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## **The impact of individual motivations on idea submission and future motivation to participate in an organization's virtual idea campaign**

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### **Abstract**

We used time-lagged survey data to investigate the effects of various types of motivation on idea submission and future motivation to participate in a virtual idea campaign (VIC). We also used qualitative data to illuminate context and enrich explanations. Applying forms of motivation from self-determination theory – intrinsic motivation and external motivation – and the additional composite form of identified-prosocial motivation, our study offers insight into their effects on idea submission and future motivation to participate in idea campaigns. We found that intrinsic motivation led to idea submission and future motivation to participate, while external motivation negatively related to idea submission. Identified-prosocial motivation positively related to participants' motivation to participate in future idea campaigns, but surprisingly, its interaction with intrinsic motivation did not lead to idea submission. We provide managers and innovation researchers with useful lessons for the effective management of idea campaigns in organizations, and our results highlight the value of autonomous forms of motivation, especially intrinsic motivation.

### **Biographies:**

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## **Introduction**

Innovation drives organizational competitiveness and growth, and it hinges on the generation of ideas that are both novel and useful (Amabile, 1988). Idea generation is an antecedent to innovation and a necessary first step in the innovation process (Anderson, Potočnik, & Zhou, 2014). Organizations can formally stimulate employee idea generation and innovation with idea campaigns (Björk, Boccardelli, & Magnusson, 2010), including virtual idea campaigns (VICs), which utilize IT platforms to generate new ideas for specific strategic areas in a limited amount of time – their purpose is to generate ideas, but also to legitimize and encourage innovation (Elerud-Tryde & Hooge, 2014). These campaigns are dependent on employee willingness to participate in the form of submitting their own ideas, or commenting and elaborating on others' ideas. Although VICs are utilized by multiple firms including Volvo, Renault, IBM, and the company in this study, they are a relatively understudied phenomenon (Elerud-Tryde & Hooge, 2014).

Employee motivation is vital to the success of IT-based innovation platforms such as VICs (Fairbank & Williams, 2001). Submitting ideas to these platforms calls for employees to think in new ways or apply existing ideas to new contexts; it also requires that employees are willing to spend time doing something that is not usually part of their job. In this sense, it is important for employees to be properly motivated for VICs to be successful. However, little empirical research has been done on the antecedents to VIC participation, including the effects of various forms of individual motivation on idea submission and motivation to participate in future idea campaigns. It would be wise to fill this gap, particularly from a practitioner's point of view since managers who utilize idea campaigns are faced with the challenge of motivating their employees to submit ideas to present and future campaigns. Also, from a research and theory perspective it is important to gain a better understanding of this phenomenon.

In order to effectively motivate employees to submit ideas in a VIC it is essential to understand what types of motivation actually lead to idea submission and future motivation to participate. According to self-determination theory (SDT), motivation is more nuanced than being solely extrinsic or intrinsic (Ryan & Deci, 2000). Self-determination theory includes five types of motivation, i.e., intrinsic motivation and four forms of extrinsic motivation (external, introjected, identified, and integrated) (Ryan & Deci, 2000), and these different forms of motivation have

been shown to have varying effects on individual behaviors and outcomes in organizational contexts (Gagné et al., 2015). This differentiation of motivation and its effects can have implications for VICs, since tasks that include aspects of creativity, e.g., the generation of novel and useful ideas (Amabile, 1996) or problem solving are more likely to be achieved when individuals are autonomously motivated (Gagné & Deci, 2005).

Heeding calls for investigation of multiple forms of motivation (Chemolli & Gagné, 2014; Judge, Bono, Erez, & Locke, 2005), specifically in relation to employee behaviors and outcomes involving creativity (Gerhart & Fang, 2015; Liu, Jiang, Shalley, Keem, & Zhou, 2016), this study examines the effects of intrinsic motivation, external motivation, and identified-prosocial motivation on idea submission and future motivation to participate in a VIC. The current study reveals that idea submission and future motivation to participate are indeed predicted by different forms of motivation, which provides VIC managers useful advice in terms of the motivations that are best to support.

This paper is based on data gathered during a VIC at a large multinational chemical company based in Europe. The study uses time-lagged quantitative data from two questionnaires and idea submissions in a VIC. Qualitative data from open-ended survey questions help to shed light on contextual factors, which provide a deeper understanding of the quantitative results and point to managerial implications and future research opportunities. Its theoretical underpinnings lie in extant research on creativity, motivation, innovation contests, and employee suggestion systems.

## **Theory**

Idea campaigns are used to stimulate and collect creative ideas for innovation (Björk et al., 2010; Elerud-Tryde & Hooge, 2014), but ideas that are submitted to VICs are not necessarily creative; for example, they might be old ideas that have been proposed before. Although idea submission is not synonymous with creativity, it is indicative of it (Amabile, 1988), and participants will generally not submit poor ideas since they will only cost time (Frese, Teng, & Wijnen, 1999) and hurt one's reputation (Ardichvili, Page, & Wentling, 2003). Since VICs are used to spur creative ideas, then it is logical to assume that employees at least intend to submit new and useful ideas. Furthermore, it is also reasonable to assume that participants who submit ideas exhibit higher creativity than those that do not (Oldham & Cummings, 1996). Finally, the act of submitting an

idea to a VIC is not usually part of employees' work duties or a requirement of one's job. Thus, the act of submitting a new idea to a VIC could be more accurately considered as an instance of extra-role creativity, i.e., a discretionary creative act made by an employee (Balkin, Roussel, & Werner, 2015) or contributory creativity, i.e., a volunteered solution to a specified problem (Unsworth, 2001). In pursuit of a better understanding of the relationships between motivation, idea submission, and future motivation to participate in VICs, it is useful to consider the literature on motivation and creativity.

### **Motivation and creativity**

Motivation is an integral element of prominent creativity models (Amabile, 1988; Ford, 1996; Woodman, Sawyer, & Griffin, 1993) and is crucial in determining what an individual will do (Amabile, 1996, 1997). *Intrinsic motivation* is generally considered to be the most important motivation form for creativity (Shalley & Gilson, 2004). Self-determination theory posits that motivation forms lie on an autonomy continuum and differ in their degree of autonomy versus control (Gagné & Deci, 2005). Intrinsic motivation is a fully autonomous form of motivation, and means that one is motivated solely by an activity out of interest and enjoyment (Ryan & Deci, 2000). Individuals are intrinsically motivated when they obtain benefits directly from the activity itself – it is not dependent on receiving external benefits provided by the environment (Ryan & Deci, 2000).

Unlike intrinsic motivation, the evidence for the impact of external motivation – a form of extrinsic motivation – on creativity has been heavily debated (Eisenberger & Cameron, 1996; Hennessey & Amabile, 1998). *External motivation* is the least autonomous (most controlled) form of extrinsic motivation (Gagné & Deci, 2005). It requires that one is motivated to act by external factors such as obtaining rewards (e.g., financial gains) or avoiding punishments (e.g., losing one's job) (Ryan & Deci, 2000). Research findings on external motivation are inconsistent; some studies show a negative relationship between external motivation and creativity (Amabile, 1979, 1982; Amabile, Hennessey, & Grossman, 1986), while others find support for a positive relationship (Eisenberger & Armeli, 1997; Eisenberger & Rhoades, 2001).

Behaviorists, or those that rely on learned industriousness theory, have concluded that external motivation can support creativity since rewards provide information that leads to goal directed

behavior (Eisenberger, 1992), while social-psychologists and others – particularly those relying on SDT – have been more convinced of the negative controlling effects of external motivation on intrinsic motivation via an undermining (Gagné & Deci, 2005), over-justification (Lepper, Greene, & Nisbett, 1973) or crowding-out (Frey & Jegen, 2001) effect, which is detrimental to creativity (Hennessey & Amabile, 2010). As was recently concluded by two meta-analyses, the effects of external motivation on intrinsic motivation and creativity may be explained by other factors such as performance type, incentive contingency, information provision, and whether the context offers choice or imposes control (Byron & Khazanchi, 2012; Cerasoli, Nicklin, & Ford, 2014). Creativity scholars relying on SDT have lately become more open to the possibility of external motivation having a positive or neutral effect on creativity, as long as the external triggers confirm competence, provide useful and supportive information, and allow people to do something that they find intrinsically motivating (Hennessey & Amabile, 2010).

In addition to external motivation, *identified motivation* is also a form of extrinsic motivation. Identified motivation is a relatively autonomous form of extrinsic motivation and is a much less controlled form than external motivation. Self-determination theory still considers it as a form of extrinsic motivation because identified motivation is not solely reliant on the interest in an activity, but is instead initially dependent on a perceived contingency between the activity and a desired consequence (Gagné & Deci, 2005). Thus, identified motivation is different than intrinsic motivation and is therefore considered as a form of extrinsic motivation. Expression of identified motivation means that one is motivated by the perceived value or meaning of the task – when an individual identifies and internalizes the importance of a behavior they are said to exhibit identified motivation (Ryan & Deci, 2000).

*Prosocial motivation* is present when an individual desires to help other people (Grant, 2008); it is a form of motivation not specifically part of SDT. Grant (2008) claimed that even though researchers, such as Hackman and Oldham (1976) had treated prosocial motivation as a form of intrinsic motivation, it may instead be more similar to identified motivation. From an SDT perspective this makes sense since prosocial motivation requires that one wants to exude effort in order to benefit others and not solely because they find the task interesting or enjoyable. Research has shown a significant positive effect on employee creativity by the interaction of prosocial motivation and intrinsic motivation (Grant & Berry, 2011). With support from a factor

analysis and since it is in line with the SDT framework (Dysvik & Kuvaas, 2014), this study applies a composite form of motivation made up of both prosocial and identified motivation called *identified-prosocial motivation*, which is defined as valuing the act of helping others.

Other contexts such as innovation contests and employee suggestion systems may offer clues to the impact of individual motivation on idea submission, but VICs are distinct because they call for employee suggestions to organization-specified problems. Therefore VICs offer a context that is both interesting and practical for the investigation of motivation forms and their effects on idea submission and future motivation to participate. Although various forms of individual motivation should be investigated to examine their effects since they can lead to different outcomes (Gagné et al., 2015), with the exception of Grant and Berry (2011), few creativity studies have included more than two forms of motivation or have differentiated between relatively autonomous forms of motivation. By including intrinsic motivation, external motivation, and identified-prosocial motivation (as shown in Figure 1), this study provides a more intricate understanding of the effects of motivation on idea submission and future motivation to participate in a VIC.

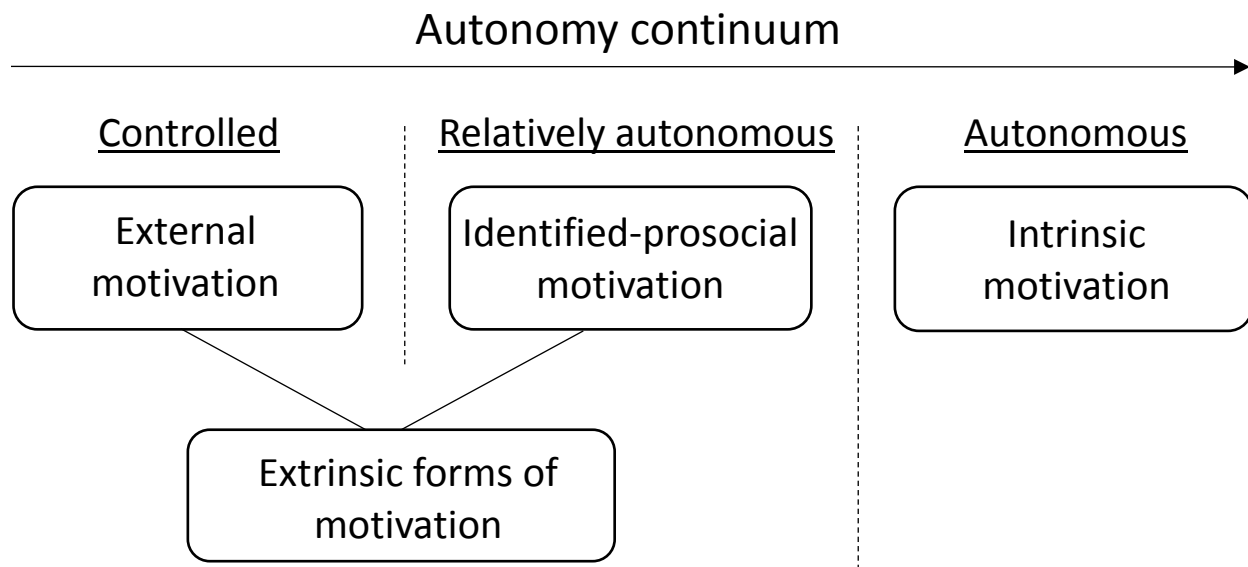


Figure 1. Overview of motivation forms

Figure inspired by Gagné & Deci (2005); Ryan & Deci (2000)

## **Hypotheses**

### **Intrinsic motivation**

Intrinsic motivation is an essential form of motivation in relation to creativity (Amabile, 1997; Woodman et al., 1993). Intrinsic motivation is an enabler of creativity since it is conducive to novelty (Zhou, 1998), persistence, (Oldham & Cummings, 1996), autonomy (Gagné & Deci, 2005), and positive affect (Silvia, 2008). Intrinsic motivation has been shown to positively relate to creative outcomes in multiple studies (Amabile, 1979; Zhang & Bartol, 2010), including idea generation in open innovation projects (Füller, Matzler, Hutter, & Hautz, 2012), and it should also lead to idea submission in a VIC.

*H1a: Intrinsic motivation is positively related to idea submission in a VIC.*

Additionally, intrinsic motivation should also lead to overall motivation to participate in future activities of a similar nature. If an individual enjoys doing something – as intrinsic motivation implies – then that enthusiasm should also lead to motivation for future opportunities of the same kind of event.

*H1b: Intrinsic motivation is positively related to motivation to participate in future idea campaigns.*

### **Identified-prosocial motivation**

Meaning (or meaningfulness) is a psychological state that is important for creativity (Elsbach & Hargadon, 2006), and it has been shown to behave as an antecedent to employees' creative behavior (Cohen-Meitar, Carmeli, & Waldman, 2009). It has been suggested that meaning – the belief that one's work is important and valuable (Zhang & Bartol, 2010) – increases intrinsic task motivation (Thomas & Velthouse, 1990). However, meaning is not only associated with intrinsic motivation, but it is also an important element of identified motivation (Gagné et al., 2015).

In the context of the current study, employees could potentially find meaning in the VIC through helping others (e.g., their business ideas submitted during the VIC could go toward helping customers); thus, identified-prosocial motivation could lead to extra-role creativity in the form of idea submission. Furthermore, it has been suggested that prosocial motivation behaves as an



antecedent to creativity because it leads to useful ideas (Grant & Berry, 2011). Finally, motives akin to identified motivation have been found to positively relate to idea submission in employee suggestion systems (Frese et al., 1999), which further strengthens the case for identified-prosocial motivation having a positive relationship with idea submission in a VIC.

*H2a: Identified-prosocial motivation is positively related to idea submission.*

In addition, motivational synergy can result from interactions between intrinsic and extrinsic forms of motivation (Amabile, 1993); for example, the interaction of intrinsic and prosocial motivation may positively affect creativity due to their individual effects on novelty and usefulness (Grant & Berry, 2011). The interaction effect of these two forms of motivation is proposed to lead to creativity due to prosocial motivation's impact on usefulness and intrinsic motivation's effect on novelty (Grant & Berry, 2011) – together these lead to novel and useful ideas, i.e., creative outcomes. Idea submission should then be highest when identified-prosocial motivation interacts with intrinsic motivation.

*H2b: The interaction of identified-prosocial motivation and intrinsic motivation is positively related to idea submission.*

Valuing an activity should also relate to overall motivation to participate in similar activities in the future. In particular, identifying a task's value because of a desire to help others should lead to motivation for participation in future idea campaigns.

*H2c: Identified-prosocial motivation is positively related to motivation to participate in future idea campaigns.*

## **External motivation**

Controlled motivation, i.e., external motivation, is not considered to be beneficial for creativity on its own (Gagné & Deci, 2005). There is evidence of negative effects of external motivation on creativity (Amabile, 1982; Liu et al., 2016) and Frese et al. (1999) determined that external motivation did not predict idea submission in an employee suggestion system. Ultimately, context must be taken into account when considering external motivation. Participants in the VIC could have been motivated to submit ideas for anticipated benefits, such as greater job security or to avoid criticism from others. Also, since the VIC offered no contingent material reward the

expression of external motivation might be expressed by those who were feeling controlled by other aspects of their job. Ultimately, the unique effect of controlled motivation is not conducive to creative behavior (Koestner, Ryan, Bernieri, & Holt, 1984), and individuals who expressed higher levels of external motivation would probably be less likely to submit an idea.

*H3a: External motivation is negatively related to idea submission.*

Similarly, external motivation would likely have negative consequences for individuals' motivation to participate in future VICs.

*H3b: External motivation is negatively related to future motivation to participate in idea campaigns.*

## **Method**

### **The VIC**

A VIC in a large multinational chemical company based in Europe was chosen for this study. The company had not used VICs extensively in its innovation process, and the majority of participants had never participated in an idea campaign in the organization before. The VIC was undertaken during a time of transition as the business unit (BU) had been formed recently, and the purpose of the VIC was to collect new business ideas in order to increase BU revenues and growth. A total of 151 employees in multiple locations were invited to be part of the VIC based on their affiliation or ties with the BU. The VIC called for participants to submit ideas within a 5-week time period. Participants could submit as many ideas as they wanted and could submit ideas individually or as part of a group. Emails were sent out to all participants to inform them of the VIC and an IT platform specifically designed for VICs by an external supplier was used for idea submissions and participant collaboration. Participants were informed in an introductory email that the top three ideas would be recognized via the company intranet news platform, which is visible to the entire organization.

### **Sample and procedure**

Two online questionnaires were administered to all 151 VIC participants. All respondents were guaranteed confidentiality; results would only be presented on aggregate terms without the

possibility of individual identification. The first questionnaire measured motivation and was sent out when the VIC was launched and before ideas had been submitted, while the second questionnaire measured motivation to participate in future VICs and asked respondents why they did not submit an idea and how future campaigns could be improved. Organizational and practical constraints – including the evaluation process, which required a fair amount of time – dictated that the second questionnaire be collected four months after the VIC idea submission deadline. A total of 108 completed first questionnaires were collected ( $n = 108$ , for *idea submission* as a dependent variable), resulting in a response rate of 72 percent. Ninety-two of the 108 participants also submitted second questionnaires ( $n = 92$ , for *motivation to participate in future idea campaigns* as a dependent variable). A total of 35 ideas that were both new and appropriate for the idea campaign were submitted by 31 participants (i.e., ideators), and 26 ideators fully completed the first and second questionnaires (see Table 1). Access to the VIC platform was granted to one of the researchers, which allowed idea submissions to be linked with questionnaires.

Table 1. Overview of Sample

Total # of VIC participants	Total # of Ideas in VIC	# of Ideators: Number of people who contributed to at least one idea submitted to VIC (either individually or in a group).	# of ideators plus # of non-ideators with completed responses to first questionnaire – used in analysis of <i>idea submission</i> .	# of ideators plus # of non-ideators with completed responses to second questionnaire – used in analysis of <i>motivation to participate in future VIC</i> .
151	35	31	26 + 82 = <b>108</b> <i>N = 108</i>	26 + 66 = <b>92</b> <i>N = 92</i>

### Explanatory qualitative information

In order to explain the quantitative results and contextual elements that could have affected motivation, idea submission, and future motivation to participate, qualitative data were collected from open-ended questions on the questionnaires. In the first questionnaire, participants explained how their motivation may be increased during the VIC, and on the second questionnaire, they gave reasons for not submitting ideas and suggested how future VICs could

be improved. The open-ended responses complement the quantitative results, helping to provide a richer understanding and derive managerial implications.

Responses to the open-ended questions were categorized based on their content – we coded the comments and then compared codes in order to construct thematic categories. Specifically, thematic pattern coding was used. Pattern coding is normally a second cycle coding technique when coding qualitative data generated by interviews (Miles, Huberman, & Saldaña, 2014; Saldaña, 2015). Since our responses were answers to specific questions we used thematic pattern coding directly. As many of our respondents were non-native English speakers (and writers), their comments on the open-ended questions were edited for clarity (cleaned of typos, spelling, and grammatical errors). In so doing, we've been careful not to alter the meaning of the respondents' statements (Punch, 1986).

### **Missing cases and validity of measures**

Adaptations of previously validated motivation measures were included on the first questionnaire; 12 items from the Multidimensional Work Motivation Scale (MWMS) (Gagné et al., 2015), were used to measure intrinsic motivation, external motivation, and identified motivation, and the three highest loading items from Grant (2008) were used to measure prosocial motivation. Three items were used instead of the original four as reported in Grant (2008); this was done in consultation with Grant in an effort to limit the amount of items on the questionnaire without significantly affecting the validity of the scale. The item that was left out of the scale: “Because it is important to me to do good for others through my work” was done so on the basis of being the lowest loading item. English is the official working language of the company, but most employees have native languages other than English. Since the items were adapted for this study and the population was unique, a few organizational members not part of the study were asked to look at the items to confirm face validity (paying specific attention to comprehensibility and appropriateness) before sending out the questionnaires.

Less than 1 percent of the cases were missing from the data set and Little's (1988) missing completely at random (MCAR) test ( $\chi^2 = 92.334$ ,  $df = 90$ ,  $p = .412$ ) revealed that data was missing completely at random, meaning that a data imputation method could sufficiently be used

instead of employing complete cases analysis or listwise deletion (Graham, 2009). Missing values were then imputed using the Expectation-Maximization procedure.

An exploratory factor analysis (EFA) with principal axis factoring, promax rotation, and Kaiser-normalization was used to examine the factor pattern of the motivation items. Exploratory factor analysis was used since the prosocial motivation items have not previously been analyzed along with the MWMS measures, and we wanted to explore whether the prosocial motivation items would behave uniquely or if they should be combined with intrinsic or identified motivation. By utilizing a .55 loading threshold for a sample size near 100 as outlined by Hair, Black, Babin, and Anderson (2010), three items were dropped, one each from the intrinsic, identified and prosocial motivation scales. After dropping the three low-loading items, a three factor solution was determined, i.e., intrinsic motivation, identified-prosocial motivation, and external motivation. (For factor loadings, see Table A1 in the Appendix.)

#### **Independent variables:**

The motivation measures used a 7-point response scale (1 = not at all, 7 = completely). *Intrinsic motivation* (2 items, Cronbach's alpha = .89), *external motivation* (6 items, Cronbach's alpha = .85), and *identified-prosocial motivation* (4 items, Cronbach's alpha = .82) all used a question stem of: "Why do you put effort into the current idea campaign?" (For details of the motivation measures, see Table A1 in the Appendix.)

#### **Control variables:**

The demographic variables of *age* and *education* were controlled for due to their potential to affect motivation and idea submission. Age can affect creativity under certain domains (Jones & Weinberg, 2011), and age is highly correlated with work experience and job tenure (Sauermann & Cohen, 2010), which may impact motivation and creative outcomes. Age and education level could be indicators of domain-relevant skills – a component of Amabile's componential model of creativity (Amabile, 1983) – and the education levels of employees in positions that regularly call for idea generation (e.g. research positions) are generally high. Respondents reported their age in years and their highest level of education completed.

*Idea submission* was used as a control variable when testing the dependent variable of *future motivation to participate*. Since ideators might gain confidence after submitting an idea to the VIC, their motivation to participate in future campaigns could increase. On the other hand, if ideators had bad experiences submitting ideas they could be less motivated to participate in future idea campaigns.

**Dependent variables:**

*Idea submission* was a binary variable determined by whether a participant submitted an idea to the VIC platform (as part of a group or as an individual); ideators were coded with 1 while non-ideators were coded with 0. (See Table 2 for a correlation matrix with variables used in the analysis of idea submission.)

*Future motivation to participate* measures participants' motivation to participate in future VICs. It was determined by a single item on the second questionnaire that asked participants to rate their level of agreement on a 5-point Likert scale (1 = not at all motivated, 5 = extremely motivated) with the statement: “How motivated are you to participate in future idea campaigns?” (See Table 3 for a correlation matrix with variables used in the analysis of future motivation to participate.)

Table 2. Cronbach's Alphas, Means, Standard Deviations, and Pearson's Correlations - used in analysis of *Idea submission* as dependent variable

	Mean	SD	1	2	3	4	5
(1) Education	3.510	0.991					
(2) Age	43.460	9.878	0.081				
(3) Intrinsic motivation	4.177	1.462	-0.009	0.188	(0.892)		
(4) Identified-prosocial motivation	4.806	1.114	0.002	0.052	0.554**	(0.824)	
(5) External motivation	2.392	1.072	-0.107	-0.178	0.237*	0.181	(0.848)
(6) Idea submission	0.240	0.430	0.302**	0.037	0.289**	0.087	-0.151

Listwise, n = 108. Where relevant, Cronbach's alphas are given on the diagonal in parentheses.

\*\* $p < .01$ , \* $p < .05$  (2-tailed).

Table 3. Cronbach's Alphas, Means, Standard Deviations, and Pearson's Correlations - used in analysis of *Future motivation to participate* as dependent variable

	Mean	SD	1	2	3	4	5	6
(1) Education	3.57	1.020						
(2) Age	44.03	9.394	0.090					
(3) Idea submission	0.28	0.453	0.293**	0.006				
(4) Intrinsic motivation	4.245	1.511	-0.021	0.210*	0.283**	(0.893)		
(5) Identified-prosocial motivation	4.862	1.275	-0.017	0.088	0.065	0.549**	(0.819)	
(6) External motivation	2.329	1.024	-0.083	-0.165	-0.138	0.231*	0.163	(0.831)
(7) Future motivation to participate	3.16	0.941	0.121	0.260*	0.355**	0.675**	0.512**	0.056

Listwise,  $n = 92$ . Where relevant, Cronbach's alphas are given on the diagonal in parentheses.  
 \*\* $p < .01$ , \* $p < .05$  (2-tailed).

## **Analysis and Results:**

### **Motivation and idea submission**

Since *idea submission* was a binary dependent variable, logistic regression was used to test the effects of three motivation forms and one interaction term on idea submission in the VIC, while controlling for two demographic variables (Table 4). Following Cohen, Cohen, West, and Aiken (2003) the intrinsic motivation and identified-prosocial motivation variables were mean-centered before testing their interaction term.

The control variables and the various kinds of motivation explained between 26.3 percent and 39.4 percent of the variance in idea submission. Of the motivation forms, only intrinsic motivation and external motivation had statistically significant impacts on idea submission. As expected, intrinsic motivation had a significant positive effect on idea submission (1.06,  $p < .01$ ), providing support for (H1a), and external motivation (-.74,  $p < .05$ ) had a significant negative effect on idea submission supporting (H3a). The other hypotheses relating to idea submission (H2a and H2b) were not supported, while the education level of participants (control variable) had a positive and significant effect on idea submission (1.21,  $p < .01$ ). The odds ratios for the significant variables indicate that while controlling for the other factors in the model, one unit

increases in either intrinsic motivation or education level meant that a respondent was around three times as likely to submit an idea, while respondents were .48 times less likely to submit an idea for each one unit increase in external motivation. The interaction between intrinsic motivation and external motivation was tested regarding its effect on idea submission, but was not found to be significant.

Table 4. Results of Logistic Regression Analysis with *Idea submission* as Dependent Variable (N = 108)

Variable	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI	Wald statistic	<i>p</i>
Education	1.207	0.377	3.343	[1.595, 7.006]	10.225	0.001**
Age	-0.030	0.032	0.970	[0.910, 1.034]	0.883	0.347
Intrinsic motivation	1.058	0.300	2.880	[1.600, 5.185]	12.435	0.000**
Identified-prosocial motivation	-0.357	0.317	0.700	[0.376, 1.303]	1.269	0.260
External motivation	-0.742	0.313	0.476	[0.258, 0.879]	5.629	0.018*
Intrinsic motivation x Identified-prosocial motivation	-0.336	0.223	0.715	[0.462, 1.106]	2.273	0.132

Cox & Snell  $R^2 = .263$ ; Nagelkerke  $R^2 = .394$   
Omnibus test  $\chi^2 = 32.996$ ,  $df = 6$ ,  $p < .0001$   
Overall predictive accuracy = 83.3%; Predicted idea submissions = 50%  
Max. VIF = 2.040; Mean VIF = 1.484

\*\* $p < .01$ , \* $p < .05$

### Motivation and future motivation to participate

Multiple regression was used to test the effects of intrinsic, identified-prosocial, and external motivations on participants' motivation to participate in future idea campaigns when controlling for their age, education level, and whether they had submitted an idea during the VIC. The control variables and motivation forms explained 54.6 percent of the variance in participants' motivation to participate in future idea campaigns (see Table 5).

Table 5 provides the results of the individual motivation forms and their effects on participants' motivation to participate in future VICs. Intrinsic motivation (.49,  $p < .01$ ) and identified-prosocial motivation (.23,  $p < .05$ ) were found to have significantly positive effects on future motivation to participate in idea campaigns, which supports (H1b) and (H2c). The control variable for idea submission (.17,  $p < .05$ ) was found to be significantly positive for future



motivation; age and education were not significant. External motivation was not significant, so (H3b) was not supported. The intrinsic motivation and identified-prosocial motivation interaction term is included in the model although it did not contribute any statistically significant effect. Table 6 includes a summary of results of the hypotheses.

Table 5. Results of Multiple Regression Analysis with *Future motivation to participate* as Dependent Variable (N = 92)

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Education	0.066	0.073	0.071	0.900	0.370
Age	0.012	0.008	0.125	1.593	0.115
Idea submission	0.361	0.176	0.174	2.046	0.044*
Intrinsic motivation	0.304	0.063	0.488	4.816	0.000**
Identified-prosocial motivation	0.190	0.076	0.227	2.509	0.014*
External motivation	-0.039	0.073	-0.043	-0.538	0.592
Intrinsic motivation x Identified-prosocial motivation	-0.010	0.039	-0.021	-0.268	0.789

R<sup>2</sup> = .546, Adj. R<sup>2</sup> = .508  
 F-stat = 14.415, *p* < .0001  
 Max. VIF = 1.898; Mean VIF = 1.519

\*\**p* < .01, \**p* < .05

Table 6. Summary of Results of Hypotheses

Hypothesis #	Hypotheses	Results
1a	Intrinsic motivation is positively related to idea submission.	<b>Supported</b>
1b	Intrinsic motivation is positively related to future motivation to participate.	<b>Supported</b>
2a	Identified-prosocial motivation is positively related to idea submission.	Not supported
2b	The interaction of identified-prosocial motivation and intrinsic motivation is positively related to idea submission.	Not supported
2c	Identified-prosocial motivation is positively related to future motivation to participate.	<b>Supported</b>
3a	External motivation is negatively related to idea submission.	<b>Supported</b>
3b	External motivation is negatively related to future motivation to participate.	Not supported

## **Qualitative Findings**

Participants' responses to open-ended questions provide additional information, giving context and greater meaning to the quantitative analyses. Twenty-four out of 108 respondents (22.2% response rate) gave a response to the first open-ended question, "*What could be done to improve your motivation for the idea campaign?*" and their responses focused on two main categories: communication/information and workload.

The first theme about information and communication emerged quickly. In the words of one respondent, "There has to be more precision about what the goal of the campaign is and what they ask." Another felt he or she did not know enough about the business unit to be able to see the relevance of the campaign: "Better knowledge of the BU strategy, product portfolio, pipeline, and relevant markets." Respondents felt that the purpose of the VIC could have been communicated better, and a third respondent felt that a more personal introduction to the VIC would have been more motivating: "I didn't get much more information other than an email. If I had a video inspiring me or a pep-talk, maybe I would respond more to this event." In short, these responses indicate that more information about the campaign and its relevance to the business unit would have been more motivating.

An important part of this is that leaders communicate the importance of the campaign. One respondent stated that it would be valuable to "see other senior managers being involved and talking about it.... maybe showing the benefits of it in a wider audience." Clearly communicating the value of the VIC is a leadership function. One respondent stated, "Campaigns often seem to lead nowhere. The effect is not visible. That lowers the motivation to participate. I ask myself, what for?" Communicating the purpose and value of the effort that organizational members are asked to do – motivating work behaviors – is an important leadership function.

The second theme that stood out in the open-ended responses was workload. Regarding the VIC, one respondent said, "It's a very good campaign, but total wrong timing as we are in the middle of setting up our new global organization. There are too many ongoing projects at the same time." Another respondent said pretty much the same thing. "It would be important to have less workload in order to care more about activities like the idea campaign." These responses show that respondents felt that they did not have time to focus on the VIC due to an already heavy workload.

In sum, the open-ended responses show that managers could increase motivation to participate in the VIC by being more involved with the VIC themselves, and by increasing both the quantity and quality of information about the campaign. Furthermore, managers could have improved employee motivation to participate in the campaign by doing a better job of managing workloads. This is crucial since time is an important resource in processes that require creativity (Shalley & Gilson, 2004).

Following the first questionnaire, the second questionnaire provided participants' perspectives after the conclusion of the VIC. Participants were asked, *"Is there anything that could be done to improve future idea campaigns?"* Forty-two out of 92 respondents gave a response to this question (45.7% response rate).

As in the first survey, participants' responses reflected aspects related to the areas of communication/information—"In my opinion, the communication around the campaign could be better. My perception is that there was limited involvement from the line management,"—and workload—"It's difficult to have time to address to the idea campaign. The campaign can be perceived as extra work which makes it not very attractive." In addition, respondents identified collaboration as an important area for improvement. One respondent suggested that, "Sharing ideas and participation on discussions related to the most promising ones" was important. Another observed that, "Often ideas are built on each other or combined ideas give a better solution. Then you need to gather some people to generate ideas."

Collaboration improvement suggestions ranged from those above to taking a day together to "spawn new ideas." Although the VIC platform allowed for and encouraged virtual collaboration amongst employees, it seemed that participants either were not aware of the capabilities of the platform (perhaps owing to poor communication of the VIC or engagement in it), or that they preferred some sort of personal collaboration to supplement the VIC. Evidence from observation of the VIC platform actually revealed an instance of successful manager initiative during the VIC that provided participants time away from work duties to personally collaborate with each other. Specifically, an R&D department manager arranged a voluntary idea workshop which resulted in eight ideas being submitted to the idea campaign. This provides some support for the potential benefits of collaboration to VICs, particularly personal and focused forms of collaboration, which may positively impact motivation and idea submission.

Improved feedback and evaluation was also important to some respondents. In a paragraph length response, one respondent explained, "Much better and prompt feedback. It took over three months to get a generic email that the idea was not chosen. There was no direct feedback as to why the idea was rejected." The lack of an appropriate and timely response led to "total apathy in participating in future idea campaigns" as the time and effort of "one's own free time" that went into the submission was not sufficiently reflected in the response from the organizers. This sentiment also supports statements from the first survey regarding a heavy workload.

Participation in the VIC came on top of one's regular work duties; this extra effort raises expectations that the idea campaign owners and leaders take contributions seriously and at the very least give appropriate and timely feedback. Another respondent stated, "The evaluation process can be improved. I submitted multiple ideas and just got a single generic rejection reply. I would like to have more information about why the idea was rejected." There were many more who wished for more specific rejection feedback, but it was not just on ideas that were rejected that feedback was wanting: "On the one accepted idea I would have liked to be asked if I would like to be involved in the follow-up."

Clearly, feedback to contributors could have been improved. A few respondents also mentioned rewards and recognition awards as suggestions for improvement, but the two main suggestions were feedback and collaboration. Through improved evaluations and feedback, employees' motivation to participate in future VICs would likely have been bolstered.

Finally, an additional question on the second questionnaire also reiterated that workload was a significant hurdle to idea submission in the VIC as it was the most common reason given by participants (69.7% of respondents) when asked, "*Why didn't you contribute to an idea that was submitted to the idea campaign?*" (See Table B. in Appendix.) Considering that such a large number of respondents claimed that they did not submit an idea because they had too many things to do, suggests that managers should provide participants with time away from work obligations in order to improve future VICs.

### **Discussion and Implications**

Intrinsic motivation is the only form of motivation that led to idea submission in the VIC, and it was also a determinant of overall motivation to participate in future idea campaigns. While other

studies have shown that intrinsic motivation is important for creativity (Zhang & Bartol, 2010), idea generation (Füller et al., 2012), virtual participation (Nambisan & Baron, 2009), and participation intentions in innovation contests (Zheng, Li, & Hou, 2011), the current study provides further proof of the significance of intrinsic motivation in creative contexts, specifically in a VIC. In addition, identified-prosocial motivation led to motivation to participate in future idea campaigns. These findings point to the power of intrinsic motivation and to the positive influence of other forms of autonomous motivation (i.e., identified-prosocial motivation) on the desire to participate in future VICs.

Managers of VICs can support employees' intrinsic motivation by providing choice to employees; it should not be a requirement to participate in VICs because this would increase the risk of strengthening controlled motivation at the expense of autonomous forms of motivation. Also, the components of creativity (Amabile, 1996) have implications for the selection of participants. Specifically, employees with interest in, and applicable knowledge to a VIC's topic should be targeted to participate since they would exhibit intrinsic motivation and be most likely to submit ideas. In support of this, a lack of appropriate knowledge was the second most common response for failure to submit ideas, while formal education – an indication of domain-relevant knowledge – was significantly related to idea submission.

For employee creativity to occur, managers should support employees and their work through actions such as planning and organizing, informing, monitoring, clarifying roles and objectives, and developing and mentoring (Amabile, Schatzel, Moneta, & Kramer, 2004). For the VIC we studied, supportive leader behaviors were weak or missing in some cases, which affected some participants' motivations and contributions to the VIC. In an environment with low leader support and heavy workloads, higher intrinsic motivation led to idea submission despite other work obligations. In future VICs, managers could exhibit supportive leadership by allowing employees to devote periods of time to the VIC and by consistently talking about the VIC and its importance, thereby signaling its importance to the organization. Arranging an idea workshop could foster participation, while also increasing interpersonal collaboration.

Increased identified-prosocial motivation led to motivation to participate in future VICs, but identified-prosocial motivation and its interaction with intrinsic motivation did not predict idea submission, which is puzzling. It is possible that participants were not familiar enough with the

direct beneficiaries (e.g. customers or end-users) of the VIC, which potentially reduced the positive impact of identified-prosocial motivation on idea submission. Perspective taking (i.e., when employees take the perspectives of others) mediates the relationship between prosocial motivation and creativity (Grant & Berry, 2011). Proximity to beneficiaries can increase work performance (Grant, 2008), and would allow for VIC participants to better understand what the end-user needs are. Improved knowledge of beneficiaries could lead to the translation of identified-prosocial motivation into ideas and managers could practically do this by providing employees more opportunity to understand who the beneficiaries of a VIC are via detailed descriptions of current and prospective customers and contact with them.

Unlike the relatively autonomous forms of motivation, external motivation had a detrimental impact on idea submission, while it had no significant effect on future motivation to participate; this corresponds with other creativity research showing that controlled motivation does not lead to outcomes that require creativity (Liu et al., 2016). However, it clashes with research that shows that there can be positive effects of external motivation on innovation contest idea submission (Leimeister, Huber, Bretschneider, & Krömer, 2009). In the VIC, participants may not have been compelled to participate by social incentives because they felt there was not enough manager support, and they were either unaware of or were not motivated by the possibility of recognition on the company intranet. Also, a possible distinction between the effects of external motivation on idea submission in innovation contests versus VICs is that innovation contests require outside volunteers while VICs call for internal employee participation; this implies that external rewards are potentially more important for participants who are not already part of the organization calling for ideas. There is no doubt a difficulty of balancing potential negative and positive effects of rewards on intrinsic motivation, but if they are to have a positive impact on employee behavior, such as idea submission in an idea campaign, then they must be valued by participants (Fairbank & Williams, 2001; Neckermann & Frey, 2013).

Finally, evaluation and feedback are important aspects of a VIC that can affect the motivations of participants in future campaigns. Feedback that is both personalized and constructive may be viewed as a reward in itself and can certainly have an impact on idea submissions in future VICs (Wooten & Ulrich, 2016). Careful consideration of who the evaluators will be, how much time is

provided, what evaluation criteria will be used, and how feedback will be given must be attended to before an idea campaign is conducted. As clear outcome goals have been shown to foster creativity (Aleksić, Černe, Dysvik, & Škerlavaj, 2016), and justice perceptions relating to procedures and outcomes can affect autonomous forms of motivation (Gagné & Forest, 2008), the transparency of evaluation criteria, fairness of the evaluation process, and usefulness of feedback should not be overlooked. Giving timely and specific feedback to contributors in VICs and other submission-based initiatives is one thing that innovation leaders can do to motivate future submissions.

### **Limitations and Future Research:**

This study is not without limitations. Although generalizability of the findings is limited because the study depends on a small sample size from a single case, it also provides in-depth insight into a VIC. Access to the organization provided an opportunity to investigate participant motivation before ideas were submitted and to collect more data after the VIC had concluded.

Unfortunately, attempts to gain access to other organizations' VICs proved unsuccessful. Future research could investigate participant motivation in multiple organizations' VICs in order to increase generalizability and illuminate other important contextual and contributing factors to idea submission and future motivation.

By collecting data at different time points, causal inferences can be made about the associations of motivation forms, idea submission, and future motivation to participate. There was a four-month time-gap between the first and second questionnaires; although this gap of time could have had an impact on participants' responses in the second questionnaire, we decided to wait until the feedback process had been completed because we felt it was an important element to capture. In addition, multiple sources of data, i.e., two questionnaires with closed and open-ended responses and observation of the VIC platform help to support more robust conclusions. The qualitative data complemented the quantitative analysis, thereby enriching the paper. When combining methods, caution must be used in weighing the influence of the data on interpretation and discussion; in this paper we have strived to prevent overshadowing the quantitative data with qualitative information that was submitted by only a subset of respondents.

The negative impact of external motivation on idea submission in this study is not evidence of a negative and direct relationship between VIC-contingent rewards and idea submission. It is possible that a desirable material reward or social recognition award could have caused participants' motivations, idea submissions, or motivation to participate in future VICs to increase. Since determining rewards that will have positive effects on motivation and idea submission in the appropriate context is difficult, future research could help point to the specific contexts where certain types of rewards lead to better (or worse) VIC outcomes.

Given that only three forms of motivation from SDT were tested in this study it would be useful to test other SDT forms of motivation in VICs, such as introjected and integrated motivation, and their relationship to idea submission. In addition, future studies of VICs could evaluate idea submissions on their creativity or even other attributes to investigate their relationships with different motivation forms. It is likely that intrinsic motivation would be the form of motivation with the most positive influence on the creativity of submitted ideas (Amabile, 1996; Shin & Zhou, 2003); however, other idea attributes such as idea acceptance or ease of implementation may be better predicted by alternative forms of motivation.

The implementation of ideas resulting from a VIC is not covered in this article. This was by design as the purpose of the study was to analyze the effects of individual motivation on idea submission and on future motivation to participate. Implementation of ideas from a VIC is likely affected by issues such as manager support and the clarity of criteria and outcome objectives, as well as budgetary constraints. Implementation is the step that bridges creativity to innovation and is clearly an important element for future research to investigate.

It is hoped that our study can inspire interesting future research that offers alternative perspectives or increases support and generalizability for our findings. This paper makes a contribution by increasing understanding of the effects of individuals' intrinsic, identified-prosocial, and external motivations on two outcomes in a VIC: idea submission and future motivation to participate. It also reveals contextual factors that are worthwhile to examine when managing or researching VICs – future research could investigate these and other contextual factors quantitatively in order to expand on our study. Of course there are many things to consider when running a VIC, but our findings point to the importance of autonomous forms of



motivation amongst participants, particularly intrinsic motivation, and improved management of VICs.

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## **Appendix**

Table A. Factor Structure of the Motivation Items

Items	Loadings		
	Factor 1	Factor 2	Factor 3
<b>IM1:</b> Because I have fun doing the idea campaign.	<b>.772</b>	.134	-.031
<b>IM2:</b> Because I enjoy doing the idea campaign.	<b>.970</b>	-.031	.023
<b>I-PM1:</b> Because I personally consider it important to put effort into the idea campaign.	.188	<b>.729</b>	-.085
<b>I-PM2:</b> Because I want to help others through the campaign.	-.218	<b>.854</b>	.090
<b>I-PM3:</b> Because putting effort into the idea campaign aligns with my personal values.	.132	<b>.658</b>	-.050
<b>I-PM4:</b> Because I want to have a positive impact on others.	.081	<b>.619</b>	.015
<b>EM1:</b> Because others (e.g. employer, supervisor, etc.) may offer me greater job security if I put enough effort into the idea campaign.	-.079	.096	<b>.696</b>
<b>EM2:</b> Because others (e.g. employer, supervisor, etc.) may reward me financially if I put enough effort in the idea campaign.	-.004	.113	<b>.858</b>
<b>EM3:</b> Because I risk losing my job if I don't put enough effort into the idea campaign.	-.179	.041	<b>.644</b>
<b>EM4:</b> To get others' (e.g. supervisor, colleagues, customers, etc.) approval.	.150	-.077	<b>.554</b>
<b>EM5:</b> To avoid being criticized by others (e.g. supervisor, colleagues, etc.).	-.036	-.159	<b>.751</b>
<b>EM6:</b> Because others (e.g. supervisor, colleagues, customers, etc.) will respect me more.	.264	-.023	<b>.687</b>
<b>Question stem:</b> Why do you put effort into the current idea campaign?			
<b>Scale:</b> 1 = not at all, 2 = very little, 3 = a little, 4 = moderately, 5 = strongly, 6 = very strongly, 7 = completely			

Table B. Selected Responses from 2<sup>nd</sup> Questionnaire

<i>Why didn't you contribute to an idea that was submitted to the idea campaign?</i>		
N = 66 (Respondents who did not submit an idea)	Response Total	Response Percent (% of respondents)
Not enough time; I had too many things to do.	46	69.70
I didn't feel that my knowledge was appropriate.	16	24.24
I couldn't think of an idea.	12	18.18
I had an idea but didn't think it was good enough.	5	7.58
There wasn't enough support from my manager or the organization.	5	7.58
I forgot about the idea campaign.	4	6.06
I didn't see the point because the idea campaign wasn't important.	2	3.03
I just wasn't motivated.	2	3.03
I didn't find the idea campaign interesting.	2	3.03
I didn't know about the campaign.	2	3.03