

**How getting knowledge from colleagues affects organizational creativity:
The moderating influence of ICT and top management support**

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Relevance and purpose of the paper

Despite the abundance of studies focusing on organizational creativity, only few considered it as a dependent variable. Further, while the relationship between knowledge sharing and organizational creativity seems more solid for extant literature, the role of ICT use and top management support yet calls for further investigation. Based on this, we ground on the interactionist perspective drawn by Woodman et al. (1993) and investigate organizational creativity by combining interpersonal dynamics with contextual influences. In order to capture the inherent complexity of organizational creativity, we start from the importance of individuals getting knowledge from others and then consider two contextual elements affecting organizational creativity, namely top management support and the use of Information and Communication Technology.

Accordingly, our aim is to answer the following research question: “*What is the relationship between knowledge collecting, ICT use and top-management support in determining organizational creativity?*”. For this purpose, we analyze data of 362 employees from five Multinational Corporations’ (MNCs) subsidiaries located in Italy. We show that while knowledge collecting, ICT use, and top management support positively affect organizational creativity, a high ICT use negatively moderates the relationship between knowledge collecting and our dependent variable.

Based on this, this work provides evidence on how organization-level factors (ICT, top management support) might contribute to organizational creativity, while showing that firms should carefully plan their ICT investments as they may hamper the positive linkage between knowledge flows and organizational creativity.

Theoretical background

Organizational creativity

Creativity can be investigated at different levels of analysis (Drazin et al., 1999): 1) intrasubjective level (individual); intersubjective level (group); collective level (organization).

This paper acknowledges the intertwinement of these three levels by presenting an analysis conducted at the intrasubjective level and thus focusing on the interpersonal dynamics of knowledge management and the way they affect organizational creativity, both

directly and via organizational-level moderators. Based on this and in line with Woodman et al. (1993), organizational creativity is here seen as a function of the creative results of interacting individuals (exchanging knowledge at an intersubjective level) exposed to contextual influences (such as, top management support and ICT).

Figure 1 shows the research model we aim at empirically testing.

INSERT FIGURE 1 ABOUT HERE

Knowledge collecting

Intra-organizational knowledge sharing is critical to foster innovation organizational creativity (Hu & Randel, 2014; Bruns, 2012).

Sharing knowledge with others can take two different forms (Van den Hooff & de Leeuw Van Weenen, 2004; Van den Hooff & de Ridder, 2004; Lin, 2007): knowledge donating, representing employees' willingness to voluntarily transfer their knowledge to others, and knowledge collecting, occurring when someone ask colleagues to share their knowledge. Given that two processes are independent from each other, this work focuses on knowledge collecting which, by implying the willingness to learn, is more consistent with the purpose of this paper to study organizational creativity (Calantone et al., 2002; Grodal et al., 2015).

While the relationship between knowledge creation and organizational creativity has been verified by several studies (e.g. Amabile et al., 1996; Lee & Choi, 2003; Calantone et al, 2002), an analysis on knowledge collecting as part of the social learning context has not been tested yet. Thus, we propose the following:

Hypothesis 1: Knowledge collecting has a positive effect on organizational creativity.

ICT use

Among all tools organizations might use for managing knowledge, Information and Communication Technology (ICT) has gathered great attention for its potential to support knowledge sharing activities through the usage of Intranets, groupwares, and collective memories.

As organizational creativity is intrinsically grounded on information, it can be expected that more information sharing will lead to higher knowledge creation, thus fostering organizational creativity (Sundgren et al., 2005). Woodman et al. (1993) suggest that organizations whose members make use of ICT for free exchange of information, are more creative. Hence, by making use of computer-based communication networks, groupware and management systems employees can get a host a new stimuli and challenging inputs, which can seed their creative performance.

Considering both the direct impact of ICT on organizational creativity and the effect on knowledge collecting, we expect the following:

Hypothesis 2: ICT use has a positive effect on organizational creativity.

Hypothesis 3: ICT use positively moderates the effect of knowledge collecting on organizational creativity.

Top management support

Top management support seems to be among the most important influence on organizational knowledge, as a means for providing the resources necessary to create a knowledge sharing climate, which, in turn, nurtures organizational creativity (Oldham & Cummings, 1996). Consistently with the interactionist model of Woodman et al. (1993), top management support is a critical contextual factor likely to influence firm-level creativity. In particular, creativity stems not only from individuals' willingness to give a contribution to it, but also from the work environment they perceive around them (Amabile et al., 2004). Therefore, by considering both the effect of top management support both on organizational creativity and on knowledge collecting, we hypothesize that:

Hypothesis 4: Top management support has a positive effect on organizational creativity.

Hypothesis 5: Top management positively moderates the effect of knowledge collecting on organizational creativity.

Method

For testing our hypotheses, we used survey data collected from manufacturing MNCs' subsidiaries located in the Italian region of Tuscany and operating in different industries, but all characterized by a constant focus on innovation. Starting from the Chamber of Commerce database¹, suggesting a population of 33 subsidiaries, five of them accepted to participate in this study (15.15%). This empirical setting is particularly consistent with the purpose of this study because knowledge transfer is at the core of MNCs business (Kostova, 1999). Moreover, given that knowledge transfer can be affected by country-level variables (Szulanski, 1996), we focus on MNCs' subsidiaries operating in a single country, thus holding factors such as cultural distance, host country risk, and FDI openness (Hébert et al., 2005) constant.

For collecting our data, we administered a survey to those employees who have a crucial role in affecting the internal strategic flows of information. Out of the 757 invitations sent out for participation, 393 questionnaires were filled in (51.92% response rate).

Measures

Self-reported measures were used to operationalize all variables (Spector, 1994), which derive from scales adopted in previous studies and measured using a seven-point Likert type scale (1 = 'Strongly disagree', 7 = 'Strongly agree').

Organizational creativity was measured with a six-item scale drawn from Lee and Choi (2003) and Calantone et al. (2002) ($\alpha=.91$). Van den Hooff and de Leuw Van Weenen (2004) provided the two-item scale to measure *knowledge collecting* ($\alpha=.96$). For measuring *ICT use* two items were isolated over a scale of 9 items taken from Van den Hooff and de Leuw Van Weenen (2004) and Lin (2007) ($\alpha=.76$). The four-item scale of *Top management support* was adapted from Tan and Zhao (2003) ($\alpha=.92$).

Control variables. Firm 1-5 identify the companies observed. We then controlled for gender (dummy variable, 0=Male, 1=Female), years of education, seniority (years of work experience within the company), managerial role (dummy variable, 0=No, 1=Yes), and autonomy in the job (two-item scale taken from Hackman & Oldham, 1974).

Results

¹ The Italian Chamber of Commerce represents all Italian companies and is aimed to link institutions, organisations, and associations, thereby providing services as well as development strategies likely to promote the growth of the national economy.

Table 1 shows scales' internal reliability and correlation coefficients.

Table 2 shows the results of the multiple regression analysis. In order to detect the presence of multicollinearity among explanatory variables, for each model and each variable the variance inflation factor (VIF) was calculated.

In order to test the hypotheses, five different models were designed. In Model 1 only the control variables were entered; Model 2 includes also the main effect of knowledge collecting; Model 3 adds the main effect of ICT use and top management support; in Model 4 the moderating term of ICT use was entered; finally, Model 5 shows the overall model, including also the moderating factor of top management support.

Given that Firm5 is the baseline for interpreting the results, Table 2 demonstrates that, when compared with Firm5, Firm3 shows a negative impact on organizational creativity, whose significance remains across all models. Also Firm1 negatively influences the dependent variable, in comparison with Firm5. However, the significance is weaker and disappears when moving from Model 1 to Model 2. Conversely, Firm2 has a more positive influence on organization creativity than Firm5, even if the statistical significant disappears in Model 3.

Among the control variables, only autonomy in the job shows a significant and positive association with organizational creativity.

Model 2 shows that knowledge collecting is positively associated with organizational creativity, therefore supporting Hypothesis 1. Model 3 shows ICT use enhances organizational creativity, thus supporting Hypothesis 2. Similarly, top management support is strongly and positively associated with organizational-level creativity, confirming Hypothesis 4. Model 4 displays that the relationship between knowledge collecting and organizational creativity is weakened when individuals make use of ICT infrastructures for sharing knowledge with others. Therefore, Hypothesis 3 is not supported.

Finally, Model 5 shows that the moderating effect of top management support on the relationship between knowledge collecting and organizational creativity is not significant. Therefore, our data do not support Hypothesis 5.

INSERT TABLE 1 ABOUT HERE

INSERT TABLE 2 ABOUT HERE

Conclusion

Consistently with the interactionist framework proposed by Woodman et al. (1993), this paper attempts to offer a new model likely to capture the complexity of organizational creativity's antecedents. For this purpose, it starts from the importance of looking at employees as individuals who ask their colleagues for information and knowledge for satisfying their need to learn (i.e. knowledge collecting). Moreover, it postulates that increased information sharing through ICT use as well as a perceived organizational support from top management will both increase organizational creativity. In line with the role played by contextual factors on employees' behaviours, this paper also hypothesizes a moderating effect of both ICT use and top management support on the relationship between knowledge collecting and organization creativity.

In order to test the hypotheses, we empirically examine a sample of 362 employees' survey data collected from five MNCs' subsidiaries located in Italy. Our data show that a greater knowledge collecting orientation, ICT use and top management support are positively associated with organizational creativity. Contrary to our expectation, the analysis demonstrates that the association between knowledge collecting and organizational creativity is negatively influenced in case of high ICT use. Finally, we do not found any relationship about the moderating role of top management support on the relationship between knowledge collecting and our dependent variable.

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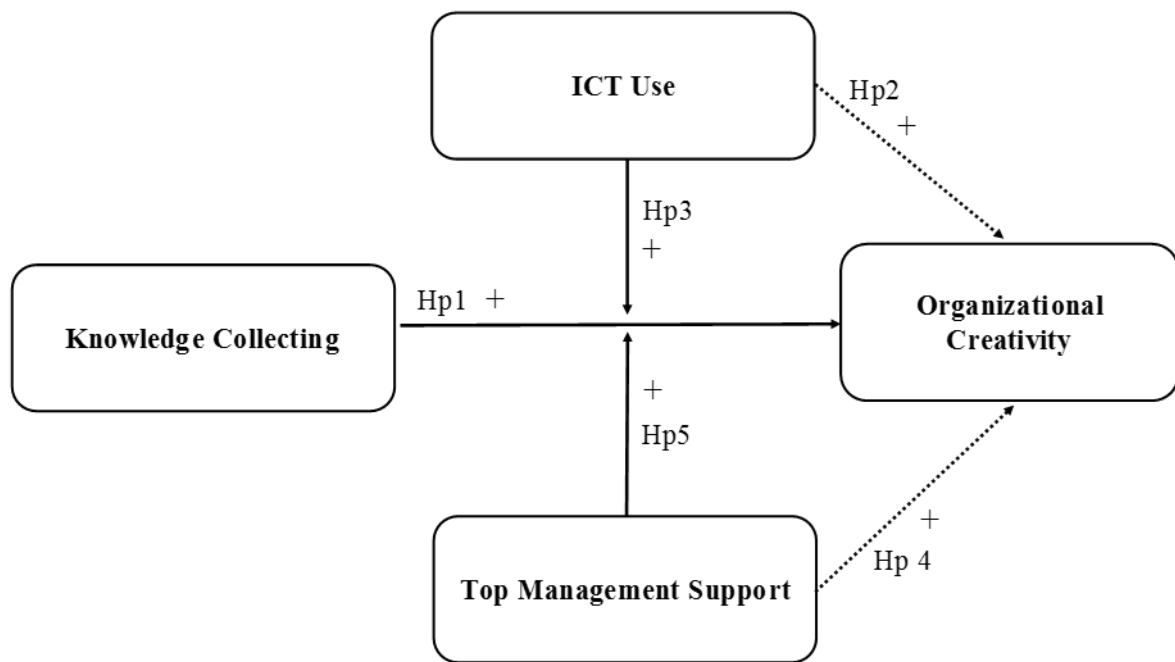


Figure 1

The research model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Firm1	-													
2. Firm2	-.24***	-												
3. Firm3	-.15**	-.30***	-											
4. Firm4	-.21***	-.41***	-.25***	-										
5. Firm5	-.13**	-.26***	-.16**	-.23***	-									
6. Gender	-.08	.08	-.14**	.25***	-.20***	-								
7. Years of education	-.37***	.07	-.07	.30***	-.09	.26***	-							
8. Seniority	.08	-.18***	.14**	.02	-.04	-.03	-.41***	-						
9. Managerial role	-.11*	-.14**	.03	.30***	-.18***	-.02	.16**	.14**	-					
10. Autonomy	-.12*	.05	-.07	.07	-.01	-.04	.04	.06	.11*	<i>.90</i>				
11. Organizational creativity	-.17***	.35***	-.34***	.09	-.02	.07	.06	-.10	.05	.33***	<i>.91</i>			
12. Knowledge collecting	-.20***	.09	-.04	.06	.00	.07	.06	-.03	.05	.37***	.36***	<i>.96</i>		
13. ICT use	-.14**	.36***	-.19***	.04	-.18***	.15**	.07	-.06	-.03	.19***	.43***	.24***	<i>.76</i>	
14. Top management support	-.09	.26***	-.15**	.06	-.13*	.05	-.07	.06	.11*	.30***	.52***	.40***	.39***	<i>.92</i>

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Cronbach's coefficients are shown in italic on the diagonal.

Table 1

Correlation matrix and Cronbach's Alpha for all variables (n = 362)

	Organizational creativity				
	Model1	Model2	Model3	Model4	Model5
Intercept	4.72*** (22.46)	4.73*** (23.42)	4.99*** (25.23)	5.01*** (25.22)	5.00*** (25.10)
Firm1	-.55* (-2.16)	-.38 (-1.51)	-.47 (-1.89)	-.44 (-1.72)	-.45 (-1.74)
	1.79	1.82	1.82	1.83	1.83
Firm2	.71** (2.97)	.69** (2.98)	.25 (1.11)	.26 (1.13)	.23 (1.00)
	2.52	2.52	2.85	2.85	2.88
Firm3	-.92*** (-3.47)	-.91*** (-3.56)	-.92*** (-3.79)	-.89*** (-3.63)	-.90*** (-3.69)
	1.96	1.96	1.96	1.97	1.98
Firm4	.22 (.79)	.21 (.79)	-.02 (-.09)	-.00 (-.02)	-.04 (-.16)
	2.78	2.78	2.86	2.86	2.90
Gender	.05 (.33)	-.01 (-.06)	-.05 (-.38)	-.04 (-.32)	-.02 (-.14)
	1.20	1.21	1.21	1.21	1.23
Years of education	-.04 (-1.68)	-.04 (-1.40)	-.02 (-.66)	-.02 (-.72)	-.01 (-.67)
	1.64	1.65	1.68	1.68	1.69
Seniority	-.01 (-1.39)	-.01 (-1.10)	-.01 (-1.50)	-.01 (-1.33)	-.01 (-1.38)
	1.34	1.35	1.35	1.36	1.36
Managerial role	.18 (1.29)	.17 (1.25)	.11 (.85)	.09 (.69)	.08 (.65)
	1.21	1.21	1.24	1.24	1.24
Autonomy	.31*** (5.42)	.21*** (3.47)	.14* (2.43)	.15* (2.57)	.15** (2.75)
	1.04	1.21	1.25	1.26	1.26
Knowledge collecting		.24*** (4.79)	.13** (2.74)	.11* (2.34)	.13** (2.69)
		1.22	1.38	1.42	1.47
ICT use			.14** (2.99)	.13** (2.80)	.12** (2.75)
			1.36	1.39	1.40

Top management support			.25 ^{***}	.26 ^{***}	.27 ^{***}
			(5.03)	(5.23)	(5.52)
			<i>1.52</i>	<i>1.52</i>	<i>1.58</i>
ICT use*Knowledge collecting				-.06 [*]	-.07 [*]
				(-2.33)	(-2.43)
				<i>1.09</i>	<i>1.21</i>
Top management support*Knowledge collecting					.04
					(1.35)
					<i>1.31</i>
<i>R</i> ²	.31	.36	.45	.46	.46
<i>Mean Vif</i>	1.72	1.69	1.71	1.67	1.67

Firm5 as the baseline.

t statistics in parentheses; *Vif* values in italics; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2

Results of the multiple regression analysis on organizational creativity (n=362)