

## The Perception of Innovative Organisational Culture and Its Influence on Employee Innovative Work Behaviour

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**Abstract**--The role of innovation within an organization is undeniably important. An organizational culture that embraces innovation is one that will encourage employees to behave innovatively. This investigation is set out to explore the determinants of innovation within an organization that will prompt employees to behave innovatively. The investigation suggests that when employees perceive a positive innovative culture, they are likely to show innovative behavior in specific stages of innovative work behavior. These stages are: opportunity exploration, idea generation, idea championing and idea realization. The investigation identified ten determinants, namely: autonomy, external contacts, communication, collaboration, risk taking, decentralized structure, reward, resource, participative leadership and strategy. We proposed ten hypotheses to test the impact of these ten determinants on employee innovative behavior. Based on the findings, some of the determinants are found to have a high support to innovative behavior and these vary according to the specific innovation behavior stages.

### I. INTRODUCTION

Innovation is a phenomenon that is crucial in attaining organizational growth and competitive advantage. In a knowledge era, it is important to cultivate a work force that demonstrates innovative work behavior in order to adapt to a changing environment. Organizational culture has been hypothesized to be significantly and positively related to innovation by Mavondo and Farrell [1]. A culture that has strong influence on innovation is one that based on the assumptions and perceptions by employees.

Organizations have yet to understand the aspects of an innovative organizational culture that influence employee innovative work behavior. According to Van der Berg and Wilderom [2] organizational culture is a shared perception of the organizational work practices within organizational units and may differ from other organizational units. It is time that organizations tap into employee intellectual capacity and transform it into novelty that benefits the organization.

The investigation suggests that the culture of an organization is crucial in initiating innovative work behavior especially when it is perceived positively by employees in an organization. "Innovation is not an accident, but a result of systematic hard work" [3, p. 6]. Organizations need to seek the determinants that realize innovation. Only a few organizations appreciate the value of creating a culture that highlights the importance of creativity and new ideas that are commercialized.

The associated research questions:

- What is an innovative organizational culture?
- What is innovative work behavior?
- How does the perception of innovative culture affect employee innovative behavior?

By answering the research question, the objective of the research is to determine to what extent perception of innovative organizational culture has an impact on employees' innovative behavior. This paper seeks to understand how individuals perceive innovative organizational culture as a positive influence to innovative behavior within in the work environment.

### II. CONCEPTUAL FRAMEWORK FOR THE INVESTIGATION

The conceptual method is based on the view that "organizational culture is a cohesive force that leads its members to share values, social ideas and beliefs" [4, p.1029]. The rationality is that the organizational values and social ideas influence how employees evaluate various organizational principles and innovative culture. Based on employee' evaluation of how innovative their organizational culture is, the employee's innovative behavior is influenced by the existence of the innovative culture within the organization.

#### *A. Determinates of innovative organizational culture*

According to Dombrowski [5], the characteristics of an innovative organisation are different and distinguishable from those of a non-innovative organisation. A definition of innovative culture is "the firm's orientation towards experimenting with new alternatives or approaches by exploring new resources, breaking through existing norms, and creating new products to improve its performance" [4: p.1029] . Organizations will have to change the existing rigid norms if they want to build on a culture of innovation. The organizational culture dimensions are viewed as important determinants in a theoretical point of view for both the organization and employees. The conceptual model will adopt the determinants as the measure that influence employee's perspective on an innovative culture and innovative work behaviour.

Table 1. indicates the determinants of innovative organizational culture. The table lists ten determinants of an innovative organizational culture with explanations.

TABLE 1. DETERMINANTS OF INNOVATIVE ORGANIZATIONAL CULTURE

Determinants of an innovative organizational culture		Explanations	Source
1	Autonomy/Flexibility	Job rotating and job exposure	[5],[9]
2	External contacts	Visit expo's and acquire external knowledge	[10]
3	Communication	Open and transparent communication	[5], [6], [7], [9]
4	collaboration	Co-innovation with other stakeholders	[5], [9]
5	Risk taking	Allow risk taking / mistakes and have no fear of failure	[6], [8]
6	Decentralization of decision making	Decision making is spread out to a large groups including lower levels	[6]
7	Incentives	Provision/ award of monetary payment	[5], [11]
8	Resource	Availability and allocation of financial and Material resources	[6], [7], [8]
9	Leadership	Provision of support by management	[5], [10]
10	Strategy	Vision and Mission towards innovation	[5], [7]

*B. Innovative work behavior measures*

According to De Jong and Den Hartog [12] the innovative work behavior (IWB) stages have distinct personality and environmental factors which measures innovation. The stages are often of a similar nature, ranging from searching for opportunities and implementation. De Jong and Hartog [12] measured 4 factor model of IWB, that identified specific items for each stage of four IWB, these were derived from Janssen [13], Kleysen and Street [14], Scott and Bruce [15]. The items were assessed by psychologists to validate the items as the possible measurements of IWB.

The results on examining the structure of IWB measure suggested “the proposed four factor model performed better than other competing models, such as the three factor model of merging opportunity exploration and idea generation into a single stage” [12, p.21]. The stages consisted of 17 items in total and seven items dropped out on a pilot survey resulting into a total of ten items measuring IWB. This investigation adopts the four stages that contribute to the overall construct of IWB behaviour as a measure of IWB. These four stages are: opportunity exploration, idea generation, idea promotion and idea implementation.

*C. Concept model*

Figure 1.is a conceptual model of the perspective of employee on the determinants of an innovative organizational culture. Each of the ten hypotheses is tested to examine the influence on employee innovative behavior.

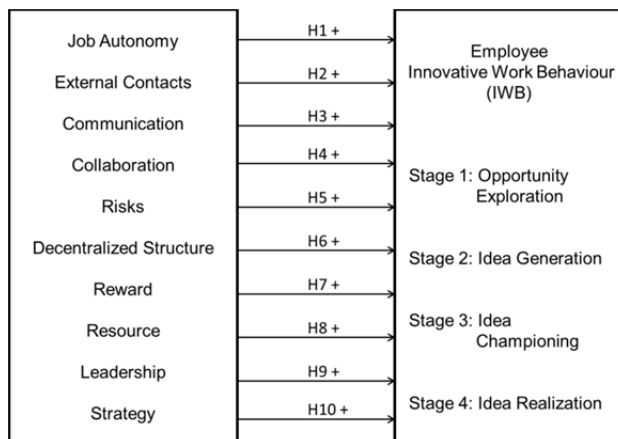


Figure 1. Concept model on perspective of innovative organization culture and influence on employee innovative behavior.

III. RESEARCH METHODOLOGY

To ensure minimal flaws in the investigation and design method, the research uses a triangulation means of comparing sources of evidence. According to Briggs et al. [16, p.29] “triangulation is the use of two or more methods of data collection”. In this study qualitative and quantitative method are used.

The chosen research collection method is targeted towards the subordinates of the departmental managers within Strategic Asset Management Division (SAM) of Randwater. This case is chosen as it plays an important role in providing portable water to more than 12 million people in South Africa. The targeted population is 120 employees who report to the various departmental heads in the SAM division. The population consist of four departments and each has a section consisting of different professions such as design, project management and project controls department. A pilot study was conducted with five people to test whether the employees understand the survey questions. The participants in the pilot test showed their understanding of the questions, however they highlighted that the survey was a bit too long. After the survey questionnaire was finalized after the pilot test, the questionnaires then were sent to a population of 120 employees and of which 97 people responded. From the 97 responses, 92 are complete and 5 are incomplete. This resulted in 76% response rate.

*A. Measurement of variables and items used in survey questions*

The research survey consisted of control variables, independent variable (the ten determinants) and dependent variable items (IWB). The control variables used are: age, job tenure, department, and education level of the employee. Dependent and independent variables used are described in the Table 2 and 3 below. In this study Conbach’s alpha is used measure internal consistency amongst the multiple items representing the construct of a specific variable. Cronbach’s alpha of greater than 0.6 indicate an accepted internal consistency and reliability.

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TABLE 2. MEASUREMENT OF IWB DEPENDENT VARIABLES, SOURCES AND CRONBACH'S ALPHA

Four stages of IWB (Source: [12])	Cronbach's alpha in the Source
<b>Stage 1: Opportunity Exploration</b>	
1.1 Pay attention to opportunity sources	0.88
1.2 Wonder how things can be improved	
<b>Stage 2: Idea Generation</b>	
2.1 Searching out new working methods, techniques or instruments	0.90
2.2 Generating original solutions for problems	
2.3 Find new ways to execute tasks	
<b>Stage 3: Idea Championing</b>	
3.1 Making important organizational members enthusiastic for innovation ideas	0.95
3.2 Try and convince people to support innovative ideas	
<b>Stage 4: Idea Realization</b>	
4.1 Contribute to the implementation of new ideas	0.93
4.2 Introducing innovative ideas into the work environment in a systematic way	
4.3 Put effort in the development of new ideas	
<i>Measurement: 5 point Likert scale on frequency ranging from 1 is "never" to 5 is "always"</i>	

TABLE 3. INNOVATIVE ORGANIZATIONAL CULTURE MEASUREMENT, CRONBACH'S ALPHA AND SOURCES FOR SURVEY QUESTIONS

Variables measuring innovative culture	Source	Number of items	Cronbach's alpha in the Source
1	Communication	[17] p.319-321	0.72
2	Decentralized Structure	[18] p. 65-66	0.74 and 0.89
3	Job Autonomy	[11] p.146	0.90
4	External Contacts	[10] p.197-205	0.79
5	Collaboration	[19] p.35-36	0.86
6	Strategy	[10] p.197-205	0.80
7	Incentives/rewards	[20] p. 576	0.77
8	Participative Leadership	[12] p.35	0.87
9	Resource	[15] p592-593	0.77
10	Risk Taking	[17] p.319-321	0.88
<i>Measurement: 5 point Likert scale on agreement ranging from "strongly disagree" to "strongly agree".</i>			

### IV. RESULTS

The outcome of the investigation for the investigation of relations between the innovative organisational culture variables and innovative behaviour variables is structured according to the conceptual method in Section 2 and the hypotheses that were put forward.

#### A. Reliability Test

From Table 4 the Cronbach's alpha was determined for each dependent and independent variables and they are all greater than 0.6. This indicates a good internal consistency and it therefore can be concluded that the items/questions used provide a high confidence in measuring similar concept and ensure reliability. The survey questions therefore have interrelatedness of items.

TABLE 4. CRONBACH'S ALPHA IN THIS STUDY

Dependent Variable	Number of items	Cronbach's alpha in this study
Innovative Work Behaviour (IWB)	10	0.916
1. Opportunity exploration	2	0.559
2. Idea generation	3	0.783
3. Idea Championing	2	0.860
4. Idea realisation	3	0.866
Independent Variable	Number of items	Cronbach's alpha in this study
Autonomy	9	0.824
External contacts	5	0.775
Communication	4	0.710
Collaboration	7	0.883
Risk	2	0.668
Decentralised structure	2	0.547
Reward	3	0.809
Resources	5	0.729
Leadership	6	0.892
Strategy	8	0.945

*B. Correlation analysis*

From Table 5 the following linear relationships are supported because the correlation coefficient (r) is greater than 0.4 or less than -0.4:

- Innovative behaviour has a positive and moderate correlation relationship autonomy (r=0.660).
- Innovative behaviour has a positive and moderate correlation relationship Job tenure (r=0.642).
- Communication has a positive and high substantial relationship with Collaboration (r=0.736).
- Reward has a positive and moderate correlation relationship with Resource (r=0.663).
- Resource has a positive and moderate correlation relationship with Strategy (r=0.678).

*C. Regression analysis*

Hierarchical regression analysis was performed by comparing four models as indicated in Table 6. Each model was tested for goodness of fit as well as exploring the casual relationships between the independent and dependent variables.

1. The 1<sup>st</sup> model tests the linear regression of the control variables such as gender, age, department, job tenure and education. In this model the independent variables are excluded.
2. The 2<sup>nd</sup> model is based on the 1<sup>st</sup> model with added independent variables that represent freedom in doing work activities; these are autonomy and external contacts.

3. The 3<sup>rd</sup> model is based on 2<sup>nd</sup> model with added independent variables that represent internal organisational interrelations in the form of communication, collaboration and organisational risk taking as well as decision making in a decentralised structure.
4. The 4<sup>th</sup> model is based on the 3<sup>rd</sup> model with added independent variables that represent provision and supply of organisational resources, rewards and strategic direction for the introduction of innovation.

With the exception of Model 1, all other three models have good model fit (all F-values are significant at p-value of less than 0.01). In Model 2, by entering Autonomy and External Contacts, these two variables contributed to 45.6% of variance in the dependent variable (Innovative Behavior). Autonomy has more positive impact with regression coefficient ( $\beta$ ) of 0.615 (significant at p-value of less than 0.01) on Innovative Behaviour as compared to External Contact ( $\beta=0.172$ ,  $p<0.05$ ). In Model 3, the entered variables (Communication, Collaboration, Risk and Decentralised Structure) have no impact on Innovative Behaviour. In the last model where the remaining variables were entered, only Strategy has a positive and significant impact ( $\beta=0.328$ ,  $p<0.01$ ) and resources has negative and slight significant impact ( $\beta= -0.22$ ,  $p<0.1$ ). Both of these two variables explain a 5.4% of variance in the dependent variable (Innovative Behavior).

TABLE 5. LINEAR RELATIONSHIPS BETWEEN CONTROL VARIABLE, INDEPENDENT AND INNOVATIVE BEHAVIOUR (\*: P<0.05)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14.
1. Innovative behaviours	1.000													
2. Age	-0.061	1.000												
3. Job Tenure	-0.050	<b>0.642*</b>	1.000											
4. Education	0.044	-0.033	-0.067	1.000										
5. Autonomy	<b>0.660*</b>	-0.064	0.005	0.027	1.000									
6. External contacts	0.378	-0.339	-0.180	-0.025	0.295	1.000								
7. Communication	0.339	-0.023	-0.093	-0.202	0.239	0.256	1.000							
8. Collaboration	0.266	0.014	0.017	-0.186	0.195	0.307	<b>0.736*</b>	1.000						
9. Risk	0.195	-0.063	-0.096	-0.171	0.136	0.279	0.321	0.353	1.000					
10. Decentralised structure	0.159	0.042	-0.092	-0.130	0.094	0.273	0.250	0.297	0.538*	1.000				
11. Rewards	0.241	-0.073	-0.201	-0.230	0.189	0.297	0.498*	0.459*	0.499*	0.421*	1.000			
12. Resources	0.147	-0.147	-0.190	-0.322	0.118	0.330	0.370	0.490*	0.528*	0.384	<b>0.663*</b>	1.000		
13. Leadership	0.312	-0.014	-0.079	-0.165	0.195	0.238	0.527*	0.542*	0.559*	0.389	0.435*	0.530*	1.000	
14. Strategy	0.413*	-0.105	-0.146	-0.325	0.311	0.368	0.393	0.427*	0.448*	0.442*	0.587*	<b>0.678*</b>	0.422*	1.000

TABLE 6. RESULTS OF REGRESSION ANALYSIS

	Dependant Variable: Innovative Work Behavior (IWB)			
	Model 1	Model 2	Model 3	Model 4
Constant ( $\beta_0$ )	3.094	-0.392	-0.634	-0.376
<b>Control variables</b>				
Gender	0.243**	0.194***	0.161**	0.120*
Age	-0.026	0.112	0.085	0.073
Department	0.163	0.178**	0.194***	0.217***
Job tenure	-0.025	-0.084	-0.051	-0.033
Education	-0.025	0.014	0.051	0.090
<b>Independent variables</b>				
Autonomy		0.615***	0.587***	0.511***
External contacts		0.172**	0.134*	0.115
Communication			0.133	0.078
Collaboration			-0.003	-0.010
Risk			0.038	-0.005
Decentralised structure			0.016	-0.045
Rewards				0.011
Resources				-0.220*
Leadership				0.153
Strategy				0.328***
<b>Model fit</b>				
R2	9.3%	54.8%	56.6%	60.95%
$\Delta R^2$	9.3%	45.6%	1.7%	5.4%
F-value	1.763	14.577***	9.482***	8.249***
$\Delta F$ -value	1.763	42.371***	0.804	2.675**

\*, p<0.1; \*\*, p<0.05; \*\*\*, p<0.01

V. CONCLUSION AND RECOMMENDATIONS

The results have shown that only certain determinants have an impact on employee innovative behavior. From the investigation it has been found that some determinants have high linear correlations and some very low correlations.

A. Innovative behavior in relation to the determinants of an innovation organization culture

In the investigation seven of the independent variables where found to be contrary to the hypothesis. Figure 2 indicates the outcomes of which two of the control variables have a strong linear correlation and linear regression with innovative work behavior. Gender with a  $\beta = 0.120$  ( $p < 0.1$ ) has shown a positive but minimal causal relationship with innovative behaviour. Department has shown a significance in causing innovative behavior with  $\beta=0.217$  ( $p<0.01$ ). The investigation also revealed that three determinants of an organizational culture influence employee innovative work behavior; these are job autonomy, resources and strategy. Job

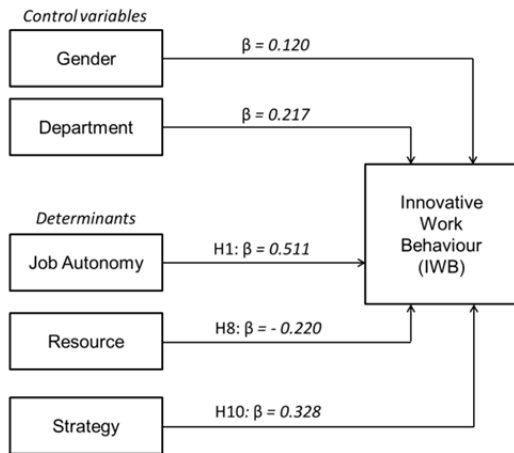


Figure 2. Determinants impacting innovative behavior

autonomy and strategy has shown a very high significant causal relationships with employee innovative behavior with  $\beta = 0.511$  ( $p<0.01$ ) and  $\beta=0.328$  ( $p<0.01$ ) respectively. Strategy is a crucial aspect in an organization as it provides direction and vision to employees. In addition resource revealed a negative significant causation to innovative behavior with  $\beta = -0.220$  ( $p<0.1$ ). This may suggest that the lack of resource provision may cause employees to behave innovatively.

B. Stages of innovative behaviour in relation to the determinants of an innovative organizational culture.

Table 7 illustrates the four stages of innovative work behavior and the associated variables that have shown a strong positive and negative linear regression in each stage. Autonomy has a strong positive relationship with all stages of innovative behavior, with  $\beta$  ranging between 0.344 and 0.511 ( $p<0.01$ ). Communication is seen to be moderately important in the first stage of opportunity exploration with  $\beta$  of 0.344 ( $p<0.01$ ). When innovation is communicated to the employees as a relevant and important culture to the organization, then employees would begin be more aware and explore innovative ways in conducting their work. Resource as a determinant is important in the 2<sup>nd</sup> stage, idea generation, this is a negative relation meaning that employees would generate innovative ideas when there are less resources available, it assumed that minimal provision of resource makes employees to be creative. Participative leadership is moderately important within the idea generation stage with  $\beta$  of 0.241 ( $p<0.05$ ). Leadership support and direction are needed to guide the employees with developing their initial creative ideas. Strategy has indicated a moderate relationship in three of the innovative behaviour stages with the exception of stage 1 (opportunity exploration). It would seem organizational strategy is crucial in the generation of ideas until the ideas are implemented as an innovative service or product.

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TABLE 7. INDICATE VARIABLES THAT HAVE A POSITIVE RELATIONSHIP WITH EMPLOYEE INNOVATIVE BEHAVIOUR

	Innovative Work Behaviour (IWB)	Stage 1: Opportunity Exploration	Stage 2: Idea Generation	Stage 3: Idea Championing	Stage 4: Idea Realization
<b>Control variables</b>					
Gender	0.120*	0.214**			
Department	0.217***		0.190**	0.151*	0.225***
<b>Independent variables</b>					
Job Autonomy	0.511***	0.344***	0.415***	0.453***	0.488***
Communication		0.316**			
Resource	-0.220*		-0.402***		
Participative Leadership			0.241**		
Strategy	0.328***		0.208*	0.364***	0.341***

### C. Recommendations

Based from the results found in this study, the following two managerial recommendations are suggested:

- It is recommended to the management of an organization that innovation can be introduced within an organization gradually in various phases.
- An introduction of an innovation forum or network that will encourage employees to suggest ideas that maybe be implemented.

In terms recommendation for further research in the research area of innovative work behavior, the following suggestions are put forward:

- Given autonomy having a very high causal relationship with innovative work behavior, it is suggested that future research can focus on the introduction and factors that trigger job autonomy and how this induce employee innovative work behavior.
- Future research comparing the provision or lack of resources supply and how this may result in employees behaving innovatively.
- Future research on how an organizational strategy can be used as a tool to introduce or increase employee innovative behavior.
- Future research on testing of perception of the determinants of innovative organizational culture in different organizational sectors or functional areas and examine if they replicate the same results or any other interesting finding.

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