Top management team diversity (TMTD) and innovativeness on performance in Namibia private organisations

Marius Frederick Johannes & Albert J. Isaacs

ABSTRACT

The research tested the statistical assumptions with objective top management demographic data and performance indicators from private sector organisation from 28 surveyed teams with 133 top managers participating, and document search of 231 teams selected, with 1742 participants in total. After generating eight stepwise regression models, propositions based on the model, found that TMTD has no significant impact on organisational performance, in isolation. Namibian TMTs prefer technical capabilities as the main driver for innovativeness, and in the same spirit need the right amount of fault-line stimulation and diversity management interventions to perform. The study found that demographic characteristics might influence team cognitive ability, character, and functional knowledge but team innovativeness and performance are influenced by managing team characteristics, and contextual factors.

Keywords: Top Management, Team, Diversity, Innovativeness, Organizational Performance, Technical capabilities

INTRODUCTION

In organisational research, top management team diversity (TMTD) has been prominent in studies where group characteristics, composition and behaviour (Knight, et al., 1999, p. 1), were used to predict organizational performance (Chen, Liu, & Tjosvold, 2005). Even so the characteristics and composition of diversity has been an important concept applied in various ways across fields like, team ecology (Boone, Wezel, & Witteloostuijn, 2006), demography of teams (Tihanyi, Ellstrand, Daily, & Dalton, 2000), information systems (Trauth, Huang, Quesenberry, & Morgan, 2006; Shachaf, 2008), sociology, (Herring, 2009) economic population diversity (Khovanova-Rubicondo, 2011; Pede, 2013) and recently conspicuously in team psychology (Boone & Witteloostuijn, 2007).

Additionally so, the amount of empirical research and literature in upper echelon research and strategic management has long acknowledged the influence of demographic characteristics and compositional units of teams on organisational outcomes, which evolved into the dynamic research expanse known as, TMTD (Carpenter, Geletkanycz, & Sanders, 2004; Hambrick & Mason, 1984; Homberg & Bui, 2013; Williams & O'Reilly, 1998). TMTD has become an important area to broaden organisational research and managerial application, as "Organisations have come to rely on team-based arrangements(TMTD) to improve quality, productivity, customer service, and the experience of work for their members" (Shaw, 2004, p. 66).

TMTD will be referred here as, "The compositional distribution of team members on any personal (demographic or cognitive) attribute that potentially leads to the perception that team members differ from one another". (Rico, Molleman, Sánchez-Manzanares, & Van der Vegt,

2007, p. 113). This definition embraces the concepts that demographic variables can serve as a predictor and serve as an intervening process (Lawrence, 1997).

In support of dualistic nature and report of TMTD, innovation and innovativeness as descriptors, is so widely used that its reference has become somewhat universal, where and when organisations use these terms to describe many areas which vary depending on the context and scope of the analysis. Zacher and Rosing (2015), confirms this and labels the existing literature on organisational innovation and innovativeness as, "diverse" and "scattered". Sart (2014) reckons that there is no consensus on a definition of the term organisational innovation, which remains ambiguous, because the innovativeness component will be more exploratory, a unidimensional definition is proposed as, defined for the purposes of this research compiled by the author: The spirit of innovation and innovativeness is a multi-dimensional construct which includes the intention to innovate the infrastructure to support innovation (Shurrab & Mateen, 2014), where operational level behaviours are necessary to influence a market and value orientation, and the environment to implement innovation which is similar to (Riivari & Lamsa, 2014), the organisation's willingness, through the TMTs, functional (Qian, Cao, & Taeuchi, 2013), human capabilities (Yuhui & Weizhong, 2009), strategic consensus (Camelo, Fernandez-Alles, & Hernandez, 2010; Camelo-Ordaz, Hernandez-Lara, & Valle-Cabrera, 2005), and culture (Dobni, 2008), to bring about the tendency and ability to adopt and support new ideas, practices and procedures that may develop into innovations to obtain all the capabilities they need, ranging from research and design, manufacturing (Jin, Hewitt-Dundas, & Thompson, 2004), and marketing to after sale service (Lyon & Ferrier, 2002), in order to profit from their innovations (Serrano-Bedia, Lopez-Fernandez, & Garcıa-Piqueres, 2012) and through innovation and innovativeness measurement (Aydinoglu, 2007) lead to the increase capacity to innovate further (Cropley, Cropley, Chiera, & Kaufman, 2013).

After an intensive literature survey, from Johannes (2017), from meta-analytic reports and literature surveys, from five continents, the empirical and qualitative research on TMTD, innovativeness and performance were found to be academically absent within the Namibian context and the closest rival in Africa were currently limited to the banking industry from Ghana and Kenya (Awino, 2013; Omoro, Aduda, & Okiro, 2015).

The unfamiliarity and undocumented identification can be ascribed due to the current research limitation to diversity management and affirmative action and not the analyses of the nexus between demographic top management variables, innovativeness and performance (Johannes, 2017). The research problem stems from this absence, and how TMTD as a form of human capital, and its capabilities, are indispensable in the management of innovativeness, and can be seen as a dependent variable for measuring performance.

The aim of the research will therefore be to empirically investigate TMTD, within Namibian companies and how this group select various forms of innovativeness to influence organisational performance. Through the surveying of Namibian TMT the effects of

demographic diversity will be investigated and the effect it has on TMTD innovativeness, on firm performance (Hendriks, 2004). The exploration, of the interaction will explain and provide direction in the selection of the composition, characteristics innovativeness, and organisational performance, which will be a new area of exploration (Wang, Libaers, & Jiao, 2014). This research will also explain how TMTD, embraces, implement, and apply innovativeness for improving business performance (Chen, Ge, & Song, 2010).

The study seeks to answer the following research questions: How do the demographic attributes of TMT innovativeness influence organisational innovation and performance outcomes? What TMT human capabilities could influence the successful implementation of innovativeness? How are TMT members able to effectively harness and develop organisational capabilities by integrating diversity and innovativeness to influence performance?

METHOD

The initial sample of organisations and businesses consisted of 500 random Namibian companies. These organisations and businesses were selected from various industries and registered organisations in Namibia, with the exclusion of the public sector. The list was compiled from business magazines, such as the Namibian Trade Directory (Van Rensburg, 2017), and the Namibian Manufactures Association (Varkvisser, 2017), which had a primary reference for the web addresses and phone numbers of Namibian the companies. Document analysis, the Office of Employment Equity Commissioner was contacted and individual reports reviewed.

The target was companies with more than 20 employees; the reason to exclude companies with less than 20 employees is that we expected these firms to operate with top manager, instead of a top management team. This was not the case as a review of the Employment Equity reports found individual managers for more than 20 employees per company. The researcher decided to include this information, as it could provide valuable insights.

Even though sample size would have been a concern to the researcher, classic and frequently cited researchers such as Olson, Parayitam, & Twigg (2006), had 66 teams, Talke, Salomo and Kock (2011) had 50 teams, Ancona and Caldwell (1992) had 45 teams, Knight et al (1999) had 76 cases, and Yap, Chai and Lemaire (2005) had 40 teams.

The reduced number of observations results from non-participation, deregistration and closure resulted in 28 surveyed teams selected, with 133 top managers participating, the sample was supplemented from a document search of 231 teams selected, with 1742 participants in total.

Measuring Instruments for Diversity Constructs

Numerous influential and frequently cited researchers, such as Hambrick and Mason (1984), Harrison and Klein (2007), Hendriks (2004), Knight, et al. (1999), Nielsen, (2010), Tacheva

(2007), Umans (2012), Williams and O'Reilly (1998), Wiersema and Bantel (1992), recognised Pfeffer (1983) as the canvasser who evolved on the behavioural economics and introduced demographic considerations and composition into organisation theory as an individual perspective and a variables worth of empirical studies.

The reasoning is based on the organisational demography approach, which criticises the use of constructs such as attitudes, needs, values, preferences and cognitions, since such constructs are "difficult to reliably measure and conceptually validate (and) are neither concrete nor unambiguous in their meanings and interpretation" (Pfeffer, 1983, p.302). This approach evolved and accelerated the study of demography characteristics and composition of organisations, to become a rapidly expanding field of quantifying the independent variables that form TMTD (Boerner, Linkohr, & Kiefer, 2011).

This also set in motion focussed studies on team and organisational dynamics, with neighbouring themes in age structure (Mayr, 2011), group conflict (Pelled, 1996), culture (Weusthoff, Grieser, & Meckle, 2014), nationality (Nielsen & Nielsen, 2008), female representation (Dezso & Ross, 2012), gender (Francoeur, Labelle, & Sinclair-Desgagne, 2008), functionality and education (Wu, Wei, & Lau, 2010).

At that juncture based on the above works, Hambrick and Mason (1984), who also added to the rapid expansion of demographic studies of Pfeffer (1983), through incorporating organisational science, set the foundation to turn out to be, what could be, credited to the long-established tradition of upper echelon research. Hambrick and Mason (1984) asserted and viewed this approach to TMT research as "…reflections of the values and cognitive bases of powerful actors in the organisation. It is expected that, to some extent, such linkages can be detected empirically." (p. 193).

Description of coefficients: TMT dominant functional diversity

Applying the methods of previous studies in this area (Cannella, Park, & Lee, 2008), age and tenure age diversity was quantified using the coefficient of variation. As gender, educational background, and functional background are categorical variables, diversity for these variables was quantified using a variant of the Herfindal–Hirschman index (Wei & Wu, 2013).

Dominant functional diversity

TMT dominant functional diversity was measured following Cannella, Park, & Lee, (2008) and Carpenter (2002), where each TMT members dominant functional background was categorised into one of nine tracks, then, a version of the Herfindal-Hirschman index (Cannella, Park, & Lee, 2008; Tacheva, 2007; Hendriks, 2004) was used to capture dominant functional diversity at the TMT level. This index was calculated as:

$$\boldsymbol{FD = 1 - \sum_{k=9}^{n} S_i^2}$$

Where, *Si* is the proportion of a TMT in the *i*th category. The index can vary between 0 and 1, with values close to 1, indicating higher diversity and values close to 0 indicating that a TMT is dominated by a single category (Cannella, Park, & Lee, 2008).

Gender diversity

Gender diversity was also calculated as a variant of the Herfindal-Hirschman index, where Si is the proportion of a TMT in the *i*th category. (Cannella, Park, & Lee, 2008) .

$$\boldsymbol{GD = 1 - \sum_{k=2}^{n} S_i^2}$$

TMT-level age and tenure diversity

Average TMT tenure and mean is an important control variable when tenure diversity is calculated using the coefficient of variation (Cannella, Park, & Lee, 2008). Team tenure was calculated as the median of the tenures of all top management team members. Previous research suggests that median tenure is a better measure than the average team tenure as it is less affected by very short or very long individual tenures TMT size, number of executives on a team, was included to control for any size dependence in the TMT diversity measures. (Tibben, 2010).

$$\boldsymbol{CV = \frac{\sigma}{\mu} * 100}$$

Diversity in education level and education specialisation

The Blau index is a measure of group heterogeneity, which is commonly used in top management team research (Carpenter, 2002; Finkelstein & Hambrick, 1996) to aggregate data from the individual to team level:

$$\boldsymbol{ED = 1 - \sum_{k=9}^{n} S_i^2}$$

Where ED is the homogeneity index, S the percentage of TMT members with a dominant educational track *i,* and *n* is the number of different educational backgrounds. Subtraction from unity, yields Blau's heterogeneity index (Barkema & Shvyrkov, 2007).

Calculating Average Silhouette Width Faultline Clustering (ASW)

It is not until Thatcher and Patel (2011) meta-analysis, that found that the majority of previous research on faultlines focused on social and demographic faultlines, because they are readily detectable, which bear a resemblance to diversity indexes (Hambrick & Mason, 1984).

In line with Thatcher, Jehn and Zanutto (2003), ASW are used by cluster analysis for detecting the subgroup split associated with the group's strongest faultline for groups with more than two homogeneous subgroups. Cluster analysis groups objects, which are the team members, into clusters which are the subgroups according to their similarity, such that the clusters have maximum internal homogeneity and maximum between-cluster heterogeneity (Meyer & Glenz, 2013).

The two-step clustering procedure firstly employs known cluster-analytic methods to identify a set of start configurations which are the set of subgroups for the clustering procedure for a given team. Secondly, the permutations of team members through each start configuration and employing a criterion, the maximum average silhouette width, to identify the optimal solution (Meyer & Glenz, 2013). ASW is the average of all team members' individual silhouette widths, which quantify how well a team member *i* fit into cluster A in comparison to another cluster B. This individual silhouette width is given by:

$$\boldsymbol{s(i) = \frac{b_{i-} \; a_i}{max(\, a_i, b_i)}}$$

Where a_i denotes the average dissimilarity of i to all members of cluster A, and b_i denotes the average dissimilarity of i and all members of cluster B. Dissimilarities are calculated as the Euclidean distances between two individuals. In sum, the ASW measure is a measure of the quality of a group's partitioning with reference to the within-subgroup homogeneity, the between-subgroup separation, and the optimal number of clusters. As these properties of the measure perfectly align with the aim of faultline detection, we believe that ASW is ideally suitable for quantifying faultline strength and propose it as a measure for faultline strength.

Performance Measure

Three performance variables were selected to measure organisational performance, namely organisation sales volume, sales growth and market share (Kyrgidou & Spyropoulou, 2013; Nybakk, 2012; Selvarajan, Ramamoorthy, & Flood, 2007). The reason to use these three performance measures is that they best correspond with the goals the researcher want to achieve namely, they are also significantly related to being analyzed during hierarchal regression analysis, and two innovativeness performance measure, of innovation payback and innovativeness performance.

Procedure:

Factor analyses

The pre-determined variables for innovativeness culture, technological integration, R&D, market orientation, and cross functional integration were measured through scales previously tested and used by other researchers (Alpay, Bodur, & Yilmaz, 2012; Auh & Menguc, 2004; Chen, Liu, & Tjosvold, 2005; Dobni, 2008; Gomes, Yasin, & Lisboa, 2007; Kibbeling, Van der Bij, & Van Weele, 2013; Kyrgidou & Spyropoulou, 2013; Lui, 2013; Pallas, Bockermann, Goetz, & Tecklenburg, 2013; Stock, Six, & Zacharias, 2013; Tacheva, 2007; Talke, Salomo, & Kock, 2011; Tihanyi, Ellstrand, Daily, & Dalton, 2000; Yap, Chai, & Lemaire, 2005; Wei & Wu, 2013).

Based on the recommendations of Baglin (2014), Conway and Huffcutt (2003) and Henson and Roberts (2006) on how to conduct a high decision-making EFA, the researcher decided on the choice of matrix of association, to be the correlation matrix to analyse. To determine the number of factors to retain, multiple methods will be applied as the eigenvalue (EV) will be realistic but not the conformed to >1 rule (EV > 1), and also the screen test and Bartlett's chi-square test. Parallel analysis, was recommended to be the most accurate procedure, and

confirmed through the review of researcher methodology that these method are seldom employed in published research (Henson & Roberts, 2006), with no example to be found in TMTD or innovativeness literature. This compelled the researcher to include this method as the primary decision maker for retention.

The researcher main aim will be to focus on interpretation of factors above the reduction of variables.

Regression of factors

The research design resulted in exploratory data being created, and provided the opportunity for further analysis by the regression of constructs to variables, whereby it could be incorporated in the hierarchical models.

Validation analysis

The validity of a measure refers to the extent to which it measures what is intended to be measured (Dobni, 2008). Given that this model employed an EFA, two different types of validity were considered namely, content validity, and construct validity.

Content validity

Although the judgment of validity is somewhat subjective, the procedures that were used were consistent with ensuring high content validity. The constructs developed for the dimensions of TMTD innovativeness were derived from an exhaustive review of the literature and detailed evaluations by both an academic and managers. This multi-stage process employed a literature review, summary of factor loadings in past research, expert opinions and literature on innovativeness construct design and a pre-test. In the application of these methods it led to a refinement of the constructs used, and in the final analysis.

Construct validity

Construct validity is concerned with the extent to which the theoretical essence of the measure is captured (Dobni, 2008). In this case, construct validity will be evaluated by examining convergent validity from the correlation among the factors representing the innovation index, which will indicated the strength of were converging on a common underlying construct meet.

RESULTS

Table 1 represent the reduced number of observations results from non-participation, deregistration and closure resulted in 28 surveyed teams selected, with 133 top managers participating, the sample was supplemented from a document search of 231 teams selected, with 1742 participants in total, which will only be used during the faultline calculation.

Table 1: Descriptive statistics of the independent demographic variables

Descriptive Statistics						
	N	**Min**	**Max**	**Mean**	**SD**	**Variance**
Age (*CV*)	27	.077	.268	.172	.053	.003
Career tenure (*CV*)	27	.112	.846	.424	.190	.036
Tenure (*CV*)	27	.215	1.321	.558	.298	.089
Gender (*Blau*)	259	0	.500	.269	.208	.043
Nationality (*Blau*)	254	0	.500	0.173	.204	.042
Education level (*Blau*)	28	0	.720	.385	.233	.054
Education discipline (*Blau)*	28	0	.857	.486	.284	.081
Functionality (*Blau*)	28	0	.816	.507	.271	.074
Valid N (list wise)	28					

Source: Author

T-analysis of collected and documented surveys

Due to the difference in collecting of data from the two sample for individual variables of gender and nationality, to compare the independent samples Blau index for nationality - (nationality, $T_{surveyed}$, and nationality $T_{documented}$) -, and Blau index for gender, - (gender $T_{surveyed}$ and gender $T_{documented}$) -, an independent-samples t-test was conducted, that indicated that the nationality samples can be accepted and are related. The nationality samples scored, nationality$T_{surveyed}$), (*M* = .295, *SD* = .216) nationality$T_{documented}$, (*M* = .158, *SD* = .198), as *p* = .560 on a significant two-tailed test. The gender samples scored gender $T_{surveyed}$, (*M* = .306, *SD* = .208), nationality$T_{documented}$, (*M* = .264, *SD* = .208), as *p* = .424 on a significant two-tailed test.

Interrater agreement of the questionnaire

For this the concept of within-group interrater agreement or intragroup reliability (*Rwg*) was introduced by James, Demaree, Robert, & Wolf (1984) as a way to assess the reliability of agreement among the judgments made by a group of ratters. To strengthen the reliability off the questionnaire and responses, the test was applied within a top management team on the 21 questionnaire for a single variable on innovativeness, a two question single variable and dependent variable of innovative performance, and a three question on a single dependent variable of performance.

Innovativeness proofed to be reliable the Cronbach's alpha based on standardised items were, α = .956 and an interclass for average measure at .947, with the excellent reliability in the 95% interval confidence level. Innovation performance, proofed, to have a much lower reliability between the groups, which was expected as the understanding of innovation would have differed between TMT's, yet on the upper bound of the 95% interval confidence level, it was .735, which are in acceptable average intergroup reliability. Organizational performance, between the groups proofed to excellent in reliability with Cronbach's alpha based on standardised items α = .919 and a interclass correlation of .911.

Factor solution

The data met the Kaiser-Meyer-Olkin's sample adequacy criteria (KMO = .827, minimum acceptable level .60), as well as those for Bartlett's test of sphericity ($X^2 = 3\,154.660,\ p <$ .0001). The item-total correlation shows acceptable coefficients for all variables (p < .05 and higher), ranging from .146 to .824. The Cronbach's alpha based on standardised items were, α = .955 to measure of overall internal consistency, which were found to be closely related as a group. The Cronbach's alpha was considered to be a measure of scale reliability. Upon this a parallel analysis of 100 simulations was conducted using the Monte Carlo simulation (Ledesma & Valero-Mora, 2007) and a parallel analysis engine simulation by Vivek, Suendra, Mishra and Donovan (2008) comparing the Eigen values of the final selected solution. Based on the three factors extracted individual Cronbach alpha was run, which yield an excellent internal consistency. Table 2, provide a summarised version of the extracted factors.

Table 2: Factor solution

Constructs	Measured variable	Cronbach's alpha	Frequency (M ± SD)	Corrected item total correlations
Factor 1: Organization innovation culture	Innovation vision and strategy	.927	4.977 ± 1.885	.472
	Innovativeness influence		4.278 ± 2.087	.846
	Innovation formal model		4.248 ± 1.916	.711
	Innovativeness thinking model		4.338 ±1.841	.763
	Information across units		4.774±1.820	.688
	Open idea sharing		4.594±2.326	.704
	Cross functional integration		4.414±2.089	.819
Factor 2: Technology innovation management	Technology innovation change driver	.959	5.226±1.790	.805
	Technology creation as success driver		5.075±1.765	.874
	Technological breakthrough adoption		5.038±1.738	.663
	Technological modification		5.030±1.740	.742
	Information for multiple problems		5.068±1.577	.672

	Resource allocation		4.654±2.164	.785
	Market opportunities		4.857±2.004	.822
	Entrepreneurial capacity		4.947±1.912	.802
	Information Risk taking		4.571±2.223	.764
	Change behaviour		4.654±2.212	.792
Factor 3: Research and development performance	R&D investment	.893	3.173±2.090	.872
	Innovative industry leaders		3.857±2.171	.759
	R&D initiation		3.120±2.129	.797
	Idea men		3.316±2.247	.660

Source: Author

A three-factor structure for 21 items was evident, based on a principal components exploratory factor analysis with a verimax rotation. The proposed three-factor structure, involving organisation innovation culture (7 items; .927), technological innovation management (10 items; .959), and research and development (R&D) performance (4 items; .893), factors, indicates high internal consistency.

The following factor labels was allocated, resource organisation innovation culture (measure 1), technology innovation management (measure 2), and yield the highest correlation coefficient. R&D performance (measure 3), yield the lowest and are negatively correlated to measure 1.

Table 3: Component matrix

Component	**1**	**2**	**3**
Organization innovation culture	.705	.587	.398
Technology innovation management	-.690	.436	.578
R&D performance	.166	-.682	.712

Source: Author

Overall, these analyses indicated that three distinct factors were underlying the innovativeness variables and that these factors were highly internally consistent.

The three significant practices from TMTD innovativeness practices will be regressed on the demographic variables and performance variables in order to identify predictors of high performance.

AWS Faultline

The researcher found various classifications on how faultlines should be reported, based on the maximum number of attributes that are aligned. The researcher will measure faultline measure taking into account cumulative proportions of variance across demographic variables (Bezrukova, Jehn, Zanutto, & Thatcher, 2009). Faultline strength can take on values between 0 and 1, with larger values indicating greater strength. Possible values of faultline strength

ranged from 0.00 (weak faultline strength) to 1.000 for gender and nationality variables a maximum of .855 for gender, age and nationality and .825 for gender, nationality, age, career tenure, tenure, educational classification, education level and functionality which will be classified as very strong faultline strength in the data sets.

Table 4: Descriptive for AWS faultline variables

		Gender and nationality	Gender, nationality and age	Gender, nationality, age, career tenure, tenure, educational classification, education level and functionality
N	Valid	230	28	28
	Missing	1,645	1,847	1,847
Mean		.560	.550	.530
Std. Deviation		.415	.183	.176
Variance		.172	.034	.031
Minimum		.000	.000	.000
Maximum		1.000	.855	.825
Percentiles	25	.000	.446	.432
	50	.667	.554	.539
	75	.961	.675	.671

Source: Author

The random sample results one way ANOVA procedure indicated significant main effects for both the between-group variable and within groups variables F (4, 24) = 47. 850, p = 0.000. In the case of the within-subjects effect, $AWS_3, F\ (3, 24) = 8.305, p = 0.001,$ and $AWS_{all}, F\ (3, 24) = 8.355, p = 0.001,$ scores computed using three attributes and all the attributes were significantly higher using only two attributes.

This indicates that the effect of group size on FLS scores might vary depending on the number of attributes being measured, for example, fewer attributes, the greater the influence on group size on the magnitude of AWS scores.

Table 5: ANOVA for AWS groups

Variables		Sum of Squares	Df	Mean Square	F	Sig.
AWS_2, (Weighting, 0.1,1)	Between Groups	18.152	4	4.538	47.850	.000
	Within Groups	21.339	225	.095		
	Total	39.491	229			
AWS_3, (Weighting, 0.1,1,1)	Between Groups	.463	3	.154	8.305	.001
	Within Groups	.446	24	.019		
	Total	.909	27			
AWS_{all},	Between Groups	.428	3	.143	8.355	.001
	Within Groups	.410	24	.017		
	Total	.837	27			

Source: Author

Hierarchal multiple regression

Unlike most previous studies (Barkema & Shvyrkov, 2007; Boerner, Linkohr, & Kiefer, 2011; Cannella, Park, & Lee, 2008**;** Hendriks, 2004; Heyden, 2012; Knight, et al., 1999**;** Mengue & Auh, 2005; Nielsen & Nielsen, 2008; Nielsen & Nielsen, 2013; Omoro, Aduda, & Okiro, 2015; Mayr, 2011; Tacheva, 2007; Tibben, 2010; Umans, 2012; Weusthoff, Grieser, & Meckle, 2014; Wu, Wei, & Liang, 2011; and Julian, Wachter, & Mueller, 2009), that use the top management team as the level of analysis, we applied multilevel methodology which allows us to keep the measurement and analysis of the data at the level at which they were collected. We turned to a regression analysis, which would allow to test empirically which factors of capabilities of TMT for innovativeness are closely correlated with the performance of, which are not.

The research design resulted in exploratory data being created, and provided the opportunity to further analysis by regression the constructs to variables, whereby it could be incorporated in the hierarchical models (Appendix 1).

The multiple regression result of step 1, demographic variables, resulted in almost no statistical significant findings, and in step 2 the incorporation of the AWS faultline index and further upon an extension of the multiple regression to create a model that includes the innovativeness constructs is perused (Terziovski, 2010), in order to avoid drawing wrong conclusions about observed relationships. This approach proved the researcher with the opportunity use a middle-ground approach, following Pelled (1996) and Meyer and Glenz (2013) that demographic variables should pursue both their similar and distinct properties as predictors of organisational outcomes. For this the AWS indexes will also be included based on two properties, visibility and job-relatedness.

Due to the effect of the direct linear relationship of independent variables, and constructs, the beta coefficients to appear to be >1. Upon further research, the researcher decided not to exclude one of the variables, although this might lead to specification error or find another indicator of the concept as the constructs are too specific and critical for the research interpretation (Deegan, 1978). Neither put constraints on the variables as this could be addressed as a research limitation and further research. Deegan (1978), and the researchers data demonstrated here that standardised regression coefficients greater than one can legitimately occur. Furthermore, the relationship between the occurrence of such coefficients and the extent of multicollinearity present among the set of predictor variables in an equation was examined.

The analysis indicate no empirical support that TMTD, characteristics in isolation had any significant impact on any the individual performance variables of market share, sales volume and sales growth (Model 2, Model 3, Model 4 and Model 5), but indicated significant predictors, from step 3. From Model 5 through to Model 8, the researcher calculated the mean composite value of all the performance indicators and stepwise regressed it against the same dependent and independent variables, constructs and indicators. This composite variable is renamed to organisational performance.

In Model 1 (3 steps), and Model 4 (4 steps), a significant interaction do occur once the, AWS_{all}, were introduced in conjunction with the three innovativeness constructs of innovation culture, technology innovation management, and R&D performance.
Technological innovation management (β = 1.246, p = .002), functionality (β = 1.208, p = .003), and educational level (β = 1.074, p = 0.006) all seemed to have statistically significant positive predictor interactions, education discipline (β = -0.849, p =.006), had the highest and statistically significant negative interaction. Our results lend support to the notion that highly technological intervention is preferred as importance to firms and that innovativeness is a valuable add-on to relevant managerial backgrounds and experiences, for increasing the market share (R^2 = .401, p = .007).

Changing the AWS_{all} to AWS_3 and AWS_2, significantly made all the models that had the sales volume and sales growth variable as performance indicator weaker and was excluded, and even when innovation profitability was introduced the models performed much weaker.

Only upon further investigation the researcher decided to include innovation profitability, (β = 1.138, p = .000), in step 4, for Model 5, which resulted in six significant interactions on the predictors of which innovation profitability was the most strongest indicator and positive. Homberg and Bui (2013) agrees with the researcher's Model 4, that the diversity-performance relationship do not provide relevant quantitative estimates of the diversity-performance link are excluded, and this is where (Kilduff, Angerlmar, and Mehra (2000) clearly are in line with this models data that TMT's need multiple interpretation and exhibit interpretive ambiguity. The AWS_{all}, (β = -1.057, p = .000), could be that the diverse teams success requires some counterintuitive management practices, to close the gap between faultline groups, even though AWS_{all}, had better statistically interpretive results than AWS_3 and AWS_2.

Even though Model 2, could be considered a non-statistical significant model compare to the other models, only explaining 9.7 percent of the variance, sales volume (R^2 = .0.097, p = .367), the negative significant predictors of gender (β = -0.616, p = .004) and nationality (β = -0.661, p = .026), indicate that homogeneity of these visible demographic variables, negatively influence sales volume as a performance indicator, but career tenure (β = 0.911, p = .057) suggest considerably influence performance and are statistically significantly related.

Model 3, sales growth (R^2 = -0.138, p = .255), upon review of the data, the researcher found that because too much variability in a data set of only 28 TMT's, this resulted into too many predictors attempting to explain the limited information for Model 3. The initial adjusted R^2 were negative during all three steps which is already very low suggesting a statistical poor model. Model 3, only increased upon step three when the innovativeness constructs were added. The only significant interaction was with education discipline which had a significant negative interaction (β = -0.661, p = .026),
This could also be interpreted that TMTD, have no effect on sales growth and this is part of the growth cycle of the Namibian business environment. Awino (2013), introduced a balance scorecard in his mutiple regression analysis found that quality decisions had a significant

effect on the internal business processes and learning and (sales) growth perspectives of the balanced scorecard.

The researcher attempted to influence and force the AWS calculation and provide different combinations of AWS_{all}, and AWS_3, and binned and un-binned group sizes with Model 5 through to Model 8. Model 7 (R^2 = 0.335, p = .014), clearly seemed to perform the best, with 35% of the variance explained by the model. It could be interpreted that stronger faultline groups AWS_3 (β = -2.141, p = .020) is, associated with that senior team diversity has positive effect on relationship conflict, negatively influence the variance in organisational performance but in the same breath, innovation profitability (β = -2.141, p = .020) adds senior team diversity which significantly increase the variance.

FINDINGS AND DISCUSSION

The researcher based his interpretation on informed findings by the theoretical mechanisms underlying the alignment perspective, on group faultlines (Lau & Murnighan, 2005). The literature on multiform heterogeneity demonstrated the importance to the researcher to consider focusing where the faultlines focus on overlapping groups and subgroups generated by the differences in demographic variables. The data indicated that faultline strength weakens with the increase of demographic variables within Namibia, and resulted in a polarized subgroup strength which is much stronger at the visible and low job relatedness spectrum. Even though diversity has no significant impact on performance, the findings of research question 3, on how diversity and innovativeness in TMT influences organisational outcomes, offer several important managerial implications and academic implication for Namibia. First, the findings confirm that TMT's plays a critical role in its innovation process. Specifically, within the TMTs experience in the areas of organisational innovation culture, technology innovation management, and R&D performance seems to be well promoted and expected from TMT. Secondly, for organisational leadership must pay attention to the different roles TMT experiences and background diversity play in innovation processes, because this will contribute to effectiveness of its resource deployment complement so that each TMT member contribute to overall innovativeness process, but an overall assessment should be made about the level of innovativeness the organisation cycle and where the leader want to take the organisation.

Overall Namibian TMT's prefer technical capabilities as the main driver for innovativeness. Technical capabilities, such as R&D, and technology innovation management refer to the technologies and technical skills that enable firms to adjust to business opportunities in a timely manner (Broekel & Brenner, 2009; Kyrgidou & Spyropoulou, 2013). The significant role of R&D activities towards a firm’s organisational innovation has been mentioned by all the outliers that participated in the interview in this study and external bodies (NCRST, 2016), the researcher recognised as crucial in the prolonged journey of business and organisations becoming technical proficient nationally and are guided by ethics.

The findings also indicated innovativeness could be strong technological base nurtured by technical skills constitutes as a primary source of a business or organisations knowledge

(Kyrgidou & Spyropoulou, 2013). Integrating the findings and the literature, technical capabilities as preferred choice by TMT's help the business and organisation to invest in knowledge of relevant technologies and can significantly enhance their innovativeness posture. This might enable firms with stronger technical skills to exploit opportunities, leading more effectively to increased innovativeness. Ideas and knowledge acquired will more likely be crafted through technical expertise, advanced technological processes and appropriate investments in technology, while at the same time getting sufficient technical knowledge and expertise to obtain a strong foundation on which TMTD innovativeness. Applying R&D, and technology innovation management apparatus indicate a knowledge-intensive organisation, it is also not surprising that TMT indicate that this could be a key predictor of team outcomes.

		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
		Market share		Sales volume		Sales growth		Market share		Organisational performance		Organisational performance		Organisational performance		Organisational performance	
		β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Step 1	(Constant)		0.014		0.002		0.007		0.014		0.004		0.001		0.001		0.004
	Group size (Binned)	0.051	0.866	0.221	0.403	0.105	0.729	0.051	0.866	0.130	0.661	0.030	0.913	0.030	0.913	0.130	0.661
	Age	0.151	0.687	-0.017	0.959	0.260	0.489	0.151	0.687	0.149	0.684	0.176	0.632	0.176	0.632	0.149	0.684
	Career tenure	0.055	0.897	0.582	0.123	0.034	0.935	0.055	0.897	0.219	0.594	0.158	0.698	0.158	0.698	0.219	0.594
	Tenure	-0.289	0.282	-0.276	0.239	-0.266	0.321	-0.289	0.282	-0.299	0.256	-0.313	0.253	-0.313	0.253	-0.299	0.256
	Gender	0.054	0.832	-0.312	0.171	-0.075	0.770	0.054	0.832	-0.105	0.674	-0.079	0.749	-0.079	0.749	-0.105	0.674
	Nationality	-0.047	0.856	-0.395	0.094	-0.160	0.540	-0.047	0.856	-0.203	0.429	-0.173	0.485	-0.173	0.485	-0.203	0.429
	Education level	0.155	0.637	0.263	0.361	0.253	0.443	0.155	0.637	0.236	0.464	0.190	0.536	0.190	0.536	0.236	0.464
	Education discipline	-0.462	0.158	-0.408	0.152	-0.519	0.115	-0.462	0.158	-0.503	0.118	-0.450	0.139	-0.450	0.139	-0.503	0.118
	Functionality	0.121	0.698	-0.086	0.751	0.106	0.733	0.121	0.698	0.059	0.845	0.079	0.799	0.079	0.799	0.059	0.845
Step 2	(Constant)		0.011		0.008		0.011		0.011		0.007		0.006		0.006		0.007
	Group size (Binned)	0.205	0.554	0.129	0.673	0.167	0.636	0.205	0.554	0.173	0.617	0.056	0.876	0.083	0.816	0.193	0.577
	Age	0.179	0.636	-0.017	0.958	0.261	0.500	0.179	0.636	0.157	0.679	0.179	0.637	0.174	0.644	0.149	0.691
	Career tenure	0.054	0.898	0.577	0.134	0.038	0.930	0.054	0.898	0.219	0.605	0.160	0.703	0.165	0.694	0.223	0.598
	Tenure	-0.336	0.224	-0.251	0.298	-0.283	0.311	-0.336	0.224	-0.312	0.258	-0.315	0.265	-0.316	0.262	-0.316	0.249
	Gender	0.104	0.691	-0.341	0.152	-0.055	0.837	0.104	0.691	-0.091	0.729	-0.071	0.786	-0.063	0.810	-0.085	0.745
	Nationality	0.010	0.971	-0.429	0.084	-0.138	0.617	0.010	0.971	-0.187	0.490	-0.160	0.562	-0.147	0.594	-0.180	0.504
	Education level	0.157	0.633	0.259	0.377	0.256	0.450	0.157	0.633	0.237	0.475	0.188	0.554	0.186	0.555	0.239	0.470
	Education discipline	-0.482	0.145	-0.394	0.175	-0.529	0.120	-0.482	0.145	-0.509	0.126	-0.452	0.150	-0.455	0.148	-0.512	0.123
	Functionality	0.182	0.570	-0.131	0.646	0.137	0.679	0.182	0.570	0.076	0.811	0.085	0.792	0.096	0.767	0.090	0.780
	Faultline AWS	-0.302	0.350	0.181	0.525	-0.123	0.709	-0.302	0.350	-0.085	0.791	-0.042	0.905	-0.088	0.805	-0.124	0.701
Step 3	(Constant)		0.453		0.195		0.285		0.453		0.273		0.130		0.129		0.263
	Group size (Binned)	0.517	0.062	0.287	0.373	0.385	0.291	0.517	0.062	0.429	0.193	0.090	0.787	0.108	0.746	0.442	0.180
	Age	-0.188	0.511	-0.217	0.535	-0.002	0.996	-0.188	0.511	-0.147	0.675	-0.047	0.896	-0.043	0.905	-0.154	0.660
	Career tenure	0.664	0.084	0.911	0.057	0.503	0.323	0.664	0.084	0.733	0.118	0.490	0.286	0.493	0.283	0.738	0.115
	Tenure	-0.393	0.067	-0.298	0.237	-0.327	0.247	-0.393	0.067	-0.368	0.152	-0.380	0.173	-0.380	0.174	-0.368	0.150
	Gender	-0.398	0.092	-0.616	0.040	-0.401	0.207	-0.398	0.092	-0.502	0.085	-0.405	0.168	-0.397	0.177	-0.497	0.088
	Nationality	-0.410	0.077	-0.661	0.026	-0.431	0.168	-0.410	0.077	-0.533	0.064	-0.434	0.142	-0.424	0.153	-0.527	0.067
	Education level	1.074	0.006	0.764	0.084	0.921	0.065	1.074	0.006	1.001	0.030	0.766	0.075	0.764	0.076	1.002	0.029
	Education discipline	-0.849	0.006	-0.606	0.077	-0.816	0.038	-0.849	0.006	-0.825	0.022	-0.631	0.061	-0.633	0.060	-0.828	0.021
	Functionality	1.208	0.003	0.409	0.334	0.850	0.086	1.208	0.003	0.914	0.043	0.811	0.081	0.814	0.081	0.923	0.042
	Faultline AWS	-0.298	0.230	0.204	0.498	-0.121	0.718	-0.298	0.230	-0.081	0.786	0.051	0.884	0.019	0.957	-0.108	0.719
	Innovation culture	0.588	0.009	0.264	0.283	0.332	0.233	0.588	0.009	0.440	0.086	0.403	0.133	0.399	0.137	0.437	0.088
	Techn innovation mngt	1.246	0.002	0.665	0.123	0.898	0.069	1.246	0.002	1.027	0.025	0.856	0.057	0.858	0.057	1.028	0.024
	R&D development performance	0.393	0.066	0.258	0.304	0.278	0.324	0.393	0.066	0.343	0.179	0.320	0.236	0.313	0.247	0.336	0.188
Step 4	(Constant)	–	–	–	–	–	–		0.151		0.617		0.959		0.802		0.614
	Group size (Binned)	–	–	–	–	–	–	0.558	0.002	0.445	0.181	0.890	0.096	1.286	0.021	0.465	0.159
	Age	–	–	–	–	–	–	-0.087	0.577	-0.107	0.761	-0.020	0.952	-0.172	0.563	-0.135	0.696
	Career tenure	–	–	–	–	–	–	-0.099	0.681	0.431	0.436	-0.147	0.776	-0.388	0.423	0.393	0.472
	Tenure	–	–	–	–	–	–	-0.466	0.001	-0.397	0.130	-0.340	0.178	-0.287	0.204	-0.397	0.124
	Gender	–	–	–	–	–	–	0.368	0.064	-0.199	0.635	0.593	0.305	1.065	0.079	-0.140	0.740
	Nationality	–	–	–	–	–	–	0.331	0.082	-0.240	0.558	0.668	0.288	1.194	0.072	-0.181	0.659
	Education level	–	–	–	–	–	–	0.235	0.333	0.669	0.231	-0.193	0.750	-0.639	0.293	0.613	0.270
	Education discipline	–	–	–	–	–	–	-0.425	0.020	-0.657	0.093	-0.296	0.378	-0.151	0.620	-0.633	0.101
	Functionality	–	–	–	–	–	–	0.902	0.000	0.794	0.088	0.401	0.375	0.285	0.479	0.794	0.083
	Faultline AWS	–	–	–	–	–	–	-1.057	0.000	-0.381	0.384	-1.414	0.098	-2.152	0.020	-0.469	0.298
	Innovation culture	–	–	–	–	–	–	-0.043	0.781	0.190	0.593	-0.454	0.364	-0.847	0.102	0.145	0.685
	Techn innovation mngt	–	–	–	–	–	–	0.249	0.340	0.633	0.289	-0.365	0.616	-0.967	0.201	0.559	0.350
	R&D development performance	–	–	–	–	–	–	-0.093	0.507	0.150	0.637	-0.333	0.418	-0.656	0.123	0.107	0.738
	Innovation profitability	–	–	–	–	–	–	1.138	0.000	0.450	0.344	1.486	0.066	2.141	0.014	0.524	0.279
		adj. R2	**Sig.**	**adj. R2**	**Sig.**	**adj. R2**	**Sig.**	**adj. R2**	**Sig.**	**adj. R2**	**Sig.**	**adj. R2**	**Sig.**	**adj. R2**	**Sig.**	**adj. R2**	**Sig.**
	Step 1	-0.190	0.827	0.103	0.291	-0.186	0.821	-0.190	0.222	-0.134	0.258	-0.147	0.250	-0.147	0.756	-0.134	0.734
	Step 2	-0.195	0.350	0.072	0.525	-0.249	0.709	-0.195	0.043	-0.200	0.003	-0.217	0.001	-0.214	0.805	-0.194	0.701
	Step 3	0.401	0.007	0.097	0.367	-0.138	0.255	0.401	0.436	0.090	0.283	-0.036	0.231	-0.038	0.179	0.094	0.090
	Step 4							0.823	0.218	0.087	0.034	0.162	0.131	0.335	0.014	0.113	0.279

Source: Author

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