

# The Link between Organisational Citizenship Behaviours and Open Innovation: A Case of Isfahan High-tech Sector

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## ABSTRACT

In the current challenging world, organizations in order to compete on the world stage, satisfying the needs and expectations of the customers and adapting to the changing nature of jobs, trying to hire the staff who operates beyond the responsibility and their designated role in the jobs' Description Because it is believed that operation evaluation are reflected by this behavior and it will influence Staff' participation in programs, and it can be a affecting factor in job involvement, organizational commitment and self-esteem. We examine the role of organisational citizenship behaviours (OCBs) in two types of open innovation—inbound and outbound. Data were collected using the questionnaire survey technique from middle and top managers working in high-tech industries in Isfahan. Results show that OCBs positively predict both inbound and outbound open innovation. A closer look reveals that OCBs relate positively to out-bound open innovation in aggregate and in isolation. However, OCBs relate to inbound open innovation in aggregate only. The implications of these results are discussed and limitations of the study are highlighted.

## Keywords

Organisational citizenship behaviours; Open innovation; High-tech industries; Isfahan

## 1. Introduction

Organizations shifting from the closed to the open innovation Paradigm has received considerable attention in the last decade. In 2003, Henry Chesbrough coined the term 'open innovation' to describe this shift in innovation paradigms from closed or in-house R&D of new products to an open innovation model that combines internal and external ideas, knowledge and technologies to create and commercialise new products and services. Based on the assumption that open innovation was the preserve of larger firms, initial research focused mostly on the adaptation of open innovation approaches and

practices in high-technology multinational firms such as IBM (Chesbrough, 2003), Adidas (Piller and Walcher, 2006) and Procter & Gamble (Dodgson et al., 2006). Subsequently, research suggests that open innovation is being increasingly practised also by small and medium-sized enterprises (SMEs) (see for example, Bianchi et al., 2011; Lee et al., 2010; Van de Vrande et al., 2009; Wynarczyk, 2013). However, empirical research on open innovation practices in SMEs remains relatively scarce. This seems especially with benefits open innovation involves. Against the closed case innovation - a model that involves a limited interaction with the external knowledge sources assumes that innovation the process must be controlled by the firm - limits a business in the open innovation model are porous and there There's more interaction with business partners (Chesbrough, 2003a; West, Vanhaverbeke, & Chesbrough, 2006a). An overview of the Open Literature on open Innovation literature shows that barring some exceptions (Deegahawature, 2014; Naqshbandi & Kaur, 2014), the focus has mainly been on studying open innovation at the firm level (Fey & Birkinshaw, 2005; Laursen & Salter, 2006). The individual-level factors affecting open innovation have thus received less or no attention (Deegahawature, 2014). Such an individual level that not studied factor, is a organizational citizenship behavior, Demonstrated by employees can play a crucial role in success open innovation projects (Naqshbandi & Kaur, 2011). The behaviors of organizational citizenship are known to have a beneficial effect Impact on organizational operations and Effectiveness, and can improve the capacity of a organization to adapt to environmental change (Podsakoff & MacKenzie, 1997). By undertaking open innovation the paradigm is to adapt to a new external environment changes and conditions, organizational citizenship behavior are likely to facilitate open innovation. We study the effect of organizational citizenship behavior on open innovation. More specifically, the objective is to explore whether organizational citizenship behavior promote open innovation. The data from this study were collected from Isfahan high-tech companies.

Explication of constructs

### Open innovation

Since the turn of the twenty-first century, there has been a dramatic shift in the way technological and scientific research and development (R&D) is undertaken and globally mobilised. It is now widely acknowledged that the traditional “closed” innovation model, in which most R&D is carried out in-house and new ideas, products and technologies are developed in isolation and secrecy behind the firm’s closely guarded laboratory, is becoming increasingly unsustainable, and an emerging “open innovation paradigm” is now taking its place (Chesbrough, 2003). Open innovation is defined as “the use of purposive inflows and outflows of knowledge to promote internal innovation, and to expand the markets for external use of innovation, respectively” (Chesbrough, 2003, p. 15). Adopting the open innovation model can lead to significant strategic innovations, giving companies a competitive edge (Chesbrough, 2003a). In open model innovation, the boundaries of a business become porous and there is more interaction between partner firms that leads to greater technology acquisition and exploitation (West et al., 2006a). As a result, there is more resources and expertise than expected in the closed innovation model. The current literature highlights two main types of open innovation: in-bound and out-bound open innovations. Inbound open innovation, sometimes also called outside-in open innovation, is the use of discoveries that others make. It involves firms opening up and establishing relationships with external firms so as to access their competencies to improve

firm innovation performance. In-bound open innovation thus implies purposive inflows of knowledge or technology exploration relating to innovation activities that aim at capturing and benefitting from external sources of knowledge to improve current technological developments. Out-bound or inside-out open innovation implies that firms can search for external players that have better fitting business models to exploit and commercialise a particular technology than just depend on internal paths to market (Vanhaverbeke, 2006). Thus, outbound innovation refers to the intentional exits of knowledge, or the exploitation of technology, to exploit existing technological capabilities outside the limits of the organization. The exploitation of external knowledge and technology can be pursued in a number of ways, for example by selling intellectual property rights and multiplying technologies by diverting ideas to the external environment (Gassmann & Enkel, 2004).

### Organisational citizenship behaviours (OCBs)

organisational citizenship behaviour (OCB) is a person’s voluntary commitment within an organization or company that is not part of his or her contractual tasks. Organizational citizenship behavior has been studied since the late 1970s. Over the past three decades, interest in these behaviors has increased substantially. Organizational behavior has been linked to overall organizational effectiveness, thus these types of employee behaviors have important consequences in the workplace

(Yen, Li, & Niehoff, 2008). Organizational Citizenship behaviors exhibited by employees of an organization exceed the minimum work requirements of the employer, which The well-being of colleagues and the organization or working groups in general. Organizations rely on the practice of employee organizational citizenship behaviors to foster a positive work atmosphere, assist other employees with problems, be more tolerant of any disadvantages and protect the resources of The company (Witt, 1991). As a result, organizational citizenship behavior leads to high organizational effectiveness (Katz & Kahn, 1978). Organ (1988) argued that behaviors of good citizenship are characterized by altruism, awareness, sportsmanship and courtesy among employees. These discretionary and unpaid behaviors, while small in isolation, contribute collectively to the operations and effectiveness of an organization. Graham (1991) argued that organizational citizenship can be conceived as a global concept that involves all positive and relevant behaviors for the organization of employees, be it behavior, additional role or political behavior.

We know that organizational citizenship behaviors contribute to superior performance (Yen et al., 2008) and organizational effectiveness (Podsakoff & MacKenzie, 1997). Organizational Citizenship behavioral analyzes generally contribute to organizational performance because these behaviors are an effective way of managing the interdependencies among members of a work unit and consequently increase the collective results achieved. Organizational citizenship behaviors also improve organizational performance in so far as the behaviors of organizational citizenship lubricate the social organization mechanism, friction reduction and increasing efficiency (Bateman & Organ, 1983, Smith, Organ, Near, 1983). In addition, can also reduce the requirement of limited resources to maintenance functions. Proposed Body (1988) Five dimensions, namely altruism, conscience, courtesy, civic virtue and sportsmanship. Van Dyne, Graham, and Dienesch (1994) proposed interpersonal assistance, organizational loyalty, organizational obedience and organizational participation, while Podsakoff and Mackenzie (1994) proposed assisted behaviors, sportsmanship and

The civic spirit Virtue as dimensions of CBOs. Over time, the framework by Organ (1988), encompassing the five dimensions outlined above, has become widely accepted, and this systematically treats a fairly large number of studies (LePine, Erez, & Johnson, 2002). These five dimensions are briefly discussed below:

a) Altruism: refers to voluntary behaviors displayed when a member of the organization helps the other to complete his/her work under unusual circumstances (Organ, 1988). For example, it is useful, cooperative and other instances of additional behaviors that help a Individual with a given work problem (Podsakoff & Philip, 1990).

b) Awareness: refers to how the employee is punctual, the quality of the employee's attendance, and whether the employee exceeds normal expectations or expectations at work. In other words, it refers to a member of an organization performing its tasks (inrole behavior) beyond expectations (Podsakoff & Philip, 1990)

c) Esquisition: it refers to an employee stressing the positive aspects of an organization more than negatives. It describes the employees who inevitably tolerate irritants in the workplace, exhibiting behaviors that exhibit a tolerance for less than ideal working conditions without complaint (Podsakoff and Philip, 1990)

d) Courtesy: refers to behaviors aimed at helping someone prevent a problem (organ, 1988). It is different from altruism in the sense that altruism implies helping someone in difficulty, while courtesy is about helping to prevent problems and doing thoughtful or caring actions toward others (Podsakoff & Philip, 1990).

e) Civic virtue: Derived from the notion of organizational "citizens" of Graham (1991), civic virtue refers to employees' commitment to the organization as a whole (Ackfeldt & Coote, 2005, Yen et al. ). This concerns the employee's behavior that deals with the political life of the organization, such as the expression of ideas

### **OCBs and in-bound and out-bound open innovation**

Organizational citizenship behaviors help employees deal with uncertainty, environmental changes and scarcity of resources, which involves the process of open innovation (Lindgaard, 2010, Podsakoff, Ahearne & MacKenzie, 1997). More specifically, Podsakoff and MacKenzie (1997) argue that employees with the best sportsmanship improve the organization's ability to adapt to changes in its environment by demonstrating a willingness to take on new responsibilities or 'acquire new skills. Sportsmanship behaviors, as being willing to assume new roles in the process of open innovation, will ultimately contribute to open innovation being successfully matched in the business model of an organization. In addition, Podsakoff and MacKenzie (1997) showed that helping behavior (al-

truism) had a positive impact on productivity and product quality, such as helping colleagues "learn the ropes" made employees more productive faster. Therefore, it is expected that helping behaviors would help innovators co innovation required to know faster and become familiar with open innovation procedures. In addition, organizational citizenship behaviors can improve the organization's internal networks and collaborations, which in turn benefit from open inbound innovation. The earlier literature shows that internal networks are crucial for an organization to be organized in a way that facilitates them to acquire external knowledge effectively, and thus achieving innovation goals quickly (Hansen, 2002; Hansen & Nohria, 2004). High levels of organizational citizenship behavior form a strong teamworking spirit among both the members of the innovation team and the various units of the organization, leading to a coherent work environment full of support, Mutual trust and reciprocal commitment. Studies also show that organizational citizenship behaviors bind to the organization's social mechanics, reduce friction and increase efficiency (Bateman & Organ, 1983, Smith et al., 1983). These changes made by OCBsin an organization are known to improve the organization Performance, and this can be expected to benefit the integrated open innovation process.faster.

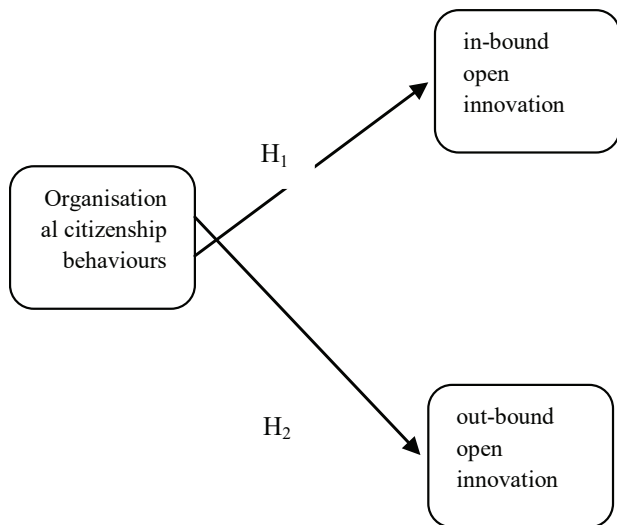
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Out-bound open innovation involves companies seeking to commercialize a particular technology that depends only on internal market paths (Vanhaverbeke, 2006). As such, an innovation model involves the transformation of business models, changes in work culture and high levels of uncertainty in the process of diverting ideas to the external environment, Expects OCBs to affect open innovation out of bounds. When a company is committed to maintaining exclusive control over its products and technologies, and is reluctant to exit its programs (Licht-

enthaler and Ernst, 2007). Research has shown that the protective attitudes of employees hamper the success of the outward open innovation process (Lichtenthaler, Ernst & Hoegl, 2010). Therefore, OCBs should play a role in shifting employee attitudes and facilitating open-ended innovation. For example, employees focused on sportsmanship and altruistic employees, with a positive look at the success of the market and a faithful thought of seeking mutual benefits, would recommend their company's direct ideas of innovation to partners Or dismiss their technologies. Moreover, the pursuit of a delimited open innovation implies a complicated process of screening potential partners with commercial models adapted to commercialize technology. For example, conscientious employees would make additional efforts to select optimized partners and provide post-market services to licensees. As is well known, employees with high levels of OCBs are likely to generate high levels of customer satisfaction (Bell & Menguc, 2002). Organizational citizenship behaviors can therefore help to avoid market failures and possibly strengthen management confidence in sticking to and benefiting from open innovation (figure 1). Therefore, we hypothesise that:

**Hypothesis 1 (H1).** Organisational citizenship behaviours relate positively to inbound open innovation (Fig. 1).

**Hypothesis 2 (H2).** Organisational citizenship behaviours relate positively to outbound open innovation (Fig. 1).



Figur1 Research model(Naqshbandi et al,2016)

**Measurements**

The OCB framework by Organ (1988) is the only one that has been treated consistently on quite a number of studies (LePine et al., 2002). The Organic (1988) ‘s five dimensions of OCBs- altruism,courtesy, conscientious-

ness, sportsmanship, and civic virtue - have become widely accepted (Yoon, 2009). However, Podsakoff and Philip (1990) found that altruism is strongly correlated with courtesy (r = 0.86), implying that the use of one of the dimensions is sufficient to describe both. In addition, LePine et al. (2002) found sporting spirit and civic virtue overlapping. We therefore consider only three dimensions of OCBs in this study to avoid redundancies. We used the scale used in the study by Bell and Menguc (2002). This scale is based on the work of Podsakoff and Philip (1990) and has been preferred in this study because it is relatively new and easier to understand (especially in the context of an Asian country). Responses were assessed on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree”. Twelve elements in total (four elements each) measure the three dimensions of CBOs. The CBO elements allowed respondents to assess their contact employees on each item.

We conducted a pilot test before distributing the questionnaire on a large scale. We evaluated the reliability of the scales using these data and found that the Cronbach alpha, a measure of internal consistency, was greater than 0.80 for all variables. This provided evidence for the reliability of the measures used in this study .

Table 1

Criterion Variables	In-bound Open Innovation		Out-bound Open Innovation	
Predictor variable	Stadardised coefficients	R Square	Stadardised coefficients	R Square
	Beta Std Error t		Beta Std Error t	
Organisatioal citizenship behaviours	.279** .004 5.49	.144	.401** .005 8.00	.170

zzzzz\*p < 0.05; \*\*p < 0.01.

**Results and Discussion**

Table 1 presents a summary of the regression results. As is shown in the table, H1, that hypothesised a positive relationship between OCBs and in-bound open innovation, is supported ( $\beta = .279$ ;  $p < .001$ ). H2, hypothesising a positive relationship between OCBs and out-bound open innovation, is also supported ( $\beta = .401$ ;  $p < .001$ ).

This study undertook to explore the role of OCBsin the open innovation process. We tested two assumptions, which predicted that OCBswere positively associated with open and delineated innovations. It has become clear that, overall, OCBs relate significantly to both the dimensions of open innovation. However, when we examined closely the impact of OCBs dimensions on integrated open innovation, we found that only sportsmanship af-



fects integrated open innovation and does not relate to an integrated open innovation. This confirms the pioneering work of Organ (1988), who noted that, in isolation, only one instance of OCBs may be insignificant, but overall, this discretionary behavior has a major beneficial impact on the operations and effectiveness of the organization. In this study, the beneficial impact is on open innovation. Thus, the exhibition of OCBs by employees can promote open innovation. Significantly, while altruism and awareness do not relate to integrated open innovation. This finding confirms the pioneering work of Organ (1988), which noted that, in isolation, only one instance of OCBs may be insignificant, but on the whole, this discretionary behavior has a major beneficial impact on the operations and efficiency of the organization. In this study, the beneficial impact is on open innovation. Thus, the exhibition of OCBs by employees can promote open innovation. Innovation has been called a very complex social process requiring the effective interaction of a large number of individuals and subunits within the innovative organization (Zaltman, Duncan and Holbek, 1973). On the other hand, open innovation involves a high degree of uncertainty both in terms of exploration for better partners and the results of these partnerships. It is therefore not surprising that OCBs in general and sportsmanship in particular positively influences integrated open innovation. In fact, this positive relationship is logical. Moving from a closed innovation paradigm to an open innovation paradigm can result in shortage or lack of resource preparation or teething problems. In addition, managers may not be able to predict all uncertain events or fully expect the activities they want or need employees (Katz & Kahn, 1978; Organ, 1988). In such a situation, the OCBs shown by employees, as this study shows, can help facilitate integrated open innovation. Organizational citizenship behaviors such as sportsmanship help employees maintain a positive attitude, even if things go well false or where there are minor constraints. If necessary, employees in an organization may even be willing to give up personal interests for the good of the organization and show tolerance for less than ideal working conditions without complaint (Podsakoff & Philip, 1990). For example, employees who demonstrate good sportsmanship, by demonstrating their willingness to take on new responsibilities or acquire new skills, the ability of the organization to adapt to changes in its environment (Podsakoff & MacKenzie, 1997), a feature of the open innovation paradigm.

The results of this study, suggesting that OCBs encourage open innovation, can help managers leverage benefits in the open innovation paradigm that is rapidly catching up with organizations around the world. Examples of pioneering companies such as Procter & Gamble indicate that a company's strategic planning activities play a critical role in the development of successful technology manage-

ment programs (Chesbrough, 2007). Therefore, managers should pay attention to the increase in employee OCBs to facilitate open innovation in their organizations. This study recommends that practitioners consider OCBs as an important predictor of open innovation. In addition to structural, collective, political and cultural interventions to promote open innovation, managers should also focus, at the individual level, on establishing a mechanism that can promote OCBs among employees

## References

- 1) Ackfeldt, A.-L., & Coote, L. V. (2005). A study of organizational citizenship behaviors in a retail setting. *Journal of Business Research*, 58(2), 151-159.
- 2) Atuahene-Gima, K., & Murray, J. Y. (2004). Antecedents and outcomes of marketing strategy comprehensiveness. *Journal of Marketing*, 68(4), 33-46.
- 3) Bateman, T. S., & Organ, D. W. (1983). Job satisfaction and the good soldier: The relationship between affect and employee "citizenship". *Academy of Management Journal*, 26(4), 587-595.
- 4) Bell, S. J., & Menguc, B. (2002). The employee-organization relationship, organizational citizenship behaviors, and superior service quality. *Journal of Retailing*, 78(2), 131-146.
- 5) Bolino, M. C., & Turnley, W. H. (2003). Going the extra mile: Cultivating and managing employee citizenship behavior. *The Academy of Management Executive*, 17(3), 60-71.
- 6) Bono, J. E., & McNamara, G. (2011). Publishing in AMJ—part 2: research design. *Academy of Management Journal*, 54(4), 657-660.
- 7) Boström, G., Hallqvist, J., Haglund, B. J., Romelsjö, A., Svanström, L., & Diderichsen, F. (1993). Socio-economic Differences in Smoking in an Urban Swedish Population The bias introduced by non-participation in a mailed questionnaire. *Scandinavian Journal of Public Health*, 21(2), 77-82.
- 8) Carlucci, D., Lerro, A., Lazzarotti, V., Manzini, R., & Pellegrini, L. (2010). Open innovation models adopted in practice: an extensive study in Italy. *Measuring Business Excellence*, 14(4), 11-23.
- 9) Chesbrough, H. (2003). The logic of open innovation: managing intellectual property. *California Management Review*, 45(3), 33-58.

- 10) Chesbrough, H. (2007). The market for innovation: implications for corporate strategy. *California Management Review*, 49(3), 45-66.
- 11) Chesbrough, H., & Crowther, A. K. (2006). Beyond high tech: early adopters of open innovation in other industries. *R&D Management*, 36(3), 229-236.
- 12) Chesbrough, H. W. (2006). The era of open innovation. *Managing innovation and change*, 127(3), 34-41.
- 13) DAVIS, D., & Cosenza, R. M. (2005). BUSINESS RESEARCH FOR DECISION MAKING/DUANE DAVIS AND ROBERT M. COSENZA.
- 14) Deegahawature, M. (2014). Managers' Inclination towards Open Innovation: Effect of Job Characteristics. *European Journal of Business and Management*, 6(1), 8-16.
- 15) Fey, C. F., & Birkinshaw, J. (2005). External sources of knowledge, governance mode, and R&D performance. *Journal of Management*, 31(4), 597-621.
- 16) Garver, M. S., & Mentzer, J. T. (1999). Logistics research methods: employing structural equation modeling to test for construct validity. *Journal of business logistics*, 20(1), 33.
- 17) Gassmann, O., & Enkel, E. (2004). Towards a theory of open innovation: three core process archetypes.
- 18) Graham, J. W. (1991). An essay on organizational citizenship behavior. *Employee Responsibilities and Rights Journal*, 4(4), 249-270.
- 19) Grant, A. M., & Mayer, D. M. (2009). Good soldiers and good actors: prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors. *Journal of applied psychology*, 94(4), 900.
- 20) Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*.
- 21) Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization science*, 13(3), 232-248.
- 22) Hansen, M. T., & Nohria, N. (2004). How to build collaborative advantage. *MIT Sloan Management Review*, 46(1), 22.
- 23) HatziChronoglou, T. (1997). Revision of the high-technology sector and product classification.
- 24) Janeiro, P., Proença, I., & da Conceição Gonçalves, V. (2013). Open innovation: Factors explaining universities as service firm innovation sources. *Journal of Business Research*, 66(10), 2017-2023.
- 25) Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: antecedents and consequences. *The Journal of marketing*, 53-70.
- 26) Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*.
- 27) Laursen, K., & Salter, A. (2006). Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms. *Strategic management journal*, 27(2), 131-150.
- 28) LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behavior: a critical review and meta-analysis. *Journal of applied psychology*, 87(1), 52.
- 29) Lichtenthaler, U. (2009). Outbound open innovation and its effect on firm performance: examining environmental influences. *R&D Management*, 39(4), 317-330.
- 30) Lichtenthaler, U. (2010). Technology exploitation in the context of open innovation: Finding the right 'job' for your technology. *Technovation*, 30(7), 429-435.
- 31) Lichtenthaler, U., & Ernst, H. (2007). External technology commercialization in large firms: results of a quantitative benchmarking study. *R&D Management*, 37(5), 383-397.
- 32) Lindegaard, S. (2010). The open innovation revolution: essentials, roadblocks, and leadership skills: John Wiley & Sons.
- 33) Muzamil Naqshbandi, M., & Kaur, S. (2014). Do managerial ties support or stifle open innovation? *Industrial Management & Data Systems*, 114(4), 652-675.
- 34) Naqshbandi, D. M. M., & Kaur, S. (2011). Factors affecting open innovation: evidence from Malaysia. *Australian Journal of Basic and Applied Sciences*, 5(12), 2783-2795.
- 35) Nunnally, J. (1978). *C.(1978). Psychometric theory*: New York: McGraw-Hill.
- 36) Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*: Lexington Books/DC

Heath and Com.

37) Parida, V., Westerberg, M., & Frishammar, J. (2012). Inbound open innovation activities in high-tech SMEs: the impact on innovation performance. *Journal of Small Business Management*, 50(2), 283-309.

38) Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual-and organizational-level consequences of organizational citizenship behaviors: A meta-analysis. *Journal of applied psychology*, 94(1), 122.

39) Podsakoff, P. M., & MacKenzie, S. B. (1997). Impact of organizational citizenship behavior on organizational performance: A review and suggestion for future research. *Human performance*, 10(2), 133-151.

40) Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *The leadership quarterly*, 1(2), 107-142.

41) Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias insocial science research and recommendations on how to control it. *Annual review of psychology*, 63, 539-569.

42) Salmi, P. (2012). The impact of public R&D funding on open innovation. *Economia. Seria Management*, 15(1), 142-163.

43) Sheikh, K., & Mattingly, S. (1981). Investigating non-response bias in mail surveys. *Journal of epidemiology and community health*, 35(4), 293-296.

