 540; Dobni, 2010 pp. 332-333).

Subject literature provides evidence of a significant relation between culture and innovation (Chang & Lee, 2007, pp. 298-300; Lau & Ngo 2004, p. 700; Miron & Erez & Naveh, 2004, pp. 180-190; Obenchain & Johnson, 2004, p. 99). What empirical research has not elucidated is what type of culture actually stimulates or inhibits innovation. There are different typologies of organisational culture, comprising (Quinn & Spreitzer's, 1991) four cultures: group culture, developmental culture, hierarchical culture, and rational culture; (Chang & Lin's, 2007) types: cooperativeness,

innovativeness, consistency, and effectiveness, or Wallach's approach (Wallach, 1983), who categorized organizational culture as bureaucratic, innovative, and supportive, and many others (Reigle, 2001; Wallach, 1983; Kets De Vries & Miller, 1986; Goffee & Jones, 1998; O'Reilly & Chapman & Caldwell, 1991) However, the most widespread and used in many empirical studies is Cameron and Quinn's model (Cameron & Quinn, 1999), the Competing Values Framework (CVF), from which four cultures – adhocracy, clan, market and hierarchy – emerge. Organisational culture that fosters innovation the most is adhocracy, typical of a flexible, entrepreneurial and externally oriented organization (Cameron & Quinn, 1999). This is confirmed by, among others, (Jaskyte, 2004, p. 160; Jaskyte & Kisieliene 2006 pp. 168-172), whose empirical research provides evidence to support this relation. What authors find out is that innovation in these organizations is significantly and positively related to the cultural dimension of "innovation" (similar to flexibility) and negatively related to "stability". Similar conclusions were reached by Lau and Ngo (Lau & Ngo, 2004, p. 695), who studied the effects of adhocracy culture (which they called development culture) on innovation in industrial enterprises. Obenchain and Johnson (Obenchain & Johnson, 2004) demonstrated empirically that in case of universities, adhocratic cultures favour innovation, while hierarchical cultures have an inhibitory effect on it. Lee and Choi (Lee & Choi, 2003, pp. 215-220) proved the existence of a positive relationship between organizational culture – understood as a set of values including cooperation, trust and learning - and the process of knowledge creation. Further evidence proving that there is a relationship between organizational culture and innovation (in this case product innovation) is provided by Valencia, Sanz Valle and Jiménez (Valencia & Sanz Valle & Jimenez, 2010, pp. 471-475), who conducted a study of 420 companies. What is more, Donate and Guadamillas demonstrated empirically that in the case of 111 Spanish companies operating in the so-called innovative industries, a prerequisite for achieving a high level of innovation in organizations is adequate organizational culture and knowledge management processes (Donate & Guadamillas 2013, p. 904). Also, studies conducted in other countries support the fact that the employee's perception of organizational culture has an impact on the employees' innovative achievements and performance (Malaviya, Wadhwa 2005, pp. 1-14). This may also by confirmed by the results of studies on the relationship between organizational culture and innovation carried out in Poland. The survey conducted by Pichlak (Pichlak, 2012, p. 249), in which organizational culture was treated as one of many factors affecting organizational innovation, confirms that the highest level of innovation occurs in organisations where organisatonal culture fosters experimenting, creative problem solving as well as employee's initiative (adhocracy culture).

3. METHODOLOGY

Data collection and sample

Data for this study come from a more extensive research project "The impact of management innovation on technological innovation and business performance" financed by the National Science Centre[1]. The research was conducted in enterprises based throughout Poland in 2014.The sample was selected randomly and comprised 301 enterprises, most of which were entities with 100% domestic capital (76%). Service-providers were the largest group (35%); trading companies accounted for 24% and manufacturing firms for 15.6% of the sample; finally the remaining 24% of businesses conducted mixed activity. The vast majority of enterprises (more than 50%) were small businesses (employing from 10 to 49 people), 35% were medium enterprises and the remaining 14% were large companies (employing more than 250 people). Top or middle managers in those enterprises (who expressed their consent to participate in the survey) received the questionnaire regarding management innovation directly from a pollster and answered it in his/her presence. At the same time out of each enterprise 4 employees were selected who received the questionnaire regarding innovation culture.

Measures

The starting point for the operationalisation of the concept of management innovation is the definition proposed by Birkinshaw et al. (Birkinshaw, Hamel, Mol, 2005). The proposed operationalisation assumes the identification of four elements (dimensions): management practices, management processes, organisational structures and management techniques, reflecting different aspects of the

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rules and routines based on which organisations operate (2008, p. 828). Similar “dimensions” for research on innovative management was also proposed by I.G., Vaccaro, J.J.P Jansen, F.A.J. Van Den Bosch, H. Volberda, (Vaccaro & Jansen, & Van Den Bosch & Volberda 2012, pp. 30, 38), who identify the following areas: management practices (setting new rules and ensuing procedures), management processes (changes in routine), structures (communication methods, a scope of autonomy and decision-making competencies). We assumed that management innovation is a multidimensional construct comprising five dimensions: a strategic dimension (MI_D1), a structural dimension (MI_D2), employee motivation and development methods/practices (MI_D3), interorganisational relations (MI_D4) and an IT dimension (MI_D5) (Kraśnicka et. al, 2015). The choice of these dimensions is based on a number of modern theories concerning an organisation’s innovativeness and the identified MI conceptualizations and operationalisations. Based on the analysis of the MI operationalisations (or organizational innovation), presented in literature, and the research tools that have been used so far, 17 items broken down into the five dimensions were developed. The assessment of these items should reflect a level/scope of management innovations, generated and implemented in a particular enterprise. Each item is assessed on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The items were evaluated by top or middle management. Cronbach’s alpha values indicate the consistency of the analyzed items in the five constructed dimensions of management innovation (dimension 1 = 0.83, dimension 2 = 0.87, dimension 3 =0.79, dimension 4 = 0.82. dimension 5 = 0.77)

Organizational culture

Our measure of organizational culture is based on the innovation culture construct developed by Dobni (Dobni, 2008). This measure was used in previous research on organizational culture and it was validated (Dobni, 2008; Dobni, 2010; Krot & Lewicka 2013). We use four key dimensions of innovation culture proposed by the author: Innovation Intention, Innovation Infrastructure, Innovation Influence and Innovation Implementation. The questionnaire consisted of 70 items corresponding with the dimensions proposed by Dobni (Dobni, 2008). For each of the items, a seven point Likert scale was applied (1= strongly disagree, 7= strongly agree) to enable respondents to indicate the degree or extent to which they had adopted the practice described in the item. The items were evaluated by four employees out of each enterprise. Cronbach’s alpha values indicate the consistency of the analysed items in the four dimensions of pro-innovation culture (OC_dimension 1 = 0.95, OC_dimension 2 = 0.97, OC_dimension 3 =0.95, OC_dimension 4 = 0.95).

In terms of control variables we included four in the analyses, being: size (number of employees), age (number of years since the company was established) and industry (manufacture, trade, service or mixed).

4. RESULTS

The paper uses τ Kendalla to test the hypothesis whether the relationship between organisational culture and management innovation exists. Table 4 shows the result of testing the hypothesis. Our findings suggest that organisational culture has a positive and significant effect on management innovation, supporting the widespread idea that values, beliefs and assumptions are key drivers for developing new ways of doing things in organisations. Tables 1-3 show the means for the assessment of organisational culture and management innovation in particular dimensions according to size, age and industry.

Table 1: Management innovation and pro-innovation culture, means according to size

	Number of employees			
Description	**10-49**	**50-100**	**101-249**	**>250**
Management Innovation				
Strategic dimension (MI_D1)	4.66	4.89	4.53	4.51
Structural dimension (MI_D2)	4.61	4.81	4.17	4.38
Employee motivation and development dimension (MI_D3)	4.42	4.33	4.05	3.63
Dimension of interorganisational relations (partnerships) (MI_D4)	4.93	4.62	4.16	4.29
IT dimension (MI_D5)	4.24	4.59	4.71	4.70
Pro-innovation culture				
Innovation Implementation (OC_D1)	4.70	4.74	4.91	4.36
Innovation Intention (OC_D2)	4.85	4.80	5.24	4.43
Innovation Infrastructure (OC_D3)	4.81	4.78	5.12	4.54
Innovation Influence (OC_D4)	4.81	4.77	5.10	4.48

Taking into account the number of employees, we can observe that the respondents assign top ratings to the firms with less than 100 employees in all dimensions of management innovation. On the other hand, while analysing ratings with regard to organisational culture we can see that firms with 101-249 employees rank high as those more conducive to innovation.

Table 2: Management innovation and pro-innovation culture, means according to age

	Age		
Description	**0-5 years**	**6-10 years**	**>11 years**
Management Innovation			
Strategic dimension (MI_D1)	4.66	4.71	4.70
Structural dimension (MI_D2)	4.66	4.57	4.61
Employee motivation and development dimension (MI_D3)	4.45	4.38	4.18
Dimension of interorganisational relations (partnerships) (MI_D4)	4.86	4.54	4.73
IT dimension (MI_D5)	4.38	4.37	4.46
Pro-innovation culture			
Innovation Implementation (OC_D1)	4.55	4.66	4.71
Innovation Intention (OC_D2)	4.66	4.78	4.85
Innovation Infrastructure (OC_D3)	4.61	4.74	4.84
Innovation Influence (OC_D4)	4.59	4.74	4.83

While analysing the responses in terms of the age of firms, we observe that the respondents assign the highest ratings to the firms with less than 100 employees in all dimensions of management innovation. Accordingly, the higher the age of a firm, the higher its rating in terms of organisational culture. Moreover, there is also an interesting relation between the age of an organisation and management innovation. The higher the age, for instance, the lower MI_D3, which may indicate that pro-innovation culture does not translate into employee motivation levels fully (this might be attributed to professional burnout).

Table 3: Management innovation and pro-innovation culture, means according to industry

	Industry			
Description	**Manufacture**	**Trade**	**Service**	**Mixed**
Management Innovation				
Strategic dimension (MI_D1)	4.94	4.61	4.66	4.69
Structural dimension (MI_D2)	4.42	4.74	4.58	4.65
Employee motivation and development dimension (MI_D3)	4.15	4.04	4.34	4.46
Dimension of interorganisational relations (partnerships) (MI_D4)	4.80	4.70	4.66	4.71
IT dimension (MI_D5)	4.56	4.49	4.38	4.35
Pro-innovation culture				
Innovation Implementation (OC_D1)	4.88	4.54	4.58	4.83
Innovation Intention (OC_D2)	5.04	4.66	4.69	4.97
Innovation Infrastructure (OC_D3)	4.99	4.64	4.72	4.89
Innovation Influence (OC_D4)	4.93	4.70	4.68	4.88

When we analyse the firms in terms of their core activity, we can see that the respondents do not associate it strongly with organisational culture, although manufacturing firms are given slightly higher ratings. While analysing management innovation, on the other hand, two dimensions (MI_D1 and MI_D4) were also rated the highest in the case of manufacturing firms. In order to examine the relation between the dimensions of management innovation and the dimension of pro-innovation culture, we applied Kendall's τ correlation coefficient. Table 4 shows the breakdown of Kendall's coefficient values and the values of the p statistic.

Table 4: Correlation coefficients for the dimensions of management innovation and dimensions of pro-innovation culture

	Measure	OC_D1 Innovation Implementation	OC_D2 Innovation Intention	OC_D3 Innovation Infrastructure	OC_D4 Innovation Influence
Strategic dimension (MI_D1)	Tau	0.286	0.274	0.268	0.269
	p	0.000	0.000	0.000	0.000
Structural dimension (MI_D2)	Tau	0.216	0.216	0.238	0.256
	p	0.000	0.000	0.000	0.000
Employee motivation and development dimension (MI_D3)	Tau	0.240	0.261	0.281	0.279
	p	0.000	0.000	0.000	0.000
Dimension of interorganisational relations (partnerships) (MI_D4)	Tau	0.241	0.292	0.287	0.277
	p	0.000	0.000	0.000	0.000
IT dimension (MI_D5)	Tau	0.246	0.204	0.231	0.251
	p	0.000	0.000	0.000	0.000

p value – significant when $p<0.05$ (level of observed likelihood)

Based on the collected data, we can argue that the relations between the adopted variables are weak or relatively weak, but statistically significant (all the values of Kendall's τ coefficient above 0.1; the value of the statistic $p<0.001$). We can assume that increasing ratings of particular dimensions of management innovation correspond with increasing ratings of pro-innovation culture in all its dimensions. The strongest relations were observed, for instance, between management innovation in its strategic dimension and the OC_D1 dimension (innovation implementation) – 0.286. The organisational dimension exerts the relatively strongest impact on OC_D4 (innovation influence), whereas the dimension involving methods and practices used for employee motivation and development is the most strongly correlated with OC_D3 (innovation infrastructure). The strongest positive correlation can also be observed between the dimension of interorganisational relations and OC_D2 (innovation intention). The IT dimension correlates with OC_D4 (innovation influence) the most strongly.

5. DISCUSSION

The strongest relations were observed between the OC_D1 dimension (innovation implementation) and management innovation in its strategic dimension – 0.286. This means that the way innovations are generated on a strategic level depends on whether the firm is flexible and pro-active in its approach to adjusting its systems and processes to changes occurring in its environment. The OC_D3 dimension of pro-innovation culture (innovation infrastructure) exerts the relatively strongest influence on the dimension of interorganisationa relations and the dimension of methods ad practices (0.281 and 0.287). This implies that the building of innovation infrastructure – which directly involves offering development opportunities to employees, empowering employees and fostering creativity – is reflected in the generation of management innovations in the dimension of methods and practices. Similarly, the OC_D4 dimension of pro-innovation culture (innovation influence) exerts the relatively strongest influence on the dimension involving the methods and practices of employee motivation and development and the dimension of interorganisational relations. This may be linked to the fact that the culture oriented towards generating and disseminating knowledge to customers, competitors, the industry will be expressed though management innovations and a better understanding of the market situation. The dimension of innovation influence, in turn, causes that employees are more willing to establish relations with the environment and are focused and committed to the process of creating value for customers. This article presents the attempts to examine the relationship between organisational culture and management innovations. The literature review revealed a gap in the area of relations between organisational culture and management innovations. Based on the survey we observed relatively weak, but statistically significant relations between the studied variables. The results lead to a number of conclusions useful for business practice. The importance that managers attach to the creation of adequate organisational culture translates directly into management innovations that they implement and that can contribute to an organisation's enhanced performance.

In order to encourage employees to come up with new ideas, managers should use appropriate motivational tools. Organisations that pursue growth through innovative solutions in management should create the environment fostering openness and free discussion. Moreover, all members of such organisations should be able to get involved in pro-innovation activities. Summing up, pro-innovation organisational culture stimulates the mechanisms and structures within an organisation the role of which is to support new ideas and new ways of thinking and working. The presented research results have their limitations. The way of measuring MI is based on the subjective assessment made by top managers (self-reported survey data), who express their opinion on the implementation significant/radical changes in their firm's management within the last three years. In other words, they have to evaluate their own innovative activity, which may be problematic due to a natural tendency to overestimate our own actions. In terms of measuring pro-innovation culture we relied on the subjective assessment made by four employees out of every enterprise, so including more informants would enhance the validity of the research findings. Additionally, MI measurement scale we propose (Kraśnicka et. al, 2015) is based on the analysis of the MI operationalisations (or organisational innovation), presented in literature, and the research tools that have been used so far. Obviously, the study encourages further research into improvements and modifications of this tool for measuring management innovation. Another limitation might be the fact that our study focuses on the Polish context only, as we have observed a lack of studies on this issue. Therefore, future studies should address these limitations as well as focus on the moderator effect of some variables on the culture-innovation relation.

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