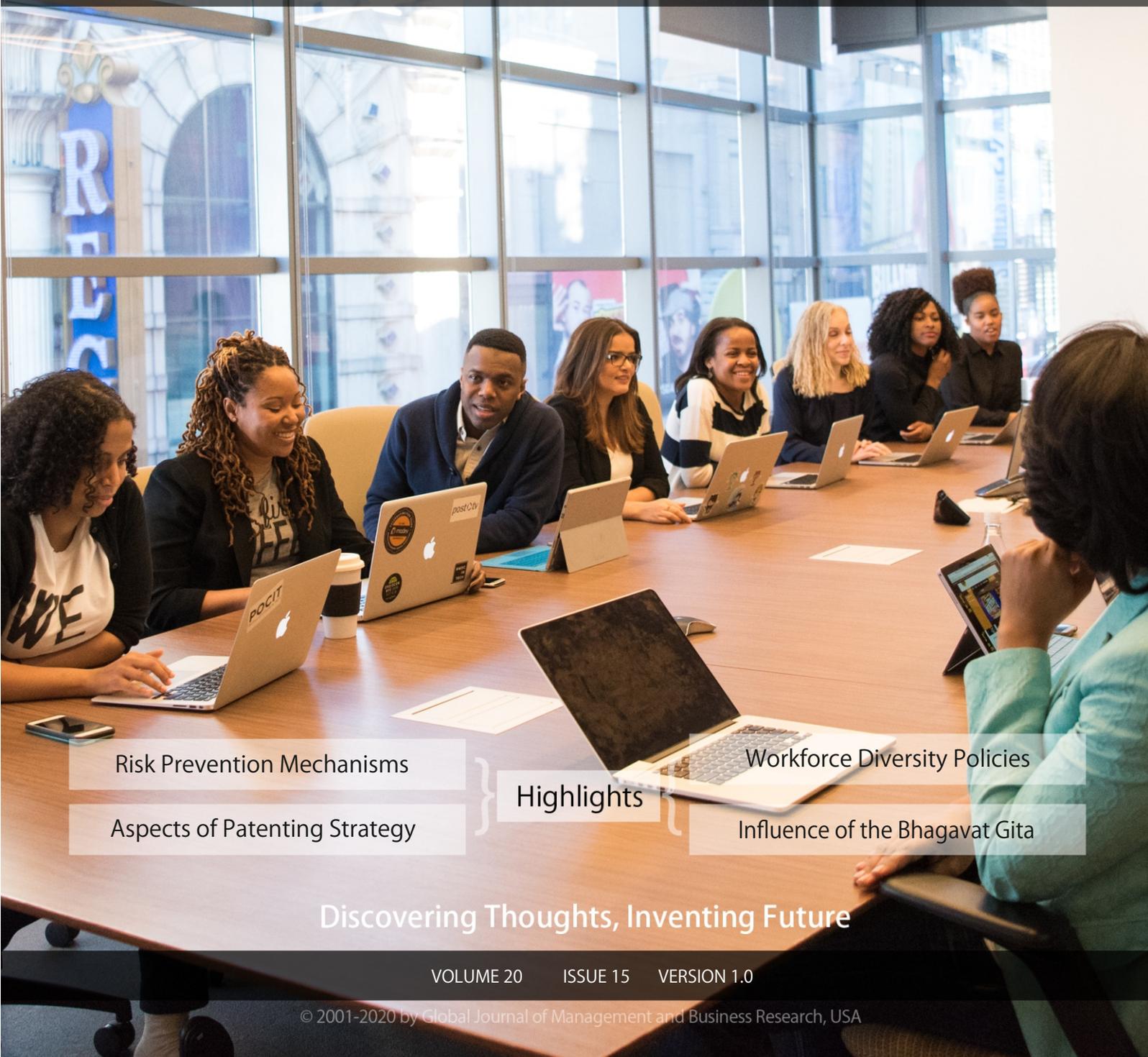


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## Administration and Management



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Discovering Thoughts, Inventing Future

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ADMINISTRATION AND MANAGEMENT

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## Benefits of Persistence in Aspects of Patenting Strategy

By Kathryn Rudie Harrigan & Yunzhe Fang

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**Abstract-** Although some firms followed persistent patterns of patenting activity over time, results from the technology-intensive electronics industry indicated that patenting may have only a fungible competitive effect, i.e., frequent patenting has become an activity that raises the ticket of admission to compete therein without necessarily improving firms' relative financial returns. Results also suggested that persistence in filing many patents was helpful to improving performance within electronics, as was having radical patent antecedents. Having above-average numbers of uncited patents was associated with an external indicator of firms' efforts to amass patent thickets and associated with increasing firm profitability. Resource recommendations from results are mixed since patenting persistence has an effect on performance, but some types of patenting activity appear to have diminishing returns.

**Keywords:** *persistence, patenting strategy, patent thickets, firms' performance, radical inventions, frequency of patenting, number of patents.*

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# Benefits of Persistence in Aspects of Patenting Strategy

Kathryn Rudie Harrigan <sup>α</sup> & Yunzhe Fang <sup>σ</sup>

**Abstract-** Although some firms followed persistent patterns of patenting activity over time, results from the technology-intensive electronics industry indicated that patenting may have only a *fungible* competitive effect, *i.e.*, *frequent* patenting has become an activity that raises the ticket of admission to compete therein without necessarily improving firms' relative financial returns. Results also suggested that persistence in filing *many* patents was helpful to improving performance within electronics, as was having *radical patent antecedents*. Having above-average numbers of uncited patents was associated with an external indicator of firms' efforts to amass patent *thickets* and associated with increasing firm profitability. Resource recommendations from results are mixed since patenting persistence has an effect on performance, but some types of patenting activity appear to have diminishing returns. Future evaluation of the benefits of patenting activity should consider which additional persistence effects might have the strongest effects upon technology strategy, as all firms within an industry do not benefit equally from patenting efforts and some industries are less hospitable to long-lived strategic trajectories than are others.

**Keywords:** *persistence, patenting strategy, patent thickets, firms' performance, radical inventions, frequency of patenting, number of patents.*

## I. INTRODUCTION

Technology strategy determines how firms renew themselves vis-à-vis scientific knowledge that may be used to create new, commercializable products and processes. Patenting activity is one manifestation of a firm's technology strategy that may not always be cost-justified. Our objective herein is to isolate the effects of the *persistence* aspect of patenting upon firms' performance in order to gauge its efficacy. In other words, we ask which aspects of firms' year after year patenting activities contribute most significantly to their respective financial performance and how does persistence in performing those activities amplify performance effects?

Although patents are considered to be valuable resources to possess, it may be that patenting is not directly influential upon firm performance. From an accounting perspective, patenting is an expenditure that is deducted when calculating profits. It harms profitability when patent applications are filed. Patenting

has become so commonplace within some technology-intensive industries that it is almost like a "ticket of admission" for competing therein. In such settings, the financial benefit of patenting activity may be less than straightforward and links to achieving superior financial performance may be *indirect* if patenting must be undertaken merely to keep pace with industry evolution.

Is persistence in patenting inventions important in such competitive settings? Is it plausible that—within high-tech industries where firms must compete on research productivity—annually-produced patents have become a necessary, but somewhat fungible, competitive activity that has a less-than-expected impact upon performance? To test this conclusion, it would be useful to compare the varying effects of firms' patenting activities in order to know which activities seem to be most impactful, albeit incremental, in their financial effects.

To isolate the consequences of patenting activity, we suggest a novel approach to estimating how competitive advantage may be manifested in firms' patenting activity. Briefly, we argue that, within some industries, the key to successful patenting performance may be *persistence* in performing such research activities year after year. Unlike a one-time event that may be attributed to luck (*e.g.*, inventing and patenting a one-off, ground-breaking discovery that sometimes has no follow-up), the cumulative positive financial effects of persistence may be observed over time. Persistence in performing programmatic annual research may be rewarded more than where patenting activity has been intermittent in nature. Therefore, when decomposing the longitudinal patterns of firms' patenting activity within the electronics industry, we asked whether patterns that indicated patenting had persisted over time had a positive financial effect on performance and whether this finding would be a simple case of success breeds success (or might there be other forces in play vis-à-vis success in patenting activity)?

## II. PERSISTENCE IN PATENTING ACTIVITY

It is consistent with the resource-based view of strategy that firms should develop patents to have resources that may provide relative competitive advantage (Peteraf, 1993; Wernerfelt, 1984). Under this viewpoint, firms would also develop internal processes to enhance organizational capabilities (such as creating

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patentable inventions) that may be used to renew firms' relative competitive advantage over time (Teece, Pisano, and Shuen, 1997).

Patents are competitive resources—capitalized as intangible assets on firms' balance sheets—representing novel and useful inventions. It has been assumed that having patents positively affects firms' financial performance when the inventions underlying patents are commercialized within firms' products (or are used to generate royalties). Under the greater umbrella of technology strategy, firms that choose to protect their inventions from imitation legally, albeit temporarily, through patenting may recover only a portion of their outlays directly—as some filed patents may be redundant (thickets)—and the rest of their expenditures may be recouped indirectly as protection against imitation by outsiders. Do firms need to persist in their patenting activity in order to realize the greatest advantage from filing patents?

Persistence is a strategic factor that can recognize the heterogeneity of firms' patenting activities and distinguish those groups of firms that engage in above-average types of patenting activities over time. Persistence patterns in patenting are important because of the time required for commercialized inventions to impact firms' profitability and become valuable balance sheet assets. Persistence assumes continuity of activity and the importance of persistence in explaining sustained financial performance has been much debated (McGahan and Porter, 1999; 2005; Ruefli and Wiggins, 2003; 2005).

Two effects are operative due to persistence—differentiation and infrastructural effects—since patenting activities offer beneficial external (market-oriented) and internal (organizational learning) advantages. If patents provide non-fungible competitive advantages, successful patents that are commercialized should have *differentiation* effects on firms' performance that positively reflect their relative competitive advantage as well as *infrastructural* effects that positively affect firms' organizational capabilities. Briefly, the rewards of differentiation may be reflected in a period of temporary relative profitability—reflecting the novelty contributed by using firms' inventions. Such differentiation may reflect a firm's greater willingness to explore exotic combinations of scientific knowledge that are reflected in their patents' content or it may simply reflect the novelty benefits of reaching customers first. The performance measure that reflects differentiation effects herein is returns on sales (firm's profit margin percentages).

*Infrastructural* effects arise from firms' accumulated experience in performing regular patenting activities. They are expected to create longer-duration organizational learning benefits. Such infrastructural effects may subsequently improve a firm's relative success in doing in-house R&D, thereby creating an

experience-curve synergy that can become an organizational resource. That benefit, in turn, conveys relative competitive advantage that will be reflected favorably in firms' returns on assets, albeit as patents that are intangible assets which cannot be marked to market over time.

Technology strategies are varied. Some firms may patent a lot (and often) to cover many bases vis-à-vis research output goals. Others may build patent thickets around their most-critical inventions to deter imitation by close competitors. Risk takers may even undertake relatively radical technological syntheses in the hopes that these search activities may be rewarded (Harrigan, Di Guardo, Marku, *et al*, 2016).

Taken together, the differentiation and infrastructural effects from patenting may explain variations in firms' relative financial performance. But, to date, no study has decomposed the relative impact of diverse types of patenting activities upon firms' performance in order to test such linkages. The benefits of persistent patenting activities are expected to impact firms' returns on sales first (if their inventions can indeed *differentiate* the products or services being provided). Returns on assets will subsequently be affected as patent stocks generate continuing returns via commercialization or royalties. The cumulative *infrastructural* effect that creates an organizational-learning asset assumes that firms will fund R&D at a similar rate year over year. A contrary finding, *e.g.*, that persistence in patenting activities is not helpful to financial performance, would have substantial resource allocation implications for technology strategy, such as taking licenses from outside inventors instead of funding in-house research efforts heavily over time.

#### a) *Differentiation Effects*

Differentiation effects from patenting affect a firm's reputation as a technology leader. As such, persistence effects may be biased to favor larger firms that can sustain ongoing research and development efforts over time. Larger firms can cross-subsidize the unprofitable pursuit of dead-end technological leads, and convert patented inventions into funding engines for subsequent rounds of scientific inquiry that will occur over time (Madsen and Leiblein, 2015; McGahan and Porter, 1997).

As assets, the benefits of patenting are manifested in firms' intellectual capital. Patents convey the exclusionary rights to commercialize discoveries that may be considered to be a reward for investing in past research activities. Pecuniary benefits may also be enjoyed by collecting royalty income from users who license their inventions (which makes patents valuable as assets to monetize, even if the smaller firms owning them cannot afford to commercialize their inventions internally).

Since persistence effects carry reputational advantages for those firms that may be identified as technological leaders (Roberts and Dowling, 2002), firms that show evidence of salient above-average patenting activity over time are typically those that can command pricing premiums while their inventions are novel (Roberts, 1999). With time, such reputational effects may even create competitive advantage that translates into the ability to command premium prices by virtue of being perceived to be technological leaders (Ghemawat, 1986; Porter, 1980). However, competitors that commercialize me-too patents to imitate others inventions may erode the relative power of first-mover differentiation effects faster than does the next wave of technological innovation that would otherwise make firms' inventions obsolete, so novel patent content is particularly salient to the ability to sustain high margins.

*Hypothesis 1: Persistently higher-than-average patenting activity will create differentiation effects that positively affect firms' returns on sales over time.*

#### b) Infrastructural Effects

Firms' accumulated experience from persistence in performing regular patenting activities every year may create an *infrastructural* effect that will be reflected in positive returns on firms' assets. Infrastructural effects can be fragile because losing key researchers who change employers [*mobility losses*] may mitigate an organization's strength (Ganco, Ziedonis, and Agarwal, 2015). Sometimes mobility losses can be countered via external stimuli, e.g., insights gained by provocative exposure to external stimuli, such as integrating acquisitions successfully with ongoing operations (Ahuja and Katila, 2001; Kim and Steensma, 2017; Puranam and Srikanth, 2007; Sears and Hoetker, 2014), successful collaborations with academic researchers (Kaiser, Kongsted, Laursen, et al., 2018) or working with stimulating third-party partners (Sampson, 2005; Stuart, 2000)—as each of these catalysts could enhance organizational learning and improve patenting activity's impact upon firms' returns on assets. In addition to the organizational learning that likely occurs in-house among a firm's scientists and engineers when pursuing patenting activities, learning may be helped by continual access to outside knowledge that can be assimilated successfully to create organizational assets.

*Hypothesis 2: Persistently higher-than-average patenting activity will create infrastructural effects that positively affect firms' returns on assets over time.*

#### c) Characterizing Patenting Activity

Patenting is not a costless activity since research efforts may be funded for years without realizing tangible benefits to offset its costs (Arora, Belenzon, and Pataconi, 2018). Moreover, it can be difficult to detect the direct effects of each patent upon

firms' financial performance— especially where firms exhibit discontinuous patenting patterns over the years (e.g., where there may be wide swings in their annual counts of awarded patents or other fluctuations within annual patterns of patenting efforts). For these reasons, analysis of patenting activity is typically focused upon consideration of aggregated annual patterns which we propose to study longitudinally.

#### d) Patenting magnitude and thickets

Choosing which indicators of patenting activity to analyze is difficult. There have been no formal tests to date of whether annually filing large *numbers of patents* helps firms with financial performance. The performance linkage is a conundrum. Patents receiving many forward citations from subsequent users ("blockbusters") are typically considered to be most impactful (Brinn, Fleming, and Hannaka, et al., 2003), but originating firms do not benefit financially when outsiders build upon their reported inventions unless originators collect licensing fees. It may be a fortunate public policy outcome when highly-cited patents are built upon by subsequent users, but forward citations do not necessarily improve originating firms' financial performance (Harrigan and Fang, 2019).

When patent applications are granted, originators receive a temporary monopoly on exploiting their unique intellectual property. When patent applications are filed, they are in the public domain and technical details revealed therein may attract imitation attempts by potential competitors. Since information must be disclosed when a patent is granted, would-be competitors sometimes try to replicate the efficacy of the newly-patented invention by changing some aspect of its formulation in their application. To prevent competitors from easily patenting variations of the originator's invention, originating firms could create a protective fence or thicket by patenting a cluster of related inventions containing such variations (and refuse to license any of these variations to would-be competitors) in order to slow down the success of competitive imitation since outsiders would then face a dense web of overlapping intellectual property rights that prevented easy commercialization of rival products (Shapiro, 2001).

"Patent fences" have been used by some firms to extend the duration of competitive advantage that patents conferred (Sternitzke, 2013). Within emerging industries, innovator firms have sometimes filed many patents early on to create protective thickets as technology evolved, and then sorted out subsequent claims via cross-licensing arrangements later as industry structures became better established (Sanderson and Simons, 2014).

To thwart easy imitation, inventing firms that possess adequate wherewithal to patent layers of interrelated inventions around their core invention

smaytry to protect their inventions against easy copying by closing off predictable ways of inventing around their patents. In doing so, many of the protective patents that they file will be redundant. Indeed, Clarivate Analytics (owner of the Derwent Innovation database) typically shows gestalts of patents pertaining to a central invention as part of its business-user offerings and most of the patents within such invention families are uncited since they reflect parallel routes that are also protected against unauthorized use.

Must patents be cited in order to be valuable? Although the fees required to file patents may have deterred the filing of some types of low-quality patents (de Rassenfosse and Jaffe, 2018), one could argue that filing many patent applications annually may be defensive patenting—an activity that is sometimes associated with creating patent thickets where their intent may be to forestall imitation (Hegde, Mowery, and Graham, 2009; Noel and Schankerman, 2013).

To approximate the effects of creating potential patent thickets, we examined the proportion of firms' annually-filed patents that were *not* cited by subsequent users (assuming that the most-efficacious patents that were protected inside the thicket of parallel patents would be the ones that would eventually be built upon by subsequent users and cited by patent examiners).

Our use of redundant patenting is controversial because it assumes that patents that are not subsequently cited can nevertheless contribute positively to a potential thicket strategy. It may be that low-quality firms are producing valueless inventions instead. A low-quality firm may be filing valueless patent applications year after year which could bias downward estimates of the effects of patent thickets upon financial performance.

Furthermore, it is not clear that uncited patents which create thickets will improve firms' financial performance. Defensive patent thickets have decreased the market value of some firms (Entezarkheir, 2017) and created negative, irrecoverable costs for others because many of the parallel patents within such thickets are redundant. Gambardella, Harhoff and Verspagen (2017) concluded that the frequent replenishing of firms' portfolios by filing multiple, related patents created value—even though the related patents within the thicket were less likely to be individually-cited by subsequent inventors due to their redundancy. Torrisi, Gambardella, Giuri, *et al.* (2016) found that a substantial share of firms' patents were, in fact, not used internally and did not generate royalties. These unused patents were used for blocking, preventing imitation, or defensive purposes, among others. Their findings suggested that having uncited patents created value for firms—most likely by forming protective thickets. Therefore we expected that above-average annual numbers of uncited patents could serve as patent thickets that enhanced

*differentiation* effects by prolonging the relative duration of unchallenged competition. The longer that their inventions were not copied, the more valuable they would be as assets for the originating firm so long as they protected its core inventions from imitation.

*Hypothesis 3: Persistently patenting large numbers of redundant patents, e.g., patent thickets, will impede competitive imitation and positively affect firms' returns on sales and returns on assets over time.*

#### e) *Patenting frequency and novelty of patent antecedents*

It is not yet clear that patenting frequently has improved firms' financial performance and there have been no formal tests, to date, of whether firms that patented annually performed better than firms that patented intermittently. High patterns of annual patenting are expected to be associated with firms that funded larger R&D efforts, since the fees for filing patents are high. Firms having larger research efforts would better be able to afford to make regular patent filings, and persistence in patenting would enhance firms' organizational *infrastructure* effects via learning advantages. Presumably annual patenting would be done to amass a portfolio of patents pre-emptively or defensively to protect firms' inventions from imitation and forestall hold-up from third-parties. *Patenting frequency* was examined independently from consideration of patent content herein to address this aspect of patenting activity.

It is also not clear whether developing relatively more-radical inventions improved firms' performance. Kaplan and Vekili (2015) concluded that broader combinations of knowledge created greater economic value, but they found that patentable inventions were more likely to originate from local search. Creating inventions that utilized relatively radical antecedents typically required relatively more money and time to develop since they involve search afar, so developing such patentable inventions could depress firms' financial returns until they have been successfully monetized. In their study of backward citation content, Harrigan and Di Guardo (2017) found that relatively-radical inventions provided only temporary financial benefits to the firms that patented them. A regular diet of additional radical inventions was needed in order to maintain customers' willingness to pay higher prices. Their conclusion was consistent with Roberts (1999) who found that those firms which repeatedly commercialized breakthrough innovations enjoyed sustained profitability.

Differentiation effects are presumably enhanced by novelty, which is often identified by examining the antecedents cited within focal patent applications (Dahlin and Behrens, 2005; Schoenmakers and Duyster, 2010). Novel patent content could arise from exposure

to exotic knowledge origins or from how such knowledge was subsequently synthesized into new devices (Verhoeven, Bakker, and Veugelers, 2016). Patent novelty has sometimes been operationalized using antecedent scores, such as the originality index of Hall, Jaffe, and Trajtenberg (2001)—which is a Herfindahl-type of diversion index—or by using Harrigan, Di Guardo, Marku, *et al.*'s (2016) *V-score* distance measure—which is a centrality comparison between the focal patent's technology streams and those of backward-cited patents that it may have built upon. Both approaches to estimating relative patent novelty analyze information about patent antecedents as were indicated by backward citations that were contained in patent examiner reports.

*Hypothesis 4: Persistently patenting inventions whose antecedents reflect significant deviation from firms' local-search technological streams, will increase the perceived differentiation of their products and positively affect firms' returns on sales and returns on assets over time.*

### III. RESEARCH METHODOLOGY

To distinguish whether persistence in patenting activity affected firms' financial performance, longitudinal variables were constructed to test whether those firms that persisted in (a) patenting frequently, (b) in large numbers, (c) using patent thickets often, or (d)

routinely commercializing relatively radical inventions, had different financial performance from the others within their industry cohort. Persistence variables were created by comparing the values of firms' annual patenting activity variables against those of their industry's annual averages for each of the variables under consideration. Except for patenting frequency (which was a binary variable indicating activity for each year), firms were classified as being above or below their industry average for each type of activity examined over the years under study. In this case, two decades of patenting activity patterns were used to create persistence variables.

Table 1 summarizes base-case variable construction. Binary persistence variables identified "above-average" patenting activity in firms that (a) patented more frequently over time (compared with others within their industry), (b) produced above-average numbers of patents in most of the years examined, (c) repeatedly cross-subsidized potential patent thickets over time (as indicated by above-average numbers of non-cited and presumably valueless patents), and/ or (d) commercialized above-average radical inventions year after year (relative to the antecedent indices of industry competitors). Control variables included annual values for firms' sales growth, leverage, and the logarithm of their annual total assets or revenues, respectively.

Table 1

Variable Name	Construction
Patenting Frequency	Yearly indicator of whether focal firm filed patents (or not)
Persistence of Frequency	1, if focal firm filed patents in 50% or more of years when patents were filed by industry competitors, else 0
Number of Patents	Yearly count of number of patent applications filed
Persistence of Magnitude	1, if focal firm filed more annual patent applications than industry average for years under study, else 0
Patent Thickets	Count of firm's patents filed in year <sub>t</sub> that had received no forward citations
Persistence of Thickets	1, if focal firm had an above-average number of patents with no forward citations in year <sub>t</sub> , else 0
Radical Patent Content	Firm's annual mean backward <i>V-score</i> , a distance measure to indicate relative antecedent originality, for portfolio of patents filed in year <sub>t</sub> , (See Harrigan, <i>et al.</i> , 2016)
Persistence of Radical Content	1, if focal firm's annual mean backward <i>V-score</i> for that year's patent portfolio was above comparable industry average backward <i>V-score</i> , else 0

Models of patenting activity tested specifications containing base-case terms, persistence terms (typically representing the *above-average* group of firms for each type of variable), and interaction terms (*i.e.*, persistence variables times base-case variables). Where variable coefficients were significant, the interaction terms affected the slope of the base-case variable's coefficient while the persistence terms affected the value of the intercept coefficient.

a) *Industry Samples*

In order to understand how firms differed in their patenting success factors, we tested data from a longitudinal sample of 321 electronics firms that comprised an unbalanced industry panel over a span of twenty years. Patent count, code, and citation data was taken from U.S. patent examiners' reports using the *Derwent* classification scheme available through *Web of Science* (Clarivate Analytics, 2019). Financial data was taken from *BvD Osiris* (Bureau van Dijk Electronic Publishing, 2016), a database containing financial information about globally listed public companies. Only U.S. patents were used to characterize patenting activity.

Firms' patenting activity from 1992 through 2012 was used to create the independent variables,

including the aforementioned persistence classifications and the interaction terms; financial results for the dependent variables were tested through 2014 in order to incorporate a two-year lag between the relationship between independent patenting activity variables and dependent financial performance variables. The two-year lag was chosen to conserve on degrees of freedom in order to capture the time that would transpire between filing patent applications to protect firms' inventions, commercializing them, and realizing their potential effects upon firms' financial performance. Results may be different if a longer lag time were assumed.

Firms included in the electronics industry panel made electronic components, electronic-storage devices, communications equipment, and/ or computing equipment. They provided related software for their electronics products.

Table 2 presents descriptive statistics for the samples. Because there was substantial heterogeneity in the numbers of patents variable, the outliers were winsorized at 0.5% and also at 1.0%. Relationships were unchanged when observations with outliers were trimmed in this fashion. The sample tested herein had the traits shown in Table 2.

Table 2: Descriptive Statistics for Electronics Sample

Variable Name	Observations	Mean	Standard Deviation	Minimum	Maximum
Return on Assets	4,760	-0.456	21.844	-99.620	86.830
Return on Sales	4,735	7.211	20.881	-98.180	100.000
Frequency of Patenting	5,124	0.460	0.500	0.000	1.000
Number of Patents	5,124	40.499	179.673	0.000	3221.000
Patent Thicket	5,124	0.107	0.309	0.000	1.000
Radical Patent Content	5,124	22.438	26.778	0.000	374.003
Sales Growth	4,848	0.551	5.415	-1.000	190.792
Leverage	4,984	0.703	15.959	0.000	1111.825
LogAssets	4,954	5.188	1.685	-88.690	15.630
LogSales	5,030	5.115	0.921	0.602	7.687

b) *Model Specification*

Panel data models with random effects and cross-terms were used to illustrate the effects of the patenting activity measures on firms' return on assets and return on sales, respectively. Random effects assisted in controlling unobserved heterogeneity—factors such as firms' internal and external environment

factors that changed over time and could be explained by the independent variables. Moreover, random effects assumed that firms' engagement in patenting activities could change from year to year. For tests of patenting frequency with results shown in Table 3, the return on assets model was specified as

$$ROA_{it} = \beta_1 \text{Frequency of Patenting}_{it-2} + \beta_2 \text{Above-Average Patenting Frequency}_{it-2} + \beta_3 \text{Cross Term for Frequency of Patenting}_{it-2} + \beta_4 \text{SalesGrowth}_t + \beta_5 \text{Leverage} + \beta_6 \text{LogSales}_{it} + (\alpha + u_i) + \epsilon_{it}$$

$$u_i \sim N(u, \sigma_u^2), \text{ where}$$

$$\text{Cross Term for Frequency of Patenting}_{it} = \text{Frequency of Patenting}_{it} \times \text{Above-Average Patenting Frequency}_{it}$$

The constant term of the model consisted of two parts. Because we used a random effects model, there are  $K$  (the number of companies) regressors, including a constant. The first part  $\alpha$  is the weighted average of all of the regressors' constants, and the second part  $u_i$  is the heterogeneity of the  $i^{\text{th}}$  company which is a random variable. These two terms together reflected that each firm had a different individual-specific "constant" with random effect over time. In turn, the

$$ROA_{it} = \beta_1 \text{Frequency of Patenting}_{it-2} + \beta_4 \text{SalesGrowth}_t + \beta_5 \text{Leverage} + B_6 \text{LogSales}_{it} + (\alpha + u_i) + \varepsilon_{it}$$

When persistence and interaction terms were added to the base-case model, the persistence variable for firms that were categorized as having above-average *Frequency of Patenting*<sub>it-2</sub> was set to "1." Thus inclusion of the binary persistence variable modified the model as

$$ROA_{it} = \beta_2 \text{Above-Average Patenting Frequency}_{it-2} + (\beta_1 + \beta_3) \text{Frequency of Patenting}_{it-2} + \beta_4 \text{SalesGrowth}_t + \beta_5 \text{Leverage} + B_6 \text{LogSales}_{it} + (\alpha + u_i) + \varepsilon_{it}$$

For the return on sales models, the specifications and controls were the same—except that *Log Assets*<sub>it</sub> was used as the variable controlling for size instead of *Log Sales*<sub>it</sub> in order to avoid an identity. The same model structures were specified for frequency of patenting, the number of patents filed each year, the presence of potential patent thickets, and backward *V-scores* (indicating the breadth of a patent's antecedents that were novel to the focal patent's grant). Results are reported in Tables 3 through 6. When interpreting results in Table 3, for example, firms with below-average *Frequency of Patenting*<sub>it-2</sub> values represent the base case and their respective value for the persistence variable would be set to 0. Interaction terms in Models 2 and 4 in Table 3 would have an indirect effect on the base-case coefficient slope while the persistence variable would affect their intercept terms.

#### IV. RESULTS

##### a) *Frequency of Patenting*

In Table 3, which tested how the activity of filing patents every year under study (or not) affected financial performance for electronics firms, the coefficients of the base case term, *Frequency*<sub>t-2</sub>, were negative and significant in all four models tested. Frequent patenting appears to decrease relative profitability. The persistence term, representing those firms that patented in an *above-average* number of years from 1992 through 2012, was positive and significant only for Model 4 which tested the return on sales hypothesis. Frequent patenting brought novel products and processes to customers more frequently—which may have created a halo effect of relative differentiation for those firms engaging frequently in this activity. Results for Model 4 in Table 3 raised the intercept value for the above-average group of electronics firms, but results did not

intercept term shown in the results tables was the weighted average of all of the companies' intercepts (weighted by the number of observations). Base-case coefficients are interpreted as pertaining to the below-average group of competitors (as defined in building the persistence variables). When the persistence term, *Above-Average Patenting Frequency*<sub>it-2</sub> = 0 (i.e., when considering only the below-average group), the model became:

follows. When *Above-Average Patenting Frequency*<sub>it-2</sub> = 1, i.e., when considering only the impact of that group of firms which patented for an above-average number of the years during a time span, i.e., for 50 percent, or more of the years in a tested span, the model became:

reverse the sign of the base-case slope for frequency of patenting since the coefficient of Model 4's interaction term was negative and not significant. Table 3 results may also hint that technological life-cycles were becoming relatively shorter for electronics firms than was the case for other industries (so patenting was becoming marginally less profitable), or results may suggest that annual patent filing does not positively improve the value of firms' infrastructural assets (which may be the case if no firms enjoyed relative competitive advantage over time in electronics).

Results in Table 3 suggest that frequent filing of patents undermined firms' relative profitability and these findings alone do not support the Hypotheses 2 suggestion that frequent patenting improves returns on assets since neither the persistence nor interaction term in Model 2 was significant. Nor do they suggest strong support for the differentiation argument of Hypothesis 1.

Table 3: Effect of Patenting Frequency on Financial Performance in Electronics, 1992-2014

	Return on Assets		Return on Sales	
	1	2	3	4
Intercept	-33.04	-33.08	3.494	1.138
	(5.525)	(5.479)	(1.943)	(2.120)
	***	***	*	NS
Frequency <sub>t-2</sub>	-3.255	-3.732	-2.181	-1.927
	(0.739)	(1.025)	(0.790)	(0.961)
	***	***	***	**
Above-average frequency <sub>t-2</sub>	--	0.520	--	5.564
		(1.912)		(2.184)
		NS		**
Interaction Term <sub>t-2</sub>	--	0.834	--	-1.217
		(1.601)		(1.655)
		NS		NS
Sales Growth	-0.0143	-0.0153	-0.0667	-0.0663
	(0.0778)	(0.0779)	(0.0809)	(0.0807)
	NS	NS	NS	NS
Leverage	-19.18	-19.15	-8.329	-8.331
	(2.738)	(2.735)	(2.443)	(2.437)
	***	***	***	***
LogSales <sub>t</sub>	7.743	7.683	--	--
	(1.020)	(1.056)		
	***	***		
LogAssets <sub>t</sub>	--	--	1.220	1.200
			(0.235)	(0.222)
			***	***
Corrected R <sup>2</sup>	0.1437	0.1431	0.0469	0.0551
Wald chi <sup>2</sup> -Statistic	109.94	123.78	44.76	55.00
Prob> chi <sup>2</sup>	0	0	0	0
Number of observations	4,358	4,358	4,281	4,281
Number of companies	321	321	310	310
*** = < 0.001 ** = 0.01 * = 0.05 † = 0.10				
All regressions use robust standard error. The number in parentheses is the z-statistic value.				

Table 4: Effect of Patent Thickets on Financial Performance in Electronics, 1992-2014

	Return on Assets		Return on Sales	
	1	2	3	4
Intercept	-36.74	-36.34	2.209	1.346
	(5.670)	(5.670)	(1.845)	(1.804)
	***	***	NS	NS
Thickets of patents <sub>t-2</sub>	-6.192	-5.593	-1.248	-1.565
	(1.187)	(1.145)	(0.919)	(1.021)
	***	***	NS	NS
Above-average thicket <sub>t-2</sub>	--	10.15	--	15.46
		(2.576)		(2.316)
		***		***
Interaction Term <sub>t-2</sub>	--	-4.139	--	-0.871
		(3.155)		(2.342)
		NS		NS
Sales Growth	-0.0138	-0.0165	-0.0652	-0.0663
	(0.0740)	(0.0738)	(0.0791)	(0.0788)
	NS	NS	NS	NS
Leverage	-19.070	-19.060	-8.266	-8.255
	(2.781)	(2.779)	(2.388)	(2.389)
	***	***	***	***
LogSales <sub>t</sub>	8.176	7.995	--	--
	(1.036)	(1.044)		
	***	***		
LogAssets <sub>t</sub>	--	--	1.233	1.215
			(0.238)	(0.224)
			***	***
Corrected R <sup>2</sup>	0.1354	0.1404	0.0467	0.0756
Wald chi <sup>2</sup> -Statistic	106.95	132.99	42.46	101.48
Probability > chi <sup>2</sup>	0	0	0	0
Number of observations	4,358	4,358	4,281	4,281
Number of companies	321	321	310	310
*** = < 0.001 ** = 0.01 * = 0.05 † = 0.10				
All regressions use robust standard error. The number in parentheses is z-statistic value				

## b) Patent Thickets

Table 4 tests specifications suggesting that patent thickets were potentially formed by patenting frequently and in great quantities. The patent thicket variable is annual number of uncited patents, and it is negative since it represents a potentially-unrecovered

cost. The base-case term was significant only for the returns on assets specifications (testing the infrastructural effects of patenting). The persistence terms, *Above-Average Patent Thickets*<sub>t-2</sub>, were positive and significant in Models 2 and 4, increasing the intercept terms of firms in the above-average group by

over ten percentage points, but results did not reverse the signs of the base-case slopes for patent thickets since the coefficients of interaction terms in Models 2 and 4 were negative and not significant.

Results in Table 4 suggest that having large numbers of uncited patents did not improve the value creating potential of intangible patent assets that were carried on firms' balance sheets. Results showing high persistence terms alone do not support the Hypotheses 3 suggestion that creating potential patent thickets will protect firms' inventions from potential competitive imitation. Results in Models 2 and 4 do not support the infrastructural nor differentiation arguments.

electronics firms. In addition to tests specifying the base-case variable (*i.e.*, annual number of patents filed) with the corresponding persistence and interaction terms, there are models that test specifications combining the effects of filing many patent applications with persistence terms for the assumed formation of patent thickets. The six models tested in Table 5 are "reversed term"—which means that variables representing *Below-Average Magnitude<sub>t-2</sub>* and *Below-Average Patent Thickets<sub>t-2</sub>* were specified as persistence terms in order to avoid collinearity problems that were present within unevenly-sized persistence groupings when testing those respective patterns.

c) *Number of Patents Filed Annually*

Table 5 tests how the effects of filing many patents every year affected financial performance for

Table 5: Effect of Patenting Magnitude and Thickets on Financial Performance in Electronics, 1992-2014

	Return on Assets			Return on Sales		
	1	2	3	4	5	6
Intercept	-34.060 (5.627) ***	-28.760 (6.663) ***	-30.030 (6.627) ***	2.272 (1.818) NS	16.020 (2.445) ***	16.520 (2.644) ***
Number of patents <sub>t-2</sub>	-0.0066 (0.00275) **	-0.00636 (0.00243) ***	-0.00542 (0.00213) **	-0.00325 (0.00110) ***	-0.00356 (0.000931) ***	-0.00364 (0.000911) ***
Below-average magnitude <sub>t-2</sub>	--	-5.797 (1.971) ***	--	--	-14.54 (1.918) ***	--
Below-average thicket <sub>t-2</sub>	--	--	-5.051 (2.162) **	--	--	-14.91 (2.251) ***
Interaction Term <sub>t-2</sub>	--	-0.0856 (0.0185) ***	-0.0551 (0.0131) ***	--	-0.0586 (0.0206) ***	-0.0198 (0.0156) NS
Sales Growth	-0.0112 (0.0755) NS	-0.0131 (0.0755) NS	-0.0111 (0.0755) NS	-0.0642 (0.0791) NS	-0.0659 (0.0799) NS	-0.0649 (0.0794) NS
Leverage	-19.12 (2.776) ***	-19.24 (2.770) ***	-19.49 (2.803) ***	-8.304 (2.400) ***	-8.387 (2.421) ***	-8.401 (2.429) ***
LogSales <sub>t</sub>	7.589 (1.020) ***	7.734 (1.063) ***	7.867 (1.053) ***	--	--	--
LogAssets <sub>t</sub>	--	--	--	1.221	1.22	1.213



				(0.227)	(0.227)	(0.221)
				***	***	***
Corrected R <sup>2</sup>	0.1307	0.1435	0.1363	0.0443	0.0832	0.0708
Wald chi <sup>2</sup> -Statistic	96.98	156.1	142.87	48.14	134.91	125.74
Probability > chi <sup>2</sup>	0	0	0	0	0	0
Number of observations	4,358	4,358	4,358	4,281	4,281	4,281
Number of companies	321	321	321	310	310	310
*** = < 0.001 ** = 0.01 * = 0.05 † = 0.10						
Regressions use robust standard error. Number in parentheses is z- statistic value						

In a “reversed term” specification, interpretation of the coefficient signs for persistence variables and interaction terms are reversed. Thus while the base-case coefficients of the *Magnitude<sub>t-2</sub>* variable were negative and significant in all models (suggesting that filing many patent applications decreases firms’ relative profitability), the coefficients of the persistence and interaction variables in Models 2 and 5 reflect those electronics firms that patented relatively few patents each year while the persistence terms in Models 3 and 6 reflect those electronics firms that showed citation evidence for their patents.

Results in Table 5 of the reversed-term models show that coefficient terms were negative and significant for the persistence and interaction variables, which may be interpreted as *increasing* the intercept terms and base-case slopes for that group of firms that filed an *above-average* annual number of patents in Models 2 and 5. Persistent firms’ intercepts increased for those specifications. The negative and significant coefficients for the interaction terms (which are the product of annual patent magnitude times the respective binary persistence term) may be interpreted as increasing the slope for that group of firms that filed an *above-average* annual number of patents (*i.e.*, because the structures of the model was “reversed,” it reverses the sign of the base-case coefficient when adding the intercept term’s coefficient value to that of the base case-variable). Results in Table 5 indicate that the slopes of the above-average groups of firms became positive. Thus results support Hypotheses 1 and 2 by suggesting that higher-than average patenting activity increases the differentiation and infrastructural effects that improve firms’ returns on sales and assets, respectively.

A similar approach was used to combine the effects of patent magnitude with persistence terms suggesting formation of thickets from uncited patents. In Models 3 and 6 of Table 5, the reversed-term model used a binary persistence term representing the group of firms that was *less* likely to have potential patent thickets annually. Using the reversed-term interpretation, results in Model 3 indicated that firms which continually

filed many patent applications and built patent fences over time performed better on returns on assets because of greater protection of their inventions from rapid imitation, which supports Hypothesis 3. In table 5, the R<sup>2</sup> values are higher for the return on assets models, suggesting that the positive effects of filing many patent applications annually produced a longer-lived asset that benefited firm performance.

d) *Antecedent patents indicating relatively radical content*

In Table 6, which tested how the effects of producing patents with relatively exotic antecedents annually affected financial performance for electronics firms, the base-case coefficients of the *Backward V-score<sub>t-2</sub>* variable were negative and significant only in models of returns on assets. When annual persistence terms representing *Above-average Backward V-scores<sub>t-2</sub>*, *Above-Average Patent Thickets<sub>t-2</sub>*, and *Above-Average Magnitude<sub>t-2</sub>*, respectively, were tested jointly with the base-case *Backward V-score<sub>t-2</sub>* variable, their coefficients were positive and significant only for the returns on sales models. The coefficients of the corresponding interaction terms were positive and significant only for the returns on assets models, respectively.



Table 6: Effects of Patent Backward V-scores on Financial Performance in Electronics, 1992-2014

	Return on Assets				Return on Sales			
	1	2	3	4	5	6	7	8
Intercept	-33.630	-33.170	-33.110	-32.720	2.224	-0.120	1.475	1.172
	(5.588)	(5.582)	(5.637)	(5.660)	(1.833)	(1.961)	(1.786)	(1.766)
	***	***	***	***	NS	NS	NS	NS
Mean Backward V-score <sub>t-2</sub>	-0.0224	-0.0464	-0.0278	-0.0299	-0.00275	-0.0192	-0.00554	-0.00646
	(0.0126)	(0.0155)	(0.0128)	(0.0130)	(0.0125)	(0.0169)	(0.0127)	(0.0129)
	*	***	**	**	NS	NS	NS	NS
Above-average Backward V-score <sub>t-2</sub>	--	0.839	--	--	--	6.009	--	--
		(1.517)				(1.949)		
		NS				***		
Above-average thicket <sub>t-2</sub>	--	--	-1.412	--	--	--	12.180	--
			(3.230)				(3.793)	
			NS				***	
Above-average magnitude <sub>t-2</sub>	--	--	--	0.288	--	--	--	12.75
				(3.187)				(2.923)
				NS				***
Interaction Term <sub>t-2</sub>	--	0.0505	0.16	0.143	--	0.0270	0.0462	0.0386
		(0.0239)	(0.0469)	(0.0474)		(0.0250)	(0.0874)	(0.0612)
		**	***	***		NS	NS	NS

Table 6: Continued

	Return on Assets				Return on Sales			
	1	2	3	4	5	6	7	8
Sales Growth	-0.0117	-0.0125	-0.0135	-0.0134	-0.0637	-0.0634	-0.0646	-0.0642
	(0.0758)	(0.0761)	(0.0757)	(0.0759)	(0.0791)	(0.0794)	(0.0791)	(0.0792)
	NS	NS	NS	NS	NS	NS	NS	NS
Leverage	-19.000	-19.010	-19.040	-19.140	-8.254	-8.231	-8.249	-8.293
	(2.768)	(2.758)	(2.771)	(2.778)	(2.393)	(2.397)	(2.392)	(2.401)
	***	***	***	***	***	***	***	***
LogSales <sub>t</sub>	7.553	7.365	7.423	7.323	--	--	--	--
	(1.025)	(1.061)	(1.044)	(1.051)				
LogAssets <sub>t</sub>	***	***	***	***				
Corrected R <sup>2</sup>	--	--	--	--	1.213	1.181	1.193	1.184
					(0.221)	(0.201)	(0.206)	(0.198)
Wald chi <sup>2</sup> -Statistic					***	***	***	***
	0.1371	0.1373	0.1383	0.1404	0.0536	0.0688	0.0785	0.0913
	95.89	122.45	123.1	137.69	44.78	68.67	94.36	112.85

Probability > chi <sup>2</sup>	0	0	0	0	0	0	0	0
Number of observations	4,358	4,358	4,358	4,358	4,281	4,281	4,281	4,281
Number of companies	321	321	321	321	310	310	310	310
*** = < 0.001 ** = 0.01 * = 0.05 † = 0.10								
All regressions use robust standard error. Number in parentheses is z-statistic								

Base-case results suggested that exploring novel technological streams to synthesize novel inventions did not improve the value-creating potential of intangible patent assets that were carried on firms' balance sheets. When base case results were considered alone, having radical patent antecedents did not help firms' financial performance, but the coefficients of the interaction terms of return on assets Models 2, 3, and 4 in Table 6 were positive, significant, and reversed the slopes of the corresponding base-case *Backward V-scores*<sub>t-2</sub> coefficients. Thus results suggest that higher-than-average radical content in patents' antecedents had an indirect positive effect on returns on assets, which supports Hypothesis 4. Patenting inventions whose antecedents reflected significant deviation from local-search invention processes created valuable assets for firms, which is consistent with Hypothesis 4.

The persistence terms that interacted with the base-case *Backward V-scores*<sub>t-2</sub> variable in Table 6—i.e., *Above-average Backward V-scores*<sub>t-2</sub>, *Above-Average Patent Thickets*<sub>t-2</sub>, and *Above-Average Magnitude*<sub>t-2</sub>—were not significant for models of returns on assets, but each of them, respectively, was positive and significant in models of returns on sales—increasing the intercept terms of those firms in the above-average group by over ten percentage points in cases of *Above-Average Patent Thickets*<sub>t-2</sub>, and *Above-Average Magnitude*<sub>t-2</sub>.

Since the costs of developing radical inventions depressed financial returns (unless they could be commercialized successfully to recover sunk costs), base-case variable coefficients were frequently negative, but interaction effects frequently reversed the sign of base-case variable coefficients. Radical content in patent antecedents was an important discriminator of some electronic firms' financial performance. Firms that persistently filed patents having higher-than-average radical antecedents enjoyed higher financial performance than did firms whose patents more frequently incorporated incremental technological antecedents. For electronics firms, filing patents for many relatively radical inventions was a winning technology strategy—particularly after 2004 when the consumer products part of the industry faced rapidly-increasing demand and consumers eagerly embraced products that synthesized relatively novel technological attributes to enhance the variety of platforms enjoying access to digital content.

## V. DISCUSSION OF RESULTS

We expected that persistence measures—operationalized by above-average annual patenting activity and reflecting longer-term competitive behaviors—would have stronger relationships with firms' financial performance than simple activity measures—such as base-case patenting frequency, patent counts or other variables—would indicate. We decomposed the relative effects of patenting activity over time upon firms' financial performance by specifying models that included such persistence (and interaction) terms. We expected that persistent patenting activity would yield greater relative success as manifested in subsequently-higher operating margins that were used to justify the allocation of more funding to research activities over time.

In assessing contributions to profitability, we interpreted results for electronics firms having above-average patenting frequency as a higher intercept when predicting returns on sales, but showed no changes to their slopes unless the corresponding interaction term was also significant. The combined effects of above-average numbers of annual patent filings and the respective interaction terms increased the slope of returns on sales as well as assets. Electronics firms showed positive benefits from patenting heavily. Since many of their patents filed were not cited by subsequent patents, we inferred that persistence in that pattern represented efforts to protect intellectual property through overlapping claims that constituted a thicket. Electronics firms showed positive financial benefits over time for what we termed persistent patent thickets, thereby increasing their intercepts and slopes in tests of returns on sales and assets. The combinations of above-average numbers of patent filings of inventions having radical antecedents also increased intercepts and slopes when predicting financial performance—even where many of such patents were not cited.

Such findings could imply that certain types of patenting activities were best pursued by larger firms having scale economy advantages that could afford to field research divisions and file large numbers of patent applications annually. Since many small firms could not afford to fund the type of sustained research effort that involves persistent patenting over time, such an implication would be consistent with the scenario of innovative, smaller firms being acquired by larger ones to exploit their one-off, breakthrough discoveries.

Controls for firm size were included in specifications when testing the effects of patenting activity on financial performance; size controls were always positive and highly significant, even though sample size attenuated over time from 1992 through 2014 through attrition.

Cooper, Knott and Yang (2019) argue that larger firms get a bigger bang for their R&D buck (perhaps in a stepwise function or something more significant than a simple scale economy effect). It may be that the thicket and magnitude effects found in our results were especially strong for a small subset of large firms in the electronics sample. These bigger firms would likely have filed large numbers of patents each year and relatively few of these patents would have been cited by subsequent inventors if firms also consciously patented variations of their key discoveries to fend off easy imitation.

Results suggest that persistence in pursuing particular aspects of patenting provided superior financial performance. Changes in the trajectory of twenty years of persistent activity were sought to account for a potentially long lag time before patenting would affect firms' financial performance. Although persistence in filing patents annually was positive and significant in the samples, the negative and significant signs of the base-case patenting-activity terms suggested that patenting may have become a fungible competitive effect, *i.e.*, frequent patenting activity may have raised the ticket of admission to compete in the electronics industry without improving firms' financial returns. Persistently filing of many patent applications, creating patent thickets, and having patents with radical technological antecedents improved firms' returns. Thus, patenting activity provides both *infrastructural* and *differentiation* benefits that enhance firms' short-term competitive strategies and reinforce the longer-term benefits of organizational learning processes pertaining to technology development. The predictive effects of the persistence variables were stronger than simple patent counts or other types of activity variables. Therefore we suggest that using measures of annual persistence in analyzing the effects of a particular patenting activity may produce a more reliable characterization of the benefits to firms' patenting activity as it relates to yearly variance in firms' performance.

#### a) Limitations

More information about the effects of patenting activity differences was found when persistence variables were added to specifications than was shown in the coefficients of base-case, patenting-activity. Associated cross terms frequently reversed the signs of the base-case variable coefficients. We interpreted this outcome as evidence that using persistence terms produced better net predictors of the effects of patenting activity upon financial performance than did using the base-case variables alone.

Our study suggests that evidence of persistence in pursuing a particular type of patenting activity may be a better longitudinal predictor of the effects of patenting upon firms' performance than discrete activity measures. Results may be biased because patenting can be a risky strategy for smaller firms to pursue—since disclosures made during patent filings must be fiercely defended from appropriation without compensation—than it may be for larger firms that can defend their right to exploit patents. Larger, surviving firms may be over-represented in results reported herein.

Patent-thicket variables were identified by using the lack of forward citation counts. Consistent with Gambardella, Harhoff and Verspagen (2017) and Torrisi, Gambardella, Giuri, *et al.* (2016), these redundant patents received no citations from subsequent users. Annual production of large numbers of redundant patents were used to identify firms with apparent patent thickets. Evidence of beneficial effects from inferred patent thickets was more frequently associated with the *differentiation* effects of patenting strategy in our results as thickets would impede imitation initially and subsequently may extend the duration of enjoying higher returns.

Firms' diversification profiles were not included as controls in our specifications. Although firms' diversification strategies were heterogeneous in electronics and these differences in strategy choices were sometimes reflected in their patenting activities, Harrigan, Di Guardo, and Cowgill (2017) found a negative relationship in tests of the relationship between firms' relative diversification and creation of relatively radical technological antecedents. Briefly, narrowly-diversified firms had higher mean *Backward V-scores* while the scores of highly-diversified firms more frequently reflected incremental differences in their technological antecedents. Accordingly, diversification was not included as a control variable.

## VI. CONCLUSIONS

Variables reflecting that some firms within an industry followed persistent patterns of patenting activity over time were useful in identifying how firms' technology strategies varied and how industry conditions may have affected firms' abilities to use particular patenting activities persistently. Results suggesting that filing redundant patents that received no citations from subsequent researchers was costly and argues against pursuing such practices. However, results suggesting that those redundant patents may, in fact, serve as barriers to inventing around key inventions would reverse such resource allocation guidelines. We found that persistently creating what we termed "patent thickets" may provide an effective means of collecting temporary rents for some firms. The above-average

patent thickets grouping variable was positive in most models where it was included, especially for specifications of returns on sales—suggesting that these redundant patents indirectly enhanced differentiation effects. Results not reported herein indicated that persistent use of such patent thickets was more effective as a means to protect competitive advantage within some industry contexts than others—especially if the other industries contained elements of hyper competition. We conclude that future evaluation of the benefits of patenting should consider the respective persistence effects of patenting activity, as all firms within an industry do not benefit equally from patenting and some industries will be less hospitable to long-lived strategic trajectories than are others.

Since patenting was not a costless activity (and technological disclosures in patent filings could be appropriated by savvy competitors), evidence that particular patterns of patenting activity were associated with superior financial performance could be a useful result for resource allocation decisions. Results offer insights concerning which patenting activities provided best advantage to firms' performance over. They also argue for the importance of being persistent in pursuing patenting activities as part of firms' technology strategies, even if financial returns are not immediately obvious.

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# Risk Prevention Mechanisms in Asymmetrical Inter-Company Situations: An Exploratory Study in Smes in the BTP in Cameroon

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**Abstract-** While it is true that asymmetrical inter-firm relations offer many opportunities to the various partners and to the SME in particular, they are nonetheless the source of a number of risks. So, how do SMEs protect themselves from the risks associated with inter-firm relations? To answer this question, we have adopted a methodology based on a qualitative approach based on semi-directive interviews with four (04) SMEs in the construction industry. In order to identify and classify the different risk prevention mechanisms mobilized by SMEs. The results obtained show that these SMEs mobilize both contractual and extra-contractual mechanisms. However, they give more priority to extracontractual or relational mechanisms in the prevention of risks.

**Keywords:** *asymmetrical inter-company relations, risk prevention mechanisms, risks, construction and public works, SMEs.*

**GJMBR-A Classification:** *JEL Code: M19*



*Strictly as per the compliance and regulations of:*



# Risk Prevention Mechanisms in Asymmetrical Inter-Company Situations: An Exploratory Study in Smes in the BTP in Cameroon

Mecanismes de Prevention de Risques Dans les Realties Asymetriques Interentreprises : Etude Exploratoire Dans les Pme du Btp au Cameroun

Alain Marcel Manga Menyomo <sup>α</sup> & Nicole Patricia Tjani <sup>ο</sup>

**Resume-** S'il est vrai que les relations asymétriques interentreprises offrent beaucoup d'opportunités aux différents partenaires et à la PME en particulier, il n'en demeure pas moins qu'elles soient à l'origine d'un certain nombre de risques. Alors, comment les PME se prémunissent-elles des risques liés aux relations interentreprises ? Pour y répondre, nous avons adopté une méthodologie basée sur une approche qualitative axée sur des entretiens semi-directifs auprès de quatre (04) PME du BTP. Afin d'identifier et de classer les différents mécanismes de prévention de risques mobilisés par les PME. Les résultats obtenus relèvent que ces PME mobilisent à la fois les mécanismes contractuels et extra-contractuels. Mais, privilégient plus les mécanismes extra-contractuels ou relationnels dans la prévention des risques.

**Motsclés:** relation asymétrique interentreprises, mécanismes de prévention de risques, risques, BTP, PME.

**Abstract-** While it is true that asymmetrical inter-firm relations offer many opportunities to the various partners and to the SME in particular, they are nonetheless the source of a number of risks. So, how do SMEs protect themselves from the risks associated with inter-firm relations? To answer this question, we have adopted a methodology based on a qualitative approach based on semi-directive interviews with four (04) SMEs in the construction industry. In order to identify and classify the different risk prevention mechanisms mobilized by SMEs. The results obtained show that these SMEs mobilize both contractual and extra-contractual mechanisms. However, they give more priority to extra-contractual or relational mechanisms in the prevention of risks.

**Keywords:** asymmetrical inter-company relations, risk prevention mechanisms, risks, construction and public works, SMEs.

## I. INTRODUCTION

La stratégie des entreprises en situation de concurrence, d'après Alouat & al. (2007), représente trois configurations : l'affrontement ; l'évitement et la coopération. Cette dernière configuration connaît un intérêt tout à fait particulier. Elle

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est, semble-t-il, liée à la mondialisation de l'économie, à l'internationalisation des marchés et à la turbulence technologique (Lee & al., 2010; Hitt & al., 2012; McGrath & Kim, 2013; Simonin & Gates, 2013). De plus, la coopération interentreprises connaît un développement fulgurant depuis plus de trois décennies, comme l'attestent de nombreuses études (Beamish & Killing, 1997; Ouedraogo, 2003; Lecoq, 2003; Blanchot, 2006). Ces relations apparaissent incontournables dans la vie d'une entreprise. Pour plusieurs raisons, les entreprises évitent de plus en plus les comportements d'isolement et optent pour le regroupement. Ce qui les rend plus fortes et leur permet, entre autres, de réaliser des économies d'échelles (Garette & Dussauge, 1995; Garcial-Canal & al., 2002). D'ailleurs, c'est ce qui explique le fait que les entreprises multinationales soient à la quête de nouvelles sources d'avantages concurrentiels susceptibles de contribuer à l'amélioration de leur performance globale (Mayrhofer, 2007) tout en justifiant le développement effréné des rapprochements des entreprises, rapprochements qui visent d'une part, l'intérêt collectif (Kogut, 1988; Parkhe, 1993) inscrit dans une tendance compétitive afin d'accroître, protéger ou maintenir un avantage individuel (les Relations Interentreprises comme un vecteur privilégié du développement à l'international); et, d'autre part, une relation commune (Gulati, 1998) à la recherche des coentreprises formelles et des prises de participation (la solution même aux problèmes des entreprises lorsque celles-ci connaissent certaines difficultés liées au fonctionnement). En réalité, et comme l'affirme Cheriet (2009) aucune entreprise ne peut actuellement mener une stratégie « indépendante » des autres acteurs de l'environnement.

Le recours à une Relations Interentreprises implique non seulement un double centre de décision mais également sources de risques financiers et stratégiques (Montfort cité par Jaouen, 2006). Ce d'autant plus que ces relations sont des relations asymétriques c'est-à-dire nouées entre partenaires présentant des différences considérables : taille, de capacités financières, zone géographique, de mode de

gestion (d'Iribarne & al., 2002; Salk & Shenkar, 2001). La PME, dans sa généralité, ne saurait échapper à cette réalité. Présentée comme le partenaire le plus vulnérable et par ricochet le plus exposé aux multiples risques inhérents à la relation (Sapienza & Stork, 2001).

Face à ces difficultés, il devient urgent pour la PME de développer des mécanismes qui lui permettraient de se prémunir de ces risques. Ainsi déroulé, il est clair que la PME camerounaise en générale et celle du BTP en particulier n'échappe pas à cette réalité. Le secteur est en plein essor. D'ailleurs, depuis le début de l'année 2012, le Cameroun renvoie l'image d'un vaste chantier à la faveur des grands projets d'infrastructure qui y ont cours notamment dans le cadre du vaste programme des Grandes Réalisations du plan d'urgence relations interentreprises lancé par le gouvernement en 2015 ; de la préparation du Championnat d'Afrique de football féminin, que le Cameroun a abrité entre novembre et décembre 2016; le CHAN de 2020 ; ou encore de la CAN de football masculin, que le pays accueillera en 2022 et qui était initialement prévue en 2019 mais qui a connu une reprogrammation faute de la réalisation dans les délais des infrastructures pouvant abriter un tel évènement. Tous ces éléments, nous confortent encore plus dans notre choix du secteur d'activité pour comprendre les origines et les motifs de ces insuffisances. Nous nous disions que cette étude nous permettra de mieux appréhender le fonctionnement des entreprises de ce secteur et mieux encore la place et le rôle que pouvaient jouer les PME locales dans l'exécution ou dans l'accompagnement de ces réalisations entre autres. Tant on relève que le problème sous-jacent est le plus souvent celui de l'incapacité technique et financière de ces prestataires à satisfaire aux exigences de leur commande alors que d'énormes opportunités d'affaires restent à saisir. Il se trouve donc que la PME du Cameroun ne peut disposer de tous ces atouts. D'où ; il devient impératif pour cette dernière de nouer des relations avec des multinationales, mieux équipées et plus expérimentées. Ceci dans l'espoir d'acquérir entre autres un savoir-faire, des connaissances et des compétences spécifiques, avoir accès à la technologie. Les spécificités du secteur d'activité l'y obligeant. Il s'avère dès lors indispensable pour ces PME, de mettre en place un ensemble de dispositifs leur permettant de se prémunir des multiples comportements non souhaités.

Dans le cadre de leurs travaux, Das & Teng (2001) proposent trois types de contrôle : le contrôle basé sur des outils formels ; le contrôle comportemental et le contrôle social. Et dans le même ordre d'idée, Peillon (2001) propose deux types de mécanismes : des mécanismes contractuels ou transactionnels (contrat) et des mécanismes extra-contractuels ou relationnels (confiance, engagement). Dans le cadre d'une étude sur les cas de collaborations technologiques entre PME

sud-africaines et multinationales, Sawers & al. (2008) soulignent que l'un des risques encourus par les PME dans leurs relations asymétriques est le risque de flux inattendus. Ces derniers proposent aux PME, pour répondre à ces risques, d'exiger des garanties formelles (contrat) et de développer des garanties informelles (confiance, engagement, partage d'informations ou communication). Partant de ce qui précède et dans le cadre de cette étude, nous allons nous atteler, à travers une étude exploratoire, de mettre en exergue les mécanismes mobilisés par les PME du BTP pour se prémunir des risques inhérents à la relation.

Ainsi présenté, il serait opportun de nous questionner sur la manière dont les PME procèdent pour se prémunir des risques inhérents à la relation. En d'autres termes comment les PME se prémunissent-elles des risques liés aux relations interentreprises ? Cette question principale suscite des interrogations suivantes : quels sont les risques auxquels sont exposées les PME dans le cadre de ces relations asymétriques ? Quels sont les différents mécanismes de prévention de risques mobilisés par les PME ? Quelle peut être leur ordre de priorité ?

Répondre à cette question nous nous sommes fixé pour objectif principal de comprendre l'intégration des mécanismes de prévention des risques dans la gestion des Relations Interentreprises de répertoire. les risques auxquels sont exposés ces PME, d'identifier les différents mécanismes de prévention de risques mobilisés par ces PME et de les classer.

## II. MANAGEMENT DE LA RELATION ASYMETRIQUE INTERENTREPRISES : LES DIFFERENTS MECANISMES DE PREVENTION DE RISQUES

Les relations asymétriques demeurent relativement peu étudiées (Chtourou & Laviolette, 2005) et spécifiquement difficiles à gérer. Elles sont identifiées par une multitude de critères : la taille, la structure de gouvernance, l'origine géographique, la culture organisationnelle, l'expérience. dans la relation, la capacité d'apprentissage organisationnelle (Assens & Cherbib, 2010 ; Perez & al., 2012 ; Mohamadou, 2017).

### a) *Risques inhérents aux relations interentreprises*

S'il est vrai que les relations asymétriques interentreprises offrent beaucoup d'opportunités aux différents partenaires et à la PME en particulier comme le souligne Puthod (1998) cité Chretien (2016, p. 98) il n'en demeure pas moins qu'elles soient à l'origine d'un certain nombre de difficultés ou de risques; car l'asymétrie observée entre les partenaires présente déjà une forte incitation à tricher à partir du moment où cette différence porte en elle-même les gènes de la complexité. C'est ce qui amène Dussauge & Garette (1997) à souligner que l'établissement et surtout le

fonctionnement d'une relation de coopération asymétrique rencontre des problèmes tout à fait particuliers provenant à la fois la cohabitation entre les centres de décisions multiples et de l'existence des conflits d'intérêt entre les partenaires. Dans le même ordre d'idées Montfort (1997) cité par Jaouen (2008) relève que le recours à une relation partenariale implique non seulement un double centre de décision, mais aussi est une source de risques financiers (coûts additionnels, Baisse de revenus) et stratégiques (perte d'autonomie, conflits de souveraineté, absorption du savoir-faire, position de marchandage défavorable, perte d'identité, de flexibilité stratégique ou de chance de nouer des accords avec d'autres partenaires). Dans la même logique, Blanchot (2006), recense trois types d'obstacles dans l'existence des relations partenariales: l'individualisme, l'incertitude et l'incompréhension. De même, d'Iribarne & al. (2002), Salk & Shenkar (2001) estiment que la relation de coopération est d'autant plus délicate qu'elle concerne les entreprises de pays différents et plus particulièrement entre entreprises du Nord et entreprises du Sud. L'asymétrie qui résulte, qui résulte de ce différentiel cause de multiples disparités tant en termes de culture et de compétences que de pouvoir (Sapienza & Stork, 2001) et peut par conséquent appauvrir la communication et rendre l'apprentissage mutuel plus difficile entraînant ainsi incompréhension et méfiance. Ce qui pousse Delerue (2004) à qualifier le partenariat, de stratégie instable, risquée et dangereuse.

Ceci semble d'autant plus évident que, lorsque les partenaires présentent un déséquilibre en termes de taille et de culture, il y a inéluctablement un ensemble de comportements non souhaités et d'opportunismes. Le risque d'opportunisme constitue l'obstacle majeur auquel sont confrontés les partenaires dans les relations interentreprises. Dans la mesure où il incite l'aléa moral tout en poussant les partenaires à adopter des comportements de *free-rider*, à surexploiter une ressource commune, ou à tenter un hold-up de la quasi-rente issue de leur coopération (Peillon, 2001). D'ailleurs, Williamson (1985) en relève trois types d'opportunisme:

- « L'opportunisme sous forme de sélection adverse » qui est un opportunisme ex-ante basé sur la présence d'asymétrie... (Akerlof, 1970) ;
- « L'opportunisme sous forme de hold-up » c'est un opportunisme ex-post. Il se caractérise par la modification des comportements qui ne reflètent plus ce qui avait été prévu par les partenaires (Klein & al., 1978);
- « L'opportunisme sous forme de hasard moral » : c'est une forme de tricherie pendant la phase. pendant la phase d'exécution du contrat et rendu

possible par l'incomplétude des contrats (Koenig, 1993).

En outre on observe un manque de confiance, une dépendance unilatérale et une domination par le plus grand<sup>1</sup>.

Tout ceci contribue à fragiliser la relation interentreprises, par conséquent, constitue une menace à la stabilité, à la longévité, au succès et même à la performance de la dite relation.

Le tableau ci-dessous nous permet de ressortir quelques risques identifiés dans la littérature.

<sup>1</sup> Le niveau d'interdépendance fait référence au degré avec lequel chaque partenaire aura besoin de l'autre pour atteindre ses objectifs car plus l'interdépendance est élevée plus les partenaires trouvent un intérêt pour que la relation se prolonge et, par conséquent, s'impliquent d'avantage dans la relation, cherchent à éviter la rupture et à gérer au mieux cette relation. (Das & Teng, 2003 ; Fréchet, 2002)

Tableau 1: Synthèse des risques inhérents aux relations interentreprises

Nature du risque	Risques associés	Auteurs
Caractéristiques structurelles des partenaires	Difficultés pour la PME de : Identifier la personne adéquate à qui s'adresser ; Avoir l'attention des décideurs ; Difficulté à concrétiser les idées développées	Minshall & al. (2010) ; Prashantham & Birkinshaw (2008)
Risques relationnels	Risques de dépendance ; Risques de conflits ; Risques d'incompréhension ; Risques de comportement opportuniste ; Risques d'absorption ; Risques d'appropriation du savoir-faire de la PME par la multinationale ; Risques d'abandon une fois que la PME n'a plus rien à offrir ; Risques d'opportunisme.	Mohamadou (2014) ; Barabel & al (2015) ; Fréchet (2007) ; Kalaiganam & al. (2006) ; Delerue & Simon (2005) ; Delerue (2004) ; Alvarez & Barney (2001) ; Nootboom & al. (1997) ; Das & Teng (2001)
Risques liés aux objectifs stratégiques des partenaires	Difficulté d'identification du bon interlocuteur (identifier les personnes clés)	Minshall & al. (2010) ; Prashantham & Birkinshaw (2008)
Risques liés aux ressources et capacités des partenaires	Départ des meilleurs employés Perte des compétences Capacité financière Disponibilité des équipements	Das & Teng, (1999)

Source: *Élaboré par l'auteur sur la base de la revue de la littérature.*

Globalement, les recherches ont pu montrer que, malgré les avantages que peuvent tirer les PME des alliances asymétriques, elles courent aussi certains risques découlant des asymétries avec leurs partenaires. Et puisqu'elles semblent être les plus exposées aux risques, il paraît judicieux de s'y pencher. C'est pourquoi nous focalisons notre recherche sur la compréhension de l'intégration des mécanismes de prévention des risques dans la gestion des relations interentreprises afin d'aboutir à des solutions de relation gagnant-gagnant, comme le stipulent Seppänen & al., (2007). Cette recherche porte essentiellement sur la PME.

L'enjeu majeur auquel le pilotage de la relation interentreprises doit répondre est ainsi d'éviter l'apparition des comportements opportunistes de la part des partenaires, de lutter contre l'incertitude, car ils sont nuisibles à l'efficacité de la coordination et sont sources d'importants coûts de transaction. Il devient urgent pour la PME de développer des mécanismes qui lui permettraient de se prémunir de ces risques.

#### b) Identification théoriques des mécanismes de prévention de risques

Dans les relations asymétriques interentreprises, l'exercice d'anticipation constitue un aspect déterminant puisqu'il permet de se projeter sur les résultats probables, l'évolution, la nature de la relation entre partenaires, les éventuels risques, comment s'en prémunir et l'entité commune (Cheriet & Dikmen, 2008). Ainsi, l'interface entre les partenaires doit être clarifiée en ce qui concerne les mécanismes de prévention à mettre en place dans les relations interentreprises.

Définis comme un ensemble de mesures prises pour empêcher la survenue d'un événement non désiré,

les mécanismes de prévention de risques constituent le dispositif à travers lequel les partenaires vérifient l'atteinte des objectifs, la protection des investissements et la conservation des informations essentielles pour l'opérationnalisation de la relation. D'après Killing (1983) cité par Yan (1998), les mécanismes de prévention relèvent des capacités des alliés à influencer les décisions stratégiques et à optimiser les choix opérationnels les plus importants. Et représentent pour Geringer & Hebert (1989), un processus qui peut influencer les comportements et les résultats d'une entité en exerçant le pouvoir et l'autorité sur le déroulement des relations interentreprises. Ces mécanismes se matérialisent, dans les travaux de Yan & Gray (1994), par la capacité à influencer les décisions opérationnelles, le management et la structure de gouvernance de relation. Vu sous cet angle, anticiper dans toute ou partie de la relation aiderait indiscutablement les partenaires en général et la PME en particulier à prévoir et à exposer moins leurs différentes stratégies, leurs atouts et forces technologiques ou d'autres actifs stratégiques à l'extérieur du groupe. Face au comportement opportuniste des multinationales, les PME peuvent se prémunir comme l'indiquent Das & Teng (2001) à trois types de contrôle dans les relations asymétriques interentreprises :

- le contrôle (ou outputs) basé sur des outils formels comme le contrat ;
- le contrôle comportemental (ou processus) qui a pour objet de vérifier le fonctionnement de la relation à travers des procédures et un partage de l'information ;
- le contrôle social (ou informel) qui vise à créer une culture commune, des valeurs, des principes et des normes partagées.

Dans le même ordre d'idée, Alvarez & Barney (2001), en s'appuyant sur ce que Sawers & al. (2008) ont convenu de retenir les garanties formelles en faisant allusion au contrat et des garanties informelles parlant de la confiance pour faire allusion aux mécanismes de prévention de risques. Il est évident que les PME, pour s'en sortir, devraient mobiliser les mécanismes formels et informels.

De manière générale, la littérature distingue deux types de mécanismes de prévention : les mécanismes transactionnels ou formels et les mécanismes relationnels ou informels. Peillon (2001) se situe quasiment dans la même logique. Et préconise la prise en compte des mécanismes extra-contractuels (relationnels) et des mécanismes contractuels (transactionnels).

Face au comportement opportuniste des multinationales et comme le stipulent Lambe & al. (2002) dans la théorie de l'échange sociale, les relations interentreprises sont essentiellement motivées par la recherche de l'intérêt individuel et par la perspective de ce qu'elles peuvent générer, c'est-à-dire les retombés escomptés. Cette théorie issue, comme le soulignent Moorman & Byrne (2005), des travaux anthropologiques de Mauss (1923-1924) et, transposée aux sociétés contemporaines, précisent les bases motivationnelles des attitudes et comportements des employés. Cet échange social d'après Blau (1964), implique lui-même une réciprocité reposant sur trois principes : *l'investissement, la confiance et l'engagement*. Mais, quoique les parties exercent leur devoir de réciprocité, la forme de l'échange varie suivant les partenaires générant divers comportements et attitudes.

Et puisque les partenaires doivent survivre et faire évoluer la relation de coopération sans oublier que les alliés peuvent les désarmer. Les partenaires négocient le design de la structure de gouvernance et les mécanismes de prévention afin de réduire le risque de comportement opportuniste. L'interface entre les partenaires doit être clarifiée en ce qui concerne les mécanismes de prévention à mettre en place dans les relations interentreprises. Les partenaires vérifient, à travers les mécanismes de prévention, l'atteinte des objectifs, la protection des investissements et la conservation des informations essentielles pour l'opérationnalisation de la relation.

Pour s'en sortir, la PME devrait mobiliser les mécanismes lui permettant de se prémunir des éventuels risques inhérents à la relation. Dans la littérature, plusieurs mécanismes sont identifiés c'est ainsi que Das & Teng (2001) distinguent trois types de contrôle dans les relations asymétriques interentreprises :

- le contrôle (ou outputs) basé sur des outils formels comme le contrat;
- le contrôle comportemental (ou processus) qui a pour objet de vérifier le fonctionnement de la

relation à travers des procédures et un partage de l'information;

- le contrôle social (ou informel) qui vise à créer une culture commune, des valeurs, des principes et des normes partagées.

Cette revue de la littérature sur les mécanismes de prévention de risques nous permet de formuler la Proposition suivante :

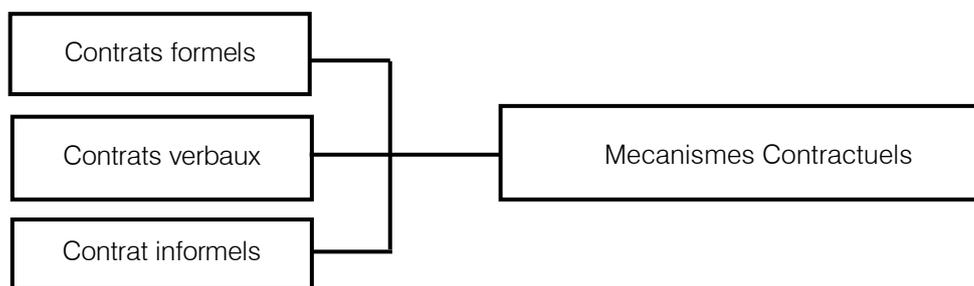
*P1 : les mécanismes de prévention de risques contribuent considérablement à la prévention de risques inhérents à la relation interentreprises*

➤ Les mécanismes contractuels

Pour l'approche contractuelle, la coordination repose sur les contrats. Dans cette optique, la coordination des relations interentreprises est fondamentalement basée sur des mécanismes contractuels. Les approches contractualistes sont caractérisées par un « consensus minimal » sur la nature et le rôle des contrats (Brousseau, 1989). Elles envisagent le pilotage de la relation interentreprises du point de vue contractuel, c'est-à-dire se fondant exclusivement sur des mécanismes contractuels pour lutter contre les éventuels comportements opportunistes que pourraient adopter les partenaires. La nécessité des mécanismes contractuels, du fait de l'imperfection de l'environnement informationnel, comme le souligne Peillon (2001) n'est plus à démontrer. Cette imperfection informationnelle rend donc les contrats indispensables parce qu'elle est à l'origine des comportements opportunistes. Parmi ces approches contractuelles, nous distinguons : les théories la TCT, la théorie de l'agence, la théorie des contrats, et la théorie institutionnelle.

L'hypothèse selon laquelle le contrat constituerait l'unique solution aux opportunistes nous semble dès lors contestable. Il nous serait important de chercher d'autres formes de prévention autres que le contrat et qui soient efficace. D'où, la nécessité de compléter les mécanismes contractuels. Car ceux-ci présentent des limites dues, d'une part, à la nature des comportements des agents économiques et d'autre part, aux caractéristiques des contrats (incomplétude, efficacité relative, complexité, coûts élevés, inadéquation). Pour ce qui est de l'incomplétude par exemple, la rédaction du contrat implique que les parties déterminent précisément les performances à atteindre par les parties. Or, du fait de l'incertitude sur l'avenir, de la complexité des décisions à prendre, de la rationalité limitée, il serait impossible de rédiger un contrat complet. Ce qui nous amène à considérer que les contrats ne peuvent être optimaux comme le stipule la théorie des contrats. Et nous pouvons penser qu'il existe des mécanismes différents qui peuvent eux aussi permettre de limiter les risques. D'ailleurs, les mécanismes transactionnels ou contractuels qui induisent les contrats tendent, selon Schann (1988), à être

prévisibles, réguliers et impliquent des transferts explicites d'informations.



Source: *Élaborée par l'auteur*

Figure 1: Mécanismes de prévention contractuels

C'est pourquoi, dans l'optique de compléter les contrats qui restent incomplets, il serait utile de mettre en œuvre d'autres dispositifs pour gérer l'opportunisme des partenaires. Ainsi, d'autres moyens ont été identifiés dans la littérature. Dès lors, le pilotage des Relations Interentreprises ne pourrait plus seulement être contractuel (transactionnel), mais d'avantage extra-contractuel (relationnel). Il s'agit des mécanismes extra-contractuels.

➤ Les mécanismes extra-contractuels

L'analyse économique traditionnelle a toujours considéré l'individu comme un homo-œconomicus et par conséquent, l'individu est entièrement tourné vers la recherche de son intérêt, c'est égoïste pur. Les relations individuelles sont donc envisagées en termes de conflits. Mais depuis quelques années, l'impact des relations sociales sur l'action économique a commencé à être pris en considération notamment, le fait que les relations interpersonnelles ne soient plus exclusivement basées sur la recherche de l'intérêt personnel dans les échanges hors marché tel que les échanges de savoir-faire, de connaissances (Peillon, 2001, p. 81).

Le contrat seul n'est donc plus suffisant pour la prévention des risques (Ménard, 1994b). En effet, d'une part les contrats ont des limites, et, d'autre part, dès lors que l'on prend en compte le caractère temporel et dynamique de la coopération interentreprises, on est conduit à envisager des mécanismes de prévention pouvant être construits par les partenaires. D'autres facteurs tels que les normes sociales, les relations personnelles, la confiance, loyauté, réputation.

- *La confiance un frein aux risques des relations interentreprises*

Les organisations cherchent à faire face aux risques en mettant en place des mécanismes qui vont leur permettre d'orienter leurs réponses à l'imprévu (Lazaric & Lorenz, 1998, cité par Peillon, 2001, p. 91). La confiance est alors nécessaire pour faire face aux inévitables contingences imprévues. Elle renvoie à la volonté d'une partie à s'appuyer sur les actions d'une autre partie dans une situation comportant des risques et des incertitudes. Elle correspond à une situation dans

laquelle une partie croit en la fiabilité et l'intégrité de l'autre partie (Morgan & Hunt, 1994). Ainsi, elle facilite la compréhension mutuelle et permet un bénéfice mutuel. Et comme le précisent Koenig & Van Wijk (1992), de la confiance apparaît un mode de contrôle informel qui gouverne des acteurs mutuellement identifiés. Par conséquent, elle permet de réduire l'incertitude relative au comportement mutuel à l'aide d'un processus d'autocontrôle. D'une manière générale, nous pouvons, dans la suite de Lee & Cavusgil (2006), insinuer qu'elle accélère le transfert des connaissances en facilitant l'interaction entre les parties impliquées, ce qui leur permet de localiser les informations clés.

En outre, la confiance est sensée augmenter le niveau d'engagement car les relations basées sur la confiance sont jugées de manière positive. Elle inscrit les relations interentreprises dans une approche relationnelle. En faisant nôtre la définition de Koenig & Van Wijk cité par Ouedraougo (2003), la confiance sera prise ici comme un processus qui met en œuvre des anticipations et des obligations entre deux parties. Et en tant que telle, elle sera comparable à un dispositif de prévention des risques dans les relations interentreprises. Elle est considérée suffisamment complexe car elle implique aussi bien des dimensions individuelles, que des dimensions interpersonnelles, sociales, politiques et économiques (Gambetta, 1988). La confiance rend cette situation gérable dans la mesure où elle réduit le risque de tromperie ou de comportement opportuniste. Pour cela, la confiance présuppose une prise de décision dans une situation de risque, où le risque est attribuable à la possibilité de comportement opportuniste des autres. Mohamadou (2017), affirme que malgré les asymétries et contrairement à bon nombre d'auteurs, la confiance ne peut se développer entre les partenaires que si et seulement si des dispositions sont prises par les parties pour favoriser la relation. En tout état de cause, la confiance apparaît comme un mécanisme permettant de réduire l'incertitude comportementale. Ainsi, la confiance présuppose une prise de décision dans une

possibilité que les autres se comportent de façon opportuniste.

- *La communication facteur de cohésion dans les relations interentreprises*

La communication est définie par Brulhart (2002) comme le partage formel et informel d'informations pertinentes et actualisées entre les entreprises partenaires. Sa qualité constitue une des clés du succès dans la mise en place d'un projet coopératif. Une bonne communication constitue un facteur de cohésion entre partenaires. Un fort degré de communication aura une influence positive sur le degré de confiance entre les partenaires et les managers chargés de gérer la relation. Dans toute relation bilatérale notamment dans un contexte de relations interentreprises, quand deux partenaires désirent communiquer entre eux, ils cherchent, entre autres, à échanger des informations, des idées et des connaissances ou des attitudes en commun. Elle permet comme l'affirment Anderson & Weitz (1992), de prévenir les éventuels malentendus et de réduire les risques de conflits et de dysfonctionnement entre les différents acteurs. Le partage d'informations contribue à réduire la distance et les différences entre les parties. Principal instrument de traitement des conflits, la communication semble être l'élément indispensable du bon fonctionnement de la relation. Elle traduit, en tant que clé de collaboration, un facteur d'émergence de la confiance. Car une bonne communication favorise des contacts fréquents, amène les parties à s'informer à l'avance des changements qui pourraient avoir une incidence sur la relation, facilite une ouverture réciproque (Cao & al., 2011).

- *L'engagement*

Il peut être décrit comme la volonté des partenaires de relations interentreprises. de faire des efforts au nom de la relation en réduisant la menace de comportement opportunistes (Mohr & Spekman, 1994). A ce titre, il réduit les coûts de transaction et les coûts associés au partenariat. Il s'entend comme une dévotion d'un partenaire à la coentreprise (Christoffersen, 2013). Pour Inkpen (2000), le degré d'engagement entre partenaires dans les RIE, requiert deux aspects : le degré d'ouverture des partenaires

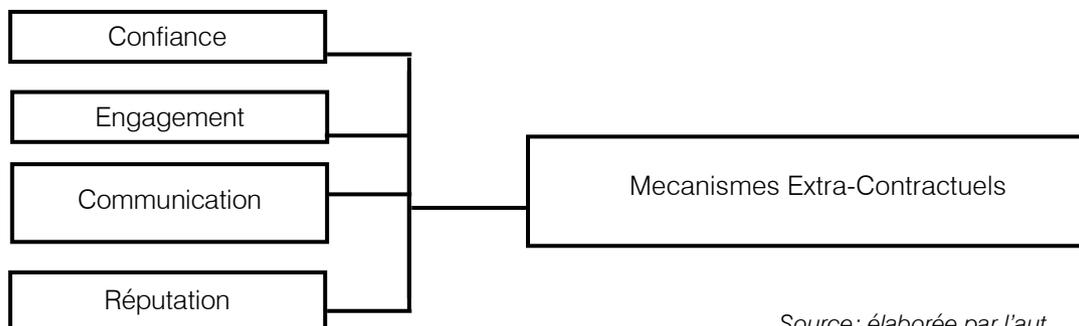
degré de communication, culturel, linguistique...) et l'intensité de leurs relations (volonté, effort mutuel). Par conséquent, l'engagement peut contribuer à atténuer le comportement opportuniste des partenaires. Ce d'autant plus que, les partenaires souhaitent renforcer cette relation et surtout s'investissent pour la rendre pérenne (Gronroos, 1990). Vue sous cet angle, l'engagement favoriserait sans doute un comportement coopératif et créerait un sentiment d'unité induisant par la même occasion plus de confiance. Morgan & Hunt (1994), l'assimilent à la croyance d'un partenaire que la relation en cours est si importante qu'il faut engager le maximum d'efforts pour la maintenir. Il est cependant nécessaire de signaler que le degré d'engagement reste étroitement lié au degré de confiance.

- *La réputation facteur d'anticipation aux comportements opportunistes*

Elle est fondée sur la notion de confiance calculée. Elle provient de l'interaction des agents recherchant leur intérêt personnelle. Les parties restent dans la relation tant qu'elles considèrent que c'est dans leur intérêt de le faire.

La réputation n'est efficace que si sa diffusion est assurée et donc si la communication entre les acteurs est suffisamment développée. On voit ici poindre l'importance de la proximité entre les acteurs. Au sein des coopérations interentreprises, la réputation fonctionnera d'autant mieux que les partenaires sont proches géographiquement. Ce point est illustré par le modèle du district industriel (Beccatini, 1990), dans lequel les firmes se connaissent et se reconnaissent, la proximité géographique permettant à la fois la répétition des engagements, leur vérification quotidienne et la diffusion de la variable réputation.

Au total, la réputation peut constituer, pour les partenaires de la coopération, un mécanisme permettant de faire respecter les contrats et un frein à l'opportunisme *ex post*. De plus, elle permet de réduire les coûts de rédaction du contrat de coopération et d'éviter les coûts liés à la mise en œuvre des mécanismes permettant d'assurer le respect de ce contrat par les partenaires. Au sein des coopérations interentreprises, la réputation représente donc un mécanisme complémentaire au contrat.



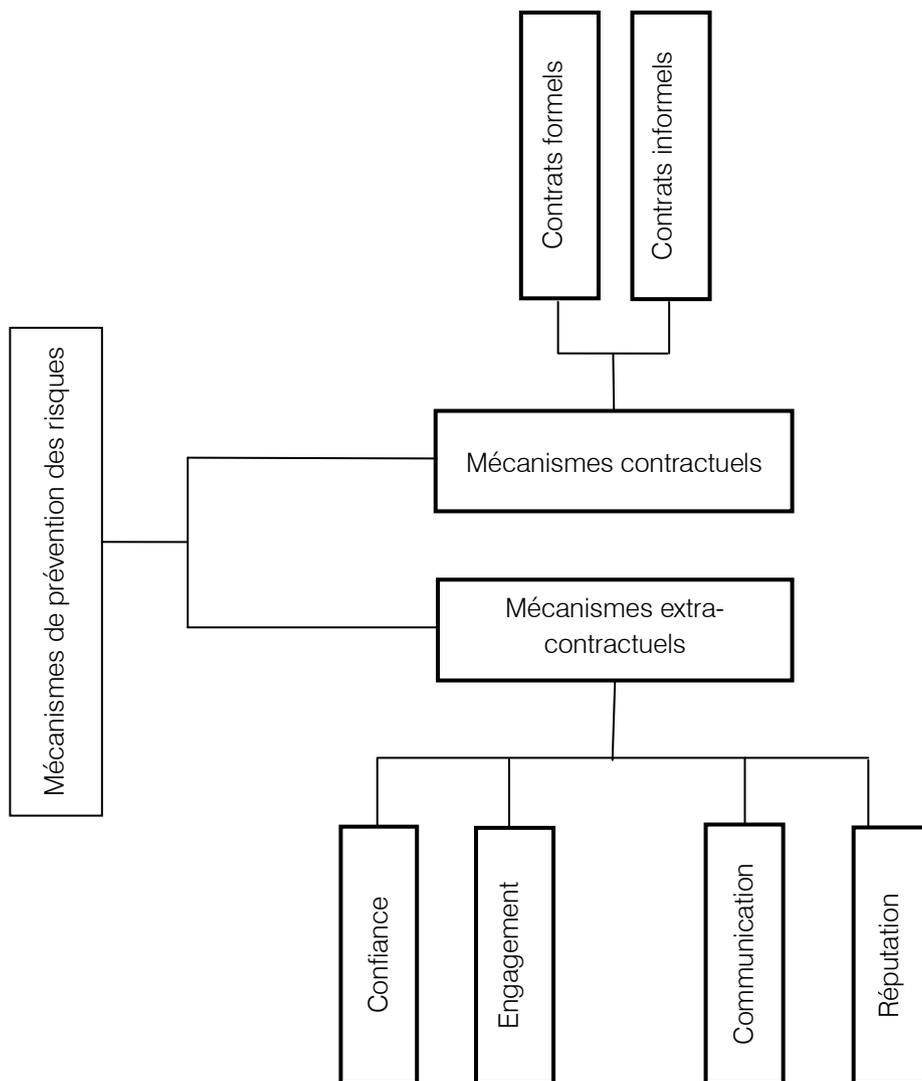
Source: élaborée par l'aut

Figure 2: Mécanismes de prévention extra-contractuels

P.2 : les mécanismes contractuels sont prioritaires aux mécanismes extra-contractuels

Notre revue de la littérature met en évidence la théorie du contrat avec la généralisation des contrats dans toutes les relations. Toutefois, elle s'avère insuffisante pour expliquer les relations interentreprises. Ce qui nous conduit à opter pour une démarche

alternative en mobilisant plusieurs théories évolutionnistes. Au-delà de l'explication des relations interentreprises, la littérature nous a permis de mentionner les mécanismes de pilotage de ces relations et ceux qui ont été identifiés ont pu être regroupés en deux grands ensembles. Qui nous ont servi de fil conducteur pour la suite de ce travail.



Source : élaborée par l'auteur

Figure 3: Mécanismes de prévention des risques

### III. MÉTHODOLOGIE DE LA RECHERCHE

Afin de mener à bien cette étude, nous avons inscrit notre démarche dans le paradigme interprétativiste. Cependant, nous n'avons pas exclusivement adopté un raisonnement inductif comme le préconise ce paradigme mais nous avons opté pour une démarche hybride qui consiste à faire des allers retours entre la théorie et la démarche sur le terrain : la démarche abductive. L'approche exploratoire utilisée repose sur l'étude de cas.

Nous avons orienté nos interviews vers des acteurs impliqués dans la mobilisation des mécanismes de prévention des risques des PME en relation interentreprises du BTP. La méthode qualitative nous semble favoriser un contact direct avec les acteurs du terrain et paraît de cette manière à même de fournir, d'après Miles & huberman (2003) cités par Abitbol (2012, p.105) « des explications riches et solidement fondées de processus ancrés dans un contexte local ». Ce point de vue que nous partageons, nous laisse

penser que la méthode qualitative est ici la mieux adaptée. À terme, il s'agit de procéder avec efficacité à une identification et à une classification des mécanismes de prévention de risques mobilisés par les PME du le BTP. Cette étude est faite auprès de quatre (4) PME, taille suffisante pour conduire selon Eisenhardt (1989), une étude qualitative de qualité. Il s'agit des PME engagées dans une relation. Quatre critères ont guidé notre choix : les PME en relation avec au moins une multinationale ; la disponibilité de la PME et l'accessibilité à l'information recherchée ; la spécificité du secteur d'activité dont l'importance n'est plus à démontrer au vu de l'intérêt que lui accordent les praticiens et les pouvoirs publics, enfin sur le thème pour mieux identifier les mécanismes de prévention de risques et appréhender leur classement

Pour la collecte des données, nous avons réalisé un guide d'entretien type. Ce choix nous a permis de comprendre et d'analyser le point de vue des

acteurs retenus. Et les personnes interrogées sont : le propriétaire dirigeant(PDG), les directeurs techniques (DIRTECH), le Chef Projet (CHEFPRO), le directeur d'étude (DIRETU) et le directeur administratif (DIRADM) selon les quatre cas retenus.

Pour le traitement et l'analyse des données, plusieurs outils sont mobilisés : l'analyse des entretiens, les fiches de synthèses des entretiens et les codes que nous complétons par une analyse des fréquences et une étude de similitude/dissimilitude.

Le logiciel MAXQDA 2018 a été utilisé pour explorer les relations entre les codes. Cette démarche est axée sur la perception que les responsables des PME de ce secteur ont de les mécanismes de prévention et surtout sur leur hiérarchisation dans leurs relations avec les multinationales afin de prévenir les risques. Le tableau ci-dessous permet de résumer toute notre démarche.

Tableau 2: Synthèse des choix méthodologiques

Choix	Option retenue	Déterminants
Épistémologie	Interprétativiste	Les frontières entre le phénomène étudié et le contexte ne sont pas clairement identifiables, La vérité est difficilement accessible, représentation de cette dernière
Type de méthodologie	Qualitative	Faiblesse des travaux théoriques, statut épistémologique de l'identification et de la classification des mécanismes de prévention de risques
Type de raisonnement	Abductif	démarche hybride qui consiste à faire des allers-retours entre la théorie et la démarche sur le terrain
Technique de recueil des données	Études documentaires, entretiens semi-directifs et observation	Accès au vécu des acteurs, laisser émerger de nouveaux concepts absents de la littérature, développer un niveau de confiance avec les acteurs interviewés
Niveau d'analyse	Dimension institutionnelle, organisationnelle, et Stratégique de la contribution des mécanismes de prévention des risques dans la prévention ou de la réduction des risques	La caractéristique « anticipationnelle » des mécanismes relationnels de prévention des risques comme facteurs contribuant à la performance de la relation
Terrain de Recherche	PME du BTP	PME du secteur BTP en relation avec une ou plusieurs entreprises multinationales

Source: Synthèse de la littérature et la démarche empirique

#### IV. RESULTATS

Après avoir présenté les caractéristiques des PME du BTP nous allons, dans un premier temps procéder à l'identification des mécanismes de prévention de risques mobilisés par les PME et le deuxième point nous permettra de procéder à la classification des mécanismes en fonction du poids que représentent chacun dans sa prise en compte par la PME.

##### a) Caractéristiques des PME objet d'étude

Toutes les entreprises de notre échantillon ont une espérance de vie d'au moins 6 ans, gage d'expérience. Ceci renvoie à la maîtrise des rouages et de la complexité du secteur. Elles font toutes parties du même secteur d'activité et couvrent tous les domaines (du gros œuvre aux travaux de finition passant par l'expertise et les études et le conseil) liés à cette activité. La moyenne de l'effectif est de 36 employés permanents quoique faisant toutes recours à une main d'œuvre temporaire lorsque cela s'avère nécessaire.

Tableau 3: Caractéristiques des entreprises

Entreprises	Date création	Effectif	Siège social	Activités spécifiques
Cas 1	1998	45	Douala	Construction
Cas 2	2014	22	Yaoundé	Terrassement, décapage et pose de buse
Cas 3	2009	40	Yaoundé	Etudes-contrôle et audit, études d'impact environnemental, habillages muraux et décoration intérieure travaux routiers, finitions
Cas 4	2000	37	Douala	Construction des bâtiments, fabrication du mobilier professionnel et domestique, fourniture de béton, pose de caniveaux et aménagement et voirie urbaine, voiries urbaines

Source: Élaboré par l'auteur

Les multiples risques auxquels sont exposées les PME, les poussent à déployer des mécanismes de protection. Il ressort que ces entreprises, pour se prémunir des risques inhérents, mettent en place différents types de mécanismes.

#### b) Mécanismes mobilisés par les PME

Le contrat apparaît comme le mécanisme de prévention de risques incontournable pour toutes les PME du secteur BTP en relation interentreprises. Cela se trouve étayé par les répondants à travers les déclarations suivantes:

*Le dispositif le plus évident est le contrat qui représente l'engagement entre les deux parties c'est-à-dire la multinationale et la PME celui-ci survient parfois au début de la relation ou parfois même à la fin et est le plus souvent écrit. Mais il reste vrai que certains accords sont verbaux ou se font au gré à gré sans fondements juridiques c'est-à-dire sur l'entente verbale des deux parties (Cas1\_CHEFPRO)*

Pour ce répondant, le contrat est incontournable dans une relation peu importe le moment où il survient mais il reste un dispositif indispensable.

*Pour moi, le contrat c'est la paperasse on ne s'en sert que si on va en justice le vrai contrat c'est la parole d'un homme donné à un autre vraiment pour l'heure je ne sais pas si je peux changer d'avis. En réalité c'est la crédibilité, la loyauté, la confiance qu'on a l'un pour l'autre car il est important de garder son honneur et d'assumer ses engagements sans avoir besoin à tout prix que cela soit consigné sur du papier néanmoins le contrat écrit n'est qu'un élément de preuve au cas où ? Et c'est d'ailleurs pourquoi en ce qui me concerne cette paperasse dans certains accords est souvent signée au milieu de l'exécution du marché voire même à la fin pour laisser des traces et surtout pour entrer en possession de son dû. En*

*fait, ça c'est ma façon de voir les choses avec l'expérience que j'ai acquise sur les multiples chantiers et qui a contribué à développer mon intuition. D'ailleurs, c'est cette intuition qui me conduit à flairer les mauvaises affaires et à anticiper sur certaines choses. Je dois vous le dire, mon intuition n'est pas une simple intuition car, elle part du cumul d'expérience et elle est basée sur ma solide culture de gestion et c'est pourquoi je la qualifie moi-même, très souvent d'Intuition « rationalisée » (Cas1\_PD)*

De façon générale, le contrat est existant pour ce Cas1 mais il revêt un caractère ou un poids moins important que les autres types de mécanismes. D'ailleurs, ces deux répondants nous permettent de distinguer deux types de dispositifs : les dispositifs contractuels et les dispositifs non contractuels. Il est donc identifié ici le contrat, les accords verbaux ; le gré-à-gré, la crédibilité, la loyauté, la confiance, d'Intuition « rationalisée ».

*En dehors du contrat, qui ne garantit que le droit du plus fort c'est-à-dire de la multinationale, nous comptons sur les relations de confiance qui peuvent exister entre nous et qui sont plus susceptibles de nous garantir plus de visibilité, de partage d'information, la communication permanente et dans une certaine mesure l'engagement outre ces éléments, nous ne faisons absolument rien d'autre que compter sur la bonne foi de notre partenaire. Nous disons que quelque part dans le milieu des BTP on croit en Dieu et puis quand on croit on vit avec sa foi et advienne que pourra. Tout ce qu'on peut rencontrer on verra comment on peut contourner ; rien n'est impossible au niveau des hommes. Je m'attache également les services d'un auditeur externe qui me rassure de la qualité de mes prestations (Cas2\_PD)*

Ce répondant identifie le contrat et la confiance, la communication et dans une moindre mesure l'engagement comme principaux mécanismes de prévention de risques.

*Pour éviter que ces multinationales ne nous phagocytent, on s'appuie sur le contrat qui nous garantit un minimum de sécurité. Hors mis le contrat, il faut créer au maximum un climat de confiance, de convivialité, un climat d'amitié vous mettant à l'abri d'un certain nombre de risques. Parce que je me dis quand vous travaillez avec une multinationale dans tout ce que vous faites la relation humaine doit être privilégiée car s'il n'y a pas de relation humaine on sera toujours en train de courir derrière les risques (Cas3\_PDG)*

Tout comme dans les cas précédents, il ressort ici que les mécanismes mobilisés par cette PME et identifiés par ce répondant sont le contrat, la confiance.

*Le respect de l'Ethique des affaires constitue, à mon avis, un mécanisme permettant d'anticiper sur les éventuels risques puisqu'impliquant un respect mutuel en affaire par conséquent des comportements responsables (Cas3\_DIRETU).*

Dans ce Cas3, ce répondant, en plus du contrat et de la confiance déjà mentionné par son collaborateur plus haut, relève qu'il faille également compter sur l'Ethique des affaires pour anticiper ou réduire les risques de la relation interentreprises.

*Le contrat est en réalité notre principal élément de prévention. Tout est établi dans le contrat. Il y a des pénalités pour empêcher les comportements déviants et obliger les uns et les autres à respecter leur engagement. C'est vrai qu'à côté du contrat, aussi exigent et contraignant qu'il soit, on tient compte des relations de personnes à personnes c'est-à-dire la crédibilité du responsable de l'entreprises. On peut également parler de la confiance qui, pour ma part, semble même être l'élément primordial pour le bon déroulement de la relation puisque la confiance m'amène à être sûr que mon partenaire même sans mon contrôle va exécuter, dans le sens de nos intérêts communs, le travail. La confiance, l'engagement et la loyauté peuvent aussi constituer un facteur important (Cas4\_PDG)*

Le contrat, la confiance, l'engagement, la loyauté et la crédibilité constituent pour ce répondant les mécanismes auxquels fait recours sa PME pour empêcher la survenue des risques.

*Le contrat est exigible par la réglementation ce qui permet de légaliser la relation et en cas de problème d'avoir une voie de recours institutionnelle. Il arrive très souvent que ce contrat soit boycotté par la multinationale. C'est pourquoi, il est nécessaire qu'en*

*plus du contrat, qu'on compte sur la confiance et l'engagement entre les partenaires (Cas4\_DIRADM).*

Confiance, engagement et contrat se trouve être identifiés ici comme mécanismes de prévention de risques ce qui correspond aux dispositifs répertoriés par le PDG de la même PME.

Tout ce qui précède nous amène à tirer la conclusion suivant laquelle plusieurs mécanismes sont mobilisés par les Cas de notre étude pouvant être regroupés en deux catégories : les mécanismes contractuels et les mécanismes extra-contractuels.

Pour ce qui est des mécanismes contractuels on peut distinguer des contrats formels caractérisés par des contrats écrits et ayant un fondement juridique et des contrats informels basés sur les accords verbaux, des ententes, le gré à gré. Concernant les mécanismes extra-contractuels, : - la confiance, - l'engagement, - la communication ou le partage d'information globalement relevés par les répondants et déjà identifiés dans les travaux antérieurs (Peillon, 2001; Cherbib, 2014; Cheriet, 2008 ; Mohamadou, 2014) sont des dispositifs retenus par ces PME.

Il ressort cependant qu'à côté de ces mécanismes, l'on a pu répertorier

- *l'Intuition « Rationnalisée »*
- *l'Ethique des affaires*. comme des mécanismes, au vu de la littérature parcourue, pratiquement non signalés et que nous pourrions classer dans la catégorie des mécanismes extra contractuels.
- Ces mécanismes, constituent pour les cas qui les utilisent, de précieuses armes pour prévenir tout comportements non désirés semble-t-il.

Il faudra noter que l'intérêt de tous ces mécanismes est de contribuer ou de participer à la réduction du risque dans les relations interentreprises et de favoriser implicitement un meilleur pilotage de la relation et par ricochet la réalisation de la performance de la relation.

Ces mécanismes seront recensés dans le tableau ci-après pour repérer les mécanismes utilisés dans ce secteur d'activité et surtout comparer en fonction des Cas les mécanismes les plus pertinents:

Tableau 4: Comparaison des mécanismes de prévention de risques

	Mecanismes Contractuels		Mecanismes Extra-Contractuels
	Contrat formel	Contrat informel	
Cas 1	Contrat écrit	Contrat verbal Entente entre parties	Confiance ; Intuition « rationalisée » ; Engagement ; communication
Cas 2		Entente entre parties Négociations sous la table	Confiance ; Communication ; Engagement
Cas 3		Contrat verbal	Engagement ; Confiance Ethique des « affaires » communication
Cas 4		Négociation dans les couloirs contrats verbaux	Confiance ; communication

Source: élaboré par l'auteur

c) Classification des mécanismes de prévention de risques

Les mécanismes de prévention de risques identifiés, il serait judicieux et indiqué de procéder à la classification de ces mécanismes en fonction du poids qu'ils représentent pour les PME objet de notre étude.

Il ressort que les mécanismes les plus sollicités par les Cas étudiés, si l'on procède au classement par catégories sont les mécanismes extra-contractuels soient 62,50% contre seulement 37,50% pour les mécanismes contractuels. Le tableau ci-dessous donne une illustration de cette réalité en fonction du poids de ces mécanismes extra-contractuels

Tableau 5: Mécanismes de prévention de risques privilégiés par les PME

NATURE DU MECANISME	Fréquence	% pourcentage
MECA/EXTRA CONTRACT (Relationnels)	5	62,50
MECA/CONTRACT (Transactionnel)	4	37,50
Totale	8	100,00

Source: élaboré par l'auteur

Parmi les mécanismes extra-contractuels, la priorité est donnée à la confiance avec un poids de 31,63%, suivi de l'intuition « Rationalisée », de l'Ethique

des affaires, de l'engagement et de la communication avec respectivement 22,45%, 19,38%, 16,32% et 11,22% de poids voir Tableau 6 ci-dessous

Tableau 6: Mécanismes Extra-contractuels

MECANISMES EXTRA-CONTRACTUELS	Fréquence	% pourcentage
Confiance	31	31,63
Intuition « rationalisée »	22	22,45
Ethique des affaires	19	19,38
Engagement	16	16,32
Communication	11	11,22
Totale	98	100,00

Source: élaboré par l'auteur

Le contrat formel, parce que exigible par la réglementation, constitue dans cette catégorie de mécanismes contractuel, le dispositif le plus postuler. Ceci en plus des contraintes légales peut se justifier par le fait qu'il confère aux partenaires des droits et la

possibilité de recours en cas de non-respect des clauses. Il représente 69,44% du poids des mécanismes contractuels contre seulement 30,56% pour les contrats informels qui à notre avis auraient pu être considérés comme des mécanismes extra-contractuels.

Tableau 7: Mécanismes contractuels

MECANISMES CONTRACTUELS	Fréquence	% pourcentage
Contrat formel	25	69,44
Contrat informel	11	30,56
Totale	36	100,00

Source: élaboré par l'auteur

## V. DISCUSSION

Le contrat apparaît comme le seul mécanisme contractuel par excellence usité par toutes ces PME. À côté de ce contrat, nous relevons que tous ces dirigeants ont recours et de manière informelle à des ententes et négociations moins conventionnelles.

Pour ce qui est des mécanismes extra-contractuels, la confiance, l'engagement et la communication sont des modalités communes à tous ces cas. Le Cas1 et le Cas3 enrichissent cette liste de mécanismes extra-contractuels par : l'Intuition « rationalisée » et l'Éthique des affaires.

Pour identifier les mécanismes nous nous sommes appuyé sur les travaux des auteurs qui nous ont précédés tels que : Geringer & Hebert (1989), Mohr & Spekman (1994), Peillon (2001), Das & Teng (2001), Sawers & al. (2008), (Cheriet & Dikmen, 2013), Cheriet (2016). Ces travaux nous ont conduit à retenir deux types de mécanismes : - les mécanismes contractuels ou transactionnels constitués du contrat formellement rédigé et du contrat informel matérialisé par les ententes verbales, le gré à gré ; - les mécanismes extra-contractuels ou relationnels illustrés par la confiance, l'intuition « rationalisée », l'engagement, l'éthique des affaires, la communication ou partage d'information. D'ailleurs, si la confiance, l'engagement et la communication sont largement reconnus dans la littérature comme mécanismes, l'Intuition « Rationalisée » et l'Éthique des affaires sont des mécanismes tout à fait nouveaux et spécifiques aux cas étudiés et mobilisés particulièrement et respectivement par les Cas 1 et Cas 3. Mais, de ces deux types de mécanismes, les mécanismes extra sont relativement préférés aux mécanismes contractuels soient un peu plus privilégiés que ceux dit contractuels. Ce qui corrobore les résultats de Peillon (2001) pour lesquels, les mécanismes extra-contractuels s'inscrivent dans la continuité des mécanismes contractuels et viennent en complément de ceux-ci dans l'optique de répondre aux insuffisances des théories contractuelles.

Toutefois, ces mécanismes ne suppriment pas toute forme d'incertitude. Il arrive même, qu'ils produisent des effets contraires devant certaines relations. Les analyses du CAS 2 démontrent la difficulté de se prémunir des comportements opportunistes de certains de partenaires malgré la mobilisation des mécanismes.

## VI. CONCLUSION

Pour conclure notre recherche, nous faisons une synthèse de la façon dont la problématique a été développée et la démarche empirique effectuée. Ce qui permet de mettre en exergue les apports de la recherche, les limites de la recherche et les chantiers de recherche future.

Le problème central de cette recherche est celui de l'identification et de la classification des mécanismes de prévention de risques au sein des relations interentreprises dans un contexte de pays en développement. La question centrale posée étant celle de savoir comment les PME se prémunissent-elles des risques liés aux relations interentreprises (Relations Interentreprises) ? Pour répondre à cette préoccupation nous avons commencé par présenter les différents risques auxquels sont exposées ces PME, par la suite, nous nous sommes attelé à identifier les mécanismes et enfin nous avons procédé à un classement de ces mécanismes en fonction de leur poids.

Sur la base d'une étude réalisée auprès de quatre entreprises du secteur, nous avons identifié les mécanismes les plus significatifs mis en œuvre par ces entreprises : la confiance, l'engagement et le partage d'information auxquels, il faudra également signaler l'émergence de deux nouveaux indicateurs : - l'intuition « rationalisée » et l'éthique des affaires. Il en ressort que ces mécanismes contribuent à la prévention et à la réduction des risques inhérents aux relations interentreprises et surtout permettent aux PME de trouver leur compte dans leurs relations avec les multinationales.

À partir des résultats obtenus, nous faisons le constat que les entreprises ayant constitué notre centre d'intérêt, mobilisent toutes, les mécanismes contractuels et les mécanismes extra-contractuels. Pour ce qui est des mécanismes extra-contractuels, trois cas sur les quatre (Cas 1, Cas 2 et Cas 3) ont opté pour la confiance, l'engagement et la communication et le Cas 4 n'a mis l'accent que sur la confiance et la communication. Outre ces trois mécanismes (confiance, engagement et communication), le Cas 1 et le Cas 3 mobilisent respectivement des mécanismes plus spécifiques : l'Intuition « rationalisée » et l'Éthique des affaires. Ces deux mécanismes sont tout à fait nouveaux et n'ont, à notre connaissance, pas encore fait l'objet d'investigation.

En somme nous pouvons dire que Ce travail s'inscrit dans le sillage de nombreux autres travaux en management stratégique (Mohamadou, 2014; Cherbib, 2010; Ouédraougo, 2003; Peillon, 2001). Toutefois, sa principale contribution réside dans l'identification et l'intégration des dimensions nouvelles pour les mécanismes de prévention de risques ce qui semble être caractérisé par le contexte de l'étude.

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# Political Environment, Stereotypes and Implementation of Workforce Diversity Policies in Public Universities in Kenya

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**Abstract-** The increasing diversity of the workplace in Kenya has continued to put pressure on leaders in all sectors and levels to become more sensitive as they create an all-inclusive workplace. A traditional managerial approach to this diversity has been the struggle for compliance with the implementation of diversity management policies, procedures, and regulations. Although limited empirical research has considered links between organizational related factors that play in diversity management activity, very little research has examined the individual psychological related factors that influence the implementation of diversity management practices. This study begins with the premise that organizations develop diversity management programs as a means of responding to the requirements of the external environments, yet the stereotypes that insiders have determine whether or not such programs will fully be implemented. Among the key external environmental factors is the political environment in which diversity management is found.

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Catherine Kathure Kaimenyi

**Abstract-** The increasing diversity of the workplace in Kenya has continued to put pressure on leaders in all sectors and levels to become more sensitive as they create an all-inclusive workplace. A traditional managerial approach to this diversity has been the struggle for compliance with the implementation of diversity management policies, procedures, and regulations. Although limited empirical research has considered links between organizational related factors that play in diversity management activity, very little research has examined the individual psychological related factors that influence the implementation of diversity management practices. This study begins with the premise that organizations develop diversity management programs as a means of responding to the requirements of the external environments, yet the stereotypes that insiders have determine whether or not such programs will fully be implemented. Among the key external environmental factors is the political environment in which diversity management is found. Literature in the field of workforce diversity management points to a relationship between political factors and implementation of workforce diversity policies, but is silent on the role played by psychological factors. This study singles out stereotype and tries to establish whether stereotype has a statistically significant influence on the relationship between political environment and implementation of workforce diversity policies. To achieve this objective primary data is gathered from 392 respondents working in public Universities in Kenya. Results indicate a statistically significant relationship between political environment and implementation of WDP as well as significant moderating effect of stereotype on the relationship between the two variables. Specifically, the more diverse groups are stereotyped to be insignificant the less related policies are likely to be implemented. A recommendation is thus made that managers need to recognize the role of stereotype and shun from negative ethnic stereotype that limit policy implementation.

## I. INTRODUCTION

### a) Background of the Study

Workforce diversity is a global phenomenon and has continued to increase particularly in terms of gender, ethnicity, race and religion which has created a need for organisational leadership to offer special attention to workforce diversity and its related policies. The International Labour Organization (ILO) promotes diversity by outlining the need for equality and justice in employment regardless of the

person's background. There exists various Instruments like the Beijing Platform for Action (BPFA, 1995) and the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW, 1979) which are all United Nations (UN) tools aimed at promoting gender equality at all levels in member states.

Besides the United Nations and other international bodies advocating for an inclusive workplace, Regional instrument exists that guide African countries on matters of employment. For example the Protocol to African Charter on Human and People's Rights advocate for enjoyment of women rights through increased representation at all levels where decision making is made. Similarly, the solemn Declaration on gender equality in Africa which was ratified in 2004 endorses the commitment of the African Union to promotion of gender equity and equality. This is in line with the African Charter that restricts all forms of discrimination in its member states.

In Kenya, workforce diversity is promoted largely through the Constitution, 2010. Article 81 (b) of the Constitution, for example, outlines that not more than two-thirds of the members of elective public bodies shall be of the same gender. Article 55, 56 and 232 (h) further provides for equality of opportunities regardless of age, gender, physical abilities, and ethnicity. Despite the existence of all these diversity policies, implementation has remained sluggish. The public universities have attracted scrutiny with claims that their workforce does not meet the required diversity threshold.

Despite such policies, there exists a gap at the implementation stage. For example, the National Cohesion and Integration Commission (NCIC) report (2012) revealed that more than half of the Kenya's ethnic groups barely get representation in the Civil Service, an indication of inequality in resource distribution in the country. Although NCIC recorded a slight improvement 2016, the situation still remains wanting. Imbalances in the workplace have also taken an age dimension where the youth are reported to be missing in the mainstream. The 2009 Census by the Kenya National Bureau of Statistics indicated that the youth comprised of over 9.4 million, equivalent to 60% of the total labour force, yet a government report (GoK, 2011) showed majority are still struggling to enter into the labour market. The World

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Bank Report (2010) shows that Kenya lags behind in women employment in formal governments and private sectors as compared to other sub-Saharan countries like Burundi, Ghana, Sierra Leone and Gambia. The United Nations Global Development Report (2013) ranks Kenya in position 145 out of 187 in employment inclusiveness, which can be attributed mainly to low numbers of youth as well as gender inequality in employments. In a government appointment of 26 parastatal heads in 2013, the minorities in terms of disabilities and the youth were not represented whereas only two women were included.

Literature in the field of policy implementation has tried to offer explanations as to why workforce diversity policy implementation is a challenge. One such explanation points to factors external to an organization, key among them is political factors. This study argues that the strength with which political environment influences diversity policy implementation can either be enhanced or reduced by the kind of stereotypes held by those responsible for implementation.

#### b) *Political Environment and Stereotype*

Many authors claim that politicization of public services has increased over the years resulting to those in leadership assuming responsibilities that traditionally belonged to public servants (Peter, Guy & John 2004, Hart, 2006, Dunn, 1997). In her research about public universities in Africa, Josephine (2005) established that there are rampant political influenced appointments occurring in public institutions in Africa. The research established that those heading public universities in most African countries are politically appointed as a reward for their loyalty to their governments. Such appointments commonly known as patronage hiring have a long term challenge where public servants at senior levels lack the skills and competencies required to carry out their functions effectively, which results to poor productivity. (Matheson, Weber, Manning, & Arnould, 2007).

Lippmann (1922) defined stereotype as a typical picture that comes to mind when thinking about a particular social group. McLeod (2008) describes stereotype as a whole range of characteristics and capabilities that people attribute other categories of group to collectively possess. Such groups can take any form including those associating themselves with a particular relation, age, race, gender, class, economic abilities, education, geographical backgrounds and cultural origins. The National Cohesion and Integration Commission's (2010) findings from their study on the use of Coded Language and Stereotypes among Kenyan Ethnic Communities revealed that all Kenyan ethnic communities have preconceived beliefs about others. It was also established that every Kenyan ethnic community has both positive and negative stereotypes about themselves and about other communities (NCIC,

2010). From a positive dimension, some groups were associated with aggressiveness and zeal to achieve, kindness, supportive, learned, and enthusiastic while others were stereotyped to be highly corrupt, use witchcraft, lazy, jealous, and dependent. Where stereotypes are positive, the group is likely to influence decisions positively unlike in cases where negative stereotypes take precedent. This study argues that stereotypes held by key leaders in the public universities can either strengthen or weaken the relationship that political environment has on the implementation of workforce diversity in those institutions.

#### c) *Public Universities in Kenya*

The genesis of public universities in Kenya dates back in 1956 when the Royal Technical College was established in Nairobi. Following a 1961 Act of the East African Commission, the Royal Technical College was converted to Nairobi College (now University of Nairobi), which saw the setting up of the first university in Kenya. Other public universities were later established and by 2012 the country had a total of seven such universities. According to Commission for University Education (CUE), there were over 65 universities operating in Kenya by January 2015, falling under various categorization; 22 fully accredited public universities, 9 public university constituent colleges, 17 Chartered Private Universities, and 5 private universities constituent colleges.

The study focuses on public and not private universities because although by implication diversity policies cuts across all institutions, they are more explicitly pronounced in the public sector. For example, Article 81 (b) of the Constitution demands that not more than two-thirds of the members of elective public bodies shall be of the same gender. Article 232 of the Constitution sets out the values and principles of the public service in Kenya as affording adequate and equal opportunities for appointment, training and advancement, at all levels of the public service of men and women. The public sector appointments are also required to reflect the face of Kenya through inclusion of the marginalized communities in mainstream. In the same spirit, this study focuses on workforce diversity in the public sector, in particular the public universities in Kenya.

#### d) *Objectives of the Study*

- i. To establish the relationship between political environment and implementation of workforce diversity policies in public universities in Kenya
- ii. To explore the moderating influence of stereotype on the relationship between political environment and implementation of workforce diversity policies in public universities in Kenya.

## II. LITERATURE REVIEW

### a) *Theoretical Review*

This study is anchored on Rawls's Theory of Justice (1971) which posits that justice means giving each person what they deserve. The theory fits in this study as it explains that workforce diversity policies should be implemented so that the categories that are 'marginalized' on various perspectives can be brought in the limelight. Rawls argues that the best society would be founded on principles of justice chosen by rational citizens in an original position. He argues that rational citizens would choose principles of justice that would grant the most extensive liberties to its citizens while ensuring fairness of opportunity and those inequalities benefit the least advantaged. Four classifications of justice can be derived from Rawls Theory of Justice.

First, Distributive justice is getting fair share of the resources in question. It is the form of justice that is economic in nature and looks at the extent to which outcome distribution reflect an equitable situation. If people do not think that they are getting their fair share of something, they will seek first to gain what they believe they deserve.

Second, Procedural Justice refers to the perceived fairness of the processes by which allocation decisions are made. It is about fair play. Literature in the area of procedural justice identifies consistency, accuracy, representativeness, bias suppression and ethical consideration as procedural rules that shape opinions about justice (Leventhal, Karuza & Fry 1980). When individuals believe that procedures and processes followed in allocation of resources were fair, they are likely to identify with the resultant outcomes regardless of whether such outcomes were favourable or unfavourable. Recent authors like Gray (2011) conceive that there must be equal opportunity and that greater inequality must benefit those who have the least social and economic goods - the disadvantaged categories of the society.

Third, Compensatory Justice, also known as Restorative Justice requires that compensation be provided to the specific individuals/groups who were wronged or harmed by a decision to treat people in certain ways. The principle demands that society has an obligation to overcome historical discrimination against specific groups of people and to compensate those who have been intentionally and unjustly wronged. This, the approach believes, would bring the aggrieved category at the level of those advantaged.

The last type of justice under Rawls theory classification is Retributive Justice which stands on the premise that all crimes involves social harm and that violating the law has also moral consequences. According to Rawls people would simply design a society in which their personal interests and plans take

precedence at the expense of everybody else, which cannot result in a just society.

Rawls theory of justice is applicable to this study in that it advances that all people are equal by nature and so differences in recruitment, advancement opportunity and other prospects in organizations should not exist. This can be enhanced if organizations implement diversity policies that are stipulated in various instruments to bring about a diverse workforce.

### b) *Empirical Review*

In our everyday life, politics has been regarded as a dirty game. The public service being a political creation is thus political and has resulted to politicization of public goods and services. This in turn has resulted to substitution of political criteria for merit-based criteria in the selection, retention, promotion, rewards, and disciplining of members of the public service (Clifford & Wright, 1997). Mulgan (1998) described politicization as a situation where appointments are subjective depending on the party affiliation and loyalty of the individual concerned other than any objective measure. The authors further argue that politicization of public service has globally increased over the years resulting to political leadership finding its way in institutions and manipulating organization to perform roles that initially belonged to public servants.

A study by Gotsis and Kortezi (2010) on ethical considerations in organizational politics revealed that opportunities for career advancement and growth are availed to those politically aligned to people in power without any regard to any ethical imperative. Although the research by Obong'o (2013) did not take an ethical dimension, it did establish that distribution of public offices through patronage relationships was a rampant practice in Africa. This was found to be in form of nepotism, corruption and other forms of particularistic exchanges which was tantamount to making public service a political environment.

The civil service has been viewed as a bureaucratic oligarchy marked with strong connections to the political establishments where elites in various positions, both within and outside governments are keen on protecting their positions and status, thus reinforcing patronage relationships. These elites are able to manipulate, subvert or simply ignore the state and its institutions' reforms and policies in their interests. This persuasion power and loyalty is a major criteria for appointment to senior offices (Oketch, 2009). Consistent with this view is the findings of Cameron (2010) who conducted a survey in South African public service. The survey reported that patronage appointments were a common practice to those who showed loyalty to the government of the day. The study further established that lack of institutional integrity and a weakened trust among the actors in the external

environment were widespread in the public sector. Similarly, Hollyer (2010) views political patronage as a mechanism for public employment in exchange for victorious partisan labour and bidding for public offices by offering public services in exchange for public posts.

Studies have shown that political patronage relationships have influenced consideration for employment in the public sector (Obong'o, 2013, Owino, 2013). Besides, Olalunji and Ugoji (2013) from their study on political environment and public corporations in Nigeria add the dimensions of Host Community and Government Regulations as key factors influencing public sector appointments. The host community factor is a situation where the community where the organization is located tries to impose certain employees on such organizations for immediate employment without going through the due process. Public education systems have not been spared from political patronage hiring as indicated by research findings. For instance, Josephine's (2005) study in public universities in Africa established that public universities' top management is appointed as a reward to their loyalty to political leadership.

According to McLeod (2008) stereotyping results to a belief that every individual in a certain group possesses characteristics that others in the same group have. When people hold stereotypes about others, they develop prejudice attitudes that view outsiders as aliens, creating an in-group and out-group mentality. Generally stereotypes produce prejudice and discrimination to the out-group members by systematically influencing perceptions, interpretations and judgments (Eagly & Diekman, 2005). For instance, a study by Smith (1990) indicated that whites believe that blacks are unintelligent, sluggish, lazy and incompetent. On the other hand, the National Cohesion and Integration Commission (2010) findings from their study on the use of coded language and stereotypes among Kenyan ethnic communities revealed that all Kenyan ethnic communities have entrenched beliefs among the people about the behaviour, attributes, attitudes, abilities and weaknesses of members of other ethnic communities.

Studies by Catalyst (1990) established that among the key barriers for women progression in leadership and management position was stereotype. Along the same line, the Executive Leadership Council surveyed fifty senior African-American chief executives heading huge American companies to establish the opportunities and challenges that surround women leaders (Baskeville & Tucker, 1991). The survey established discrimination, caused by negative stereotypes about African-Americans hindered advancements of women managers. Similarly, Morrison (1992) surveyed 196 managers from 16 organizations and found that the biggest barrier for women managers is stereotype.

Stereotypes about disability are not uncommon at the workplace. For example a study done by (Amoako, 1977) in East Africa revealed that the physically handicapped were perceived as individuals possessed with evil spirits and as such should be isolated to prevent possible calamities befalling others and the society. Such people were regarded as outcastes in Ghana and excluded from participation in the mainstream. In communities like Zimbabwe and Kenya, the handicapped were seen as a symbol of curse and thus rejected by the society (Franzen, 1990), a view that was supported by the study by Henderson (1994). Prejudiced people on whichever basis may miss opportunities even where they are qualified and even when workforce diversity policies require their inclusion.

Discrimination results from prejudice where unequal treatment of individuals or groups of individuals based on personal characteristics, such as race, age, gender, ethnicity, or sexual orientation is observed (Williams & Patten, 2012). Cognitive social psychological research has demonstrated that discrimination can persist despite earnest efforts like workforce diversity policies to minimize it. For instance, the United States has witnessed discrimination in form of slavery, segregation and denial of voting rights, all of which have been outlawed (Thompson & Benjamin, 2005). In South Africa, apartheid was an enormous form of discrimination where blacks used separate and inferior facilities (Thompson & Benjamin, 2005). In Kenya, discrimination extends to issues of sex, pregnancy, marital status, health status, ethnic or social origin, colour, age, disability, religion, conscience, belief, culture, dress, language which results to the current socio-economic and political imbalances (Ministry of Devolution, May 2015).

### III. METHODOLOGY

This study adopted a positivist paradigm which Creswell (2009), describes as quantitative in nature and based on rigid rules of logic measurements, truth, absolute principles and prediction. This paradigm is appropriate for this study because of its objectivity and use of quantitative research methodology to measure perceptions, attitudes and opinions about workforce diversity. Although the study recognizes the strength of pragmatist approach to research, adopting it would reduce the objectivity of the study due to its subjective nature. The study utilizes a descriptive cross sectional survey research design. Zikmund (2003) points out that a survey gives fast and precise methods of accessing information promptly. A descriptive cross-sectional survey collects data to make inferences about a population of interest (universe) and have been described as snapshots of the populations from which researchers gather data. A descriptive cross-sectional

survey affords the opportunity to capture population's characteristics and test hypotheses. Consequently, the researcher has no control on the variables thus cannot manipulate them making it inappropriate to use other research designs such as experimental research design (Kothari, 2003). Moreover, Zikmund (2003), points out that using this survey method is inexpensive and enables researchers to collect large amount of primary data from respondents in a short period of time.

The target population for this study comprises of all academic and non-academic staff of public universities in Kenya. The public universities are those that have been chartered and are usually funded partially or wholly by the Government of Kenya. According to the Commission for University Education, there are twenty two (22) chartered public universities in Kenya (CUE, 2014). The public universities were preferred since their structures are well defined and are likely to exhibit elaborate relationships among the study variables. Moreover, a NCIC (2012) study had revealed massive imbalances in workforce diversity which were of interest to the researcher. Respondents were selected from both the academic and non-academic staff from the universities that form the unit analysis in this study. The total population for the public universities workforce is about 25,000.

Purposive sampling technique was used to select seven public universities. Several factors were considered to arrive at the choice of the participating universities. First, the NCIC (2012) survey that reported massive discrimination in workforce diversity focused on these universities. These universities would therefore provide most appropriate answers to the study questions. Second, nearly all the other public universities were constituent colleges of the seven and so are well represented by their 'mother' universities. Third, the seven universities have been in existence longer than the others and likely to have a workforce that has a relatively longer service thereby being in a position to respond in a more informed manner to the research questions. Finally, the seven universities command a total of 17,721 which translated to more than 70% of the total workforce of the public universities in Kenya.

The second stage of sampling was to identify respondents from the selected seven universities. The sample size was calculated using sample formula by Yamane (1967) as below:

$$n = \frac{N}{1+N(e)^2}$$

Where "n" is the sample size, "N" is the population size and "e" is the level of precision at 95% confidence level with an error 5%. A sample of 393 was selected which includes 125 and 268 individuals from teaching and non-teaching staff respectively.

Primary data was collected using a questionnaire which was pre-tested using a sample of 40 respondents from two public Universities which were not participants in the study. This study uses face validity and content validity to ensure that it can effectively measure the study variables. Cronbach Alpha was used to measure reliability of the study instrument which was distributed using a drop and pick method. Data was analyzed using both descriptive and inferential statistics. Pearsons product moment correlation (r) was derived to show the nature and strength of the relationship between variables while Coefficient of determination (r<sup>2</sup>) measured the amount of variation between the independent and dependent variables.

#### IV. FINDINGS

##### a) *Response Rate*

The sample response rate was 94%, which was a high response rate in comparison with others in similar field. For example, Shah et al (2012) in a Pakistani University recorded a response rate of 56% while Omari (2012) in the public sector of Kenya had a response rate of 48%.

##### b) *Descriptive Statistics of Political Environment*

The study selected two components of political environment; political patronage and favoritism which focused on external political environment of universities. Respondents were asked to indicate the extent to which they perceived their organizations workforce composition as being influenced by political factors. A five point Likert-type scale was used. The responses were analyzed using mean scores and standard deviation of mean (SD). The public universities overall score of political environment was computed as the average of the mean score of political patronage and political favoritism.

##### c) *Political Patronage*

Political patronage is the dispensation of rewards such as public offices and jobs by a patron (who controls their dispensation) to a client (World Bank, 2011). It is based on the premise that those who are loyal to power offices are rewarded for their loyalty. In an environment where political patronage is strong, regulatory requirements may be overlooked with opportunities dispensed through partisan treatment. The study used six items to measure political patronage in public universities. Results are presented in Table 4.1

Table 4.1: Respondents Scores on Political Patronage

Political Patronage	N	Mean	SD
a) National politics play a major role on who becomes the Vice Chancellor in the University.	364	4.17	.073
b) Ethnicity is a major consideration for employment in my university.	364	4.13	.073
c) Political parties have some influence about the composition of the university's senior positions.	361	4.13	.072
d) Hiring to a large extent is influenced by powerful officials in the organization.	353	4.25	.069
e) The senior management in the organization are well politically connected.	351	4.35	.068
f) I suspect that there are 'hidden agendas' behind management hiring decisions.	353	4.23	.071
Average Score	358	4.21	0.071

The results in Table 4.1 reveal that the political environment of the universities is characterized by a high degree of political patronage (mean=4.21, SD=0.071). The political connection of senior university management was ranked highest (mean =4.35, SD=.068) which was consistent with previous studies by Josephine (2005) and Owino (2013) in a similar sector. This may suggest that implementing workforce diversity policies when making hiring decisions may result in political patronage hiring thereby limiting the chances of fully balancing the workforce as stipulated particularly as regards to ethnic balance requirements.

The results further indicated that hiring to a large extent was influenced by powerful officials in organizations (mean=4.25), with a high degree of suspicion that there were hidden agendas in the management hiring decision with a mean of 4.23.

d) *Political Favoritism*

Political Favoritism is viewed as the distributing resources inequitably, the practice of giving unfair preferential treatment to one person or group, particularly through nepotism at the expense of another. Eight items are used to measure this and results are presented in Table 4.2.

Table 4.2: Respondents Scores on Political Favoritism

Descriptive	N	Mean	SD
a) Decisions in the University are often taken outside formal meetings or behind closed doors.	351	4.32	.070
b) I would first find out my supervisor's political preferences before discussing politics with him/her.	351	4.31	.069
c) Favoritism rather than merit determines who gets ahead around in this organization.	356	4.31	.070
d) There is a group of people in my organization who always get things their ways because no one wants to challenge them.	351	4.38	.068
e) I have seen rules bent here in favour of well politically connected individuals.	350	4.32	.072
f) Information here is jealously guarded and not shared openly between groups and departments.	351	4.35	.071
g) Those who take credit are not always those who made the biggest contribution.	348	4.28	.076
h) Employees assumed to have loyalty to management get more opportunities in the university.	365	4.24	.075
Average Score	353	4.31	.072

The results in Table 4.2 indicate that the average mean score for political favoritism was 4.31, SD=.072, portraying that public universities were perceived as institutions where political favoritism was high, with a mean=4.31. Consistent with this finding is the study of Oladipo (2011) on Hiring Decisions of institutions of higher education in state universities in Nigeria that hiring decisions were pegged on nepotism

and favouritism. The statement indicating existence of people who gets things done their way and cannot be challenged in organizations received the highest rating (mean=4.38, SD=.068). This implies that decisions can be manipulated depending on the personality and political affiliation thereby creating a situation where some may perceive a sense of bias.



e) *Descriptive Statistics on Stereotypes*

Communities possess both positive and negative stereotypes about themselves and other groups. Although stereotypes on their own may not influence decisions on the composition of an organization's workforce, they can solidify or reduce the strength of other factors that have potential to play in this regard. Where stereotypes are positive, they are likely to influence decisions positively unlike in cases where negative stereotypes take precedent. Stereotypes held by key leaders in public universities can either

strengthen or weaken the relationship that contextual factors have on the implementation of workforce diversity policies in those institutions. Prejudice and discrimination are identified as key measures for stereotype.

f) *Prejudicial Judgment*

When a group is negatively prejudiced, it is likely to be depressingly judged which in work setting can curtail inclusion. Table 4.3 summarizes results of prejudicial judgment found in public universities.

Table 4.3: Respondents Scores on Prejudicial Judgment

Prejudicial Judgment	N	Mean	SD
a) There is a difference in performance between males and females in management positions	369	4.24	.078
b) One gender is more aggressive than the other in this organization	373	4.14	.078
c) Being independent and objective is associated to employees of one gender	363	4.27	.073
d) Employees from some tribes are more loyal than others	352	4.32	.072
e) Some tasks are better performed by employees from certain ethnic communities	356	4.40	.067
f) Employees from certain communities are generally lazy	356	4.35	.070
g) People with disability are unproductive	354	4.40	.069
Average Score	360	4.30	.072

The results in Table 4.3 reveals that the average mean score for prejudicial judgment was 4.30., SD=.072. The perception about disabled people being unproductive had the highest mean score (mean=4.40, SD=0.06). It was also revealed that some tasks were better performed by employees from certain ethnic communities, with a mean of 4.40, SD=0.067. This implies that to a large extent the public universities hold prejudices that may influence decision making regarding workforce diversity in these institutions.

characteristics, such as race, age, gender, ethnicity, or sexual orientation (Williams & Patten, 2012). Where discrimination is rampant, the level of workforce diversity is likely to be low. Respondents were asked to indicate how strongly they viewed their organizations as having unequal regard to individuals in terms of gender, ethnicity and physical abilities. To measure the level of discriminative practices, a set of five items was used. Results are presented in Table 4.4

g) *Discriminative Behaviour*

Discrimination is indicated by unequal treatment of individuals or groups based on personal

Table 4.4: Respondents Scores on Discriminative Behaviour

Discriminative Behaviour	N	Mean	SD
a) Potential employees have missed opportunities because their communities are discriminated against	351	4.44	.065
b) Potential employees have missed opportunities because of gender discrimination	353	4.28	.067
c) Persons with disability are stigmatized in my university	357	1.79	.075
d) At my organization, people from certain communities are preferred for certain types of jobs	356	4.35	.072
e) Some jobs in my institutions are suitable for persons of one gender	360	3.48	.076
Average Score	355	3.67	.071

Table 4.4 reveal that universities discriminative behaviour is viewed to be moderate in public universities

with a mean score of 3.67, SD=.071. Ranking highest is the statement that people have missed opportunities

because their communities are discriminated against, which recorded a mean of 4.44, SD=0.65. However, when various categories get to the workplace, the treatment they receive is viewed as fair. This is shown in the statement that persons with disability are stigmatized in the university which recorded the lowest mean (mean=1.79, SD=0.75).

*h) Regression statistics of Political environment and Workforce Diversity Policies*

Results for the test of the hypothesis that there is no significant relationship between political environment and implementation of workforce diversity policies in public universities in Kenya are presented in Table 4.5

*Table 4.5: Political Environment and Workforce Diversity Policies*

(a) Goodness-of-Fit

R	R Square	Adjusted R Square	Std. Error of the Estimate
.908 <sup>a</sup>	.824	.824	.54124

(b) Overall Significance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	499.092	1	499.092	1703.746	.000 <sup>a</sup>
Residual	106.336	363	.293		
Total	605.428	364			

(c) Individual Significance

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.150	.105		58.572	.000
Political environment	-.992	.024	-.908	-41.276	.000

a. Dependent Variable: Implementation of workforce diversity policies

The results in Table 4.5 indicates that political environment had a statistically significant influence on implementation of workforce diversity policies explaining a 82.4% of its variation ( $R^2=0.824$ ). The hypothesis is therefore rejected. The Regression coefficient value of the computed scores of political environment was -.992 with a t-test of -41.276 and a significant level of  $P$ -value<0.001. This implies that an increase in political environment decreases the overall implementation of workforce diversity policies. This suggests that organizations would disregard the policies that require inclusivity in favour of political gains.

These findings concur with Oketch (2009) and Cameron (2010) that patronage appointments in the public sector are linked to loyalty to the government of the day. Further, a study by Hollyer, (2010) found out that bidding for public offices by offering public services in exchange for public posts was common in African public service. Similarly studies by Josephine (2005) in public universities in Africa established that the heads of public universities in many countries are political appointees and usually men who are rewarded for

supporting the political goals of their governments. Consistence to those findings is Owino (2013) whose study found that nepotism hindered equal employment opportunities in universities in Kenya.

*i) Moderation of Stereotype on Political Environment and Implementation of Workforce Diversity Policies*

To test hypothesis 5<sub>d</sub> that there is no significant moderation of stereotype on the relationship between political environment and implementation of workforce diversity policies in public universities in Kenya, a moderated multiple regression model was used:  $Y = \beta_0 + \beta_1 X_4 + \beta_2 Z + \beta_3 X_4 Z + \varepsilon$ , where Y is the implementation of workforce diversity policies,  $\beta_0$  is the constant,  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  are the slope coefficients representing influence between independent variable and the dependent variable,  $X_4$  represents political environment, Z is stereotype used as a moderating variable while  $X_4 Z$  is the interaction term which is the product of stereotype and political environment (stereotype\* political environment). The results are presented in Tables 4.6, 4.7 and 4.8.

Table 4.6: Moderating Effect of Stereotype on Political Environment and IWDP: Model Validity

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	499.092	1	499.092	1703.746	.000 <sup>b</sup>
	Residual	106.336	363	.293		
	Total	605.428	364			
2	Regression	504.998	2	252.499	910.137	.000 <sup>c</sup>
	Residual	100.430	362	.277		
	Total	605.428	364			
3	Regression	511.213	3	170.404	652.927	.000 <sup>d</sup>
	Residual	94.216	361	.261		
	Total	605.428	364			
a. Dependent Variable: Implementation of workforce diversity policies						
b. Predictors: (Constant), Political environment						
c. Predictors: (Constant), Political environment, stereotype						
d. Predictors: (Constant), Political environment, stereotype, stereotype*political environment						

Results in Table 4.6 shows that the F statistics in model one,  $F_{(1,363)} = 1703.746, P < 0.001$  was valid and there is a significant influence between political environment and the implementation of workforce diversity policies in public universities. When stereotype was introduced as a moderating variable in model two, the F statistics,  $F_{(2,362)} = 910.137, P < .001$  remained valid and indicated that there is a significant influence by political environment, stereotype on the implementation

of workforce diversity policies. When the interaction term (stereotype\*political environment) was added in model two, the new model three was found valid  $F_{(3,361)} = 652.927, P = .001$  indicating that there is a significant influence by political environment, stereotype, the interaction term (stereotype\*political environment) on the implementation of workforce diversity policies in public universities in Kenya.

Table 4.7: Moderating Effect of Stereotype on Political Environment and IWDP: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.908 <sup>a</sup>	.824	.824	.54124	.939	350.113	2	368	.000
2	.913 <sup>b</sup>	.834	.833	.52672	.086	11.251	1	369	.000
3	.919 <sup>c</sup>	.844	.843	.51087	.041	10.012	3	371	.000
a. Predictors: (Constant), Political environment									
b. Predictors: (Constant), Political environment, stereotype									
c. Predictors: (Constant), Political environment, stereotype, stereotype*political environment									

The  $R^2$  in model one of Table 4.7 indicates that 82.4% of the total variation in implementation of workforce diversity policies in public universities in Kenya can be explained by the political environment. The adjusted  $R^2$  shows that when the constant is excluded from the study there is no change in variation in implementation of the policies. The second model introduced stereotype into the relationship between political environment and implementation of workforce diversity policies in public universities. The change in  $R^2$  from 82.4% to 83.4% implied that stereotype improves the relationship between political environment and

implementation of workforce diversity policies by 1% which is statistically significant ( $P < 0.001$ ). The third model show the influence of political environment, stereotype and the interaction term (stereotype\*political environment) and implementation of workforce diversity polices. The results indicated that the interacting term improves the  $R^2$  by 1.8% from 83.4% to 84.4%, an improvement which is statistically significant ( $P < 0.001$ ). This implies that stereotype significantly influences the relationship between political environment and implementation of WDP in public universities in Kenya.

Table 4.8: Moderating Effect of Stereotype on Political Environment and IWDP: Regression Weights

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.150	.105		58.572	.000
	PC	-.992	.024	-.908	-41.276	.000
2	(Constant)	6.409	.117		54.987	.000
	PC	-.716	.064	-.655	-11.143	.000
	ST	-.355	.077	-.271	-4.614	.000
3	(Constant)	5.157	.280		18.400	.000
	PC	-.192	.124	-.176	-1.545	.123
	ST	.062	.114	.048	.550	.582
	STPC	-.146	.030	-.792	-4.880	.000

a. Dependent Variable: Implementation of workforce diversity policies

As indicated by the results in Table 4.8, the political environment in which public universities operate remained significant in model one and two. When stereotype was introduced in the second model, it became significant ( $P < .001$ ). When the interaction term (stereotype\*political environment) was introduced in model three the model remained statistically significant at  $P < .001$ . This study therefore concluded that stereotype is a significant moderator of the influence of political environment on the implementation of workforce diversity policies in public universities in Kenya

## V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The findings from this study revealed that there is a positive and significance influence of political environment on implementation of workforce diversity policies. This means that when political patronage and favoritism deeply embed in the environment, there is lower implementation of the regulatory requirements for diversity. This implies that when the university top management is highly politically influenced, there are high chances of hiring individuals regardless of whether or not the principles of diversity are met. A conclusion is made that public universities are to some extent being influenced by political factors particularly in relation to ethnicity which to a great deal compromises the composition of the workforce.

However, contrary to study expectations, stereotype did not seem to significantly influence the relationship between political environment and implementation of workforce diversity policies. The result findings revealed deep ingrained gender stereotypes against women which would limit their inclusion in the workplace. Article 81 (b) indicates that the workforce in the public sector should not have more than two-thirds of the same gender while Article 54 provides that

persons with disability should account for at least five per cent of the organization's workforce. Further, Article. 232(g),(h),(i) of the Constitution of Kenya provides that fair competition and merit shall be the basis of appointments and promotions in the Public Service. On the same note, Article 73(2) (a) provides that selection should be on the basis of personal integrity, competence and suitability. For the recruitment function to balance the policy requirement and the needs of the universities knowledge and skill gaps, a clear guideline should exist to enhance value based recruitment. A system should be in place which is easy to manage, economical to operate and sufficiently flexible to meet changing operational needs of the stakeholder. The bottom line of the composition of the workforce should be one where merit and representativeness, merit and equity and equality, and the net effect on efficiency and effectiveness of the workforce is not compromised.

The study recommends that the National Cohesion and Integration Commission and other institutions responsible for peace and unity promotion in the country, as well as human resource managers and other personnel charged with the staffing function should make deliberate efforts to shirk negative stereotypes. When a group is negatively stereotyped it is likely to receive depressed treatment. As Kenya strives to ensure effective implementation of the Constitution (2010), an understanding of possible predicaments that may bring constraints is critical. Introducing legal penalties to those who do not comply would enhance implementation.

The general notion in Kenya that gender means women should be erased through education as it leaves the society to perceive the policies as discriminatory against men. The universities, or better still, the Commission for University Education and other institutions charged with the responsibility of developing human resource policies for university staff should

ensure that not only are policies gender sensitive at recruitment level but also for training and development, promotions and reward management. Women and minorities should be empowered to understand that they need to strive to get into top management positions to be able to influence policy in order to bring about a gender inclusive society.

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## Do Employee Incentives Foster Innovation in Organization?

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**Abstract-** Employee innovation is one of the most critical factors which affects the overall growth of an organization. To get innovative ideas out of an organization's employees, incentives play a vital role. In this paper, different incentive structures from previous researches has been examined that are followed by top management for generating innovative ideas. Although most researches from the past found that a fixed wage or compensation based on performance induces a high level of innovation, but it is actually detrimental for innovation. Rather rewarding employees for long term or performance-based promotion is more effective in fostering innovation. From my evidence and based on the articles analyzed in this paper it was found that performance-based promotion is more fruitful for innovation.

**Keywords:** *innovation, incentives, motivation, organization.*

**GJMBR-A Classification:** *JEL Code: M51*



*Strictly as per the compliance and regulations of:*



# Do Employee Incentives Foster Innovation in Organization?

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**Abstract-** Employee innovation is one of the most critical factors which affects the overall growth of an organization. To get innovative ideas out of an organization's employees, incentives play a vital role. In this paper, different incentive structures from previous researches has been examined that are followed by top management for generating innovative ideas. Although most researches from the past found that a fixed wage or compensation based on performance induces a high level of innovation, but it is actually detrimental for innovation. Rather rewarding employees for long term or performance-based promotion is more effective in fostering innovation. From my evidence and based on the articles analyzed in this paper it was found that performance-based promotion is more fruitful for innovation.

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## I. INTRODUCTION

In every organization, innovation is facilitated through different channels and most talented individuals are always found to be the vital ones for the buildup of knowledge and renewal who are willing to generate new ideas in return of rewards or gains achieved for those (Henrique M. Barros, Sergio G. Lazzarini, 2012). Thus, providing incentives for the employees in the organization proves to be vital for creating the desire among the employees to innovate. To access new markets, companies need to explore and develop new products and processes; therefore, firm's resources and managerial talent need to be efficiently utilized (Holmstrom 1989, Aghion and Tirole 1994, Manso 2007). It has been found from previous researches, compensation based on pay-for-performance principle generates more impact for employee productivity; however, field research in psychology points out performance-based rewards are actually detrimental for innovative tasks (Ederer & Manso, 2013).

It is understandable that, every employee expects monetary incentives or any other rewards for their work, but not all types or structure of incentives are found to be effective in fostering innovation; hence the process of giving incentives must be taken into consideration for long term innovation, which will be more effective for the organization. Therefore, firms can design either short term rewarding mechanisms, e.g. profit sharing or long-term rewarding, e. g. promotion

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scheme for generating innovative ideas from the employees.

The key contribution of the paper is to show that incentive schemes that motivate innovation should be structured differently from standard pay-for-performance schemes used to induce effort or avoid tunneling. Innovation involves the exploration of new untested approaches that are likely to fail. Therefore, standard pay-for-performance schemes that punish failures with low rewards and termination may in fact have adverse effects on innovation. In contrast, the optimal incentive scheme that motivates innovation exhibits substantial tolerance (or even reward) for early failure and reward for long-term success. Under this incentive scheme, compensation depends not only on total performance, but also on the path of performance; an agent who performs well initially but poorly later earns less than an agent who performs poorly initially but well later or even an agent who performs poorly repeatedly. The paper also shows that commitment to a long-term compensation plan, The key contribution of the paper is to show that incentive schemes that motivate innovation should be structured differently from standard pay-for-performance schemes used to induce effort or avoid tunneling. Innovation involves the exploration of new untested approaches that are likely to fail. Therefore, standard pay-for-performance schemes that punish failures with low rewards and termination may in fact have adverse effects on innovation. In contrast, the optimal incentive scheme that motivates innovation exhibits substantial tolerance (or even reward) for early failure and reward for long-term success. Under this incentive scheme, compensation depends not only on total performance, but also on the path of performance; an agent who performs well initially but poorly later earns less than an agent who performs poorly initially but well later or even an agent who performs poorly repeatedly. The paper also shows that commitment to a long-term compensation plan, The key contribution of this paper is to indicate that incentive schemes that motivate innovation should be structured in different forms than rather than following a standard pay-for-performance scheme. Innovation refers to the exploration of new untested approaches that are likely to fail (Manso,2011).Therefore, standard pay-for-performance schemes that do not tolerate failures, with low rewards and termination may actually create

negative effects on innovation (Manso, 2011). On the contrary, the optimal incentive scheme that motivates innovation exhibits tolerance or even reward for early failure and reward long-term success. An agent or employee who performs well in the beginning with poor performance at later point earns less than an agent who performs poorly initially but well later or even an agent who performs poorly repeatedly (Manso, 2011). In this paper, the analysis has been done on how the incentives programs should be structured and which one is the most effective in terms of generating innovative ideas according to previous researches based on the reviewed articles.

#### a) *Research problem*

In this modern era, with the rise of technological trends such as artificial intelligence, big data and machine learning, the traditional way of doing business no longer seems to make higher impact for companies. Therefore, adaptability with changing trends in every moment is vital concluding remarks that innovation is crucial for a firm's survival or growth in a sector.

According to Andersson, Freedman, Haltiwanger, Lane, & Shaw in 2009, highly skilled individuals will tend to be attracted to firms that provide appropriate rewards for their innovative efforts. So, to enhance the innovative works or to get the best out of the vital and creative employees, providing incentives as means of giving a monetary reward or verbal recognition has proved to be essential for every firm. Incentives can be provided in the short term or long-term mechanisms. Short term mechanisms can be defined as paying employees for performance, e.g. fixed wages for each contribution. Whereas long term mechanisms consist of the idea that managers tolerate initial failure, thus holds a focus on outcome over extended period of time for achieving long term success, finally giving reward for that.

So, there has been an issue for further research to determine how the differences in incentive structure can foster higher productivity among the employees for certain innovative outcomes. Therefore, it is evident that all incentive structures do not create the same stimulation among employees for generating new innovative strategies.

#### b) *Research Question*

In this paper, different structures of the incentive plan have been investigated and which structure is more fruitful and should be followed to motivate employees for innovative ideas has been determined. My research questions are:

1. How the structure of the incentive programs affects the motivation for innovation among employees?
2. Which incentive structure has proven to be more impactful for employee innovation in organization?

#### c) *Thesis statement*

In this paper, I look to find out different employee incentive schemes based on the performance of the employees and the right incentive structure which has been found to have higher effectiveness for the innovative outcome. I hold a purpose to make a review on the selected articles and how the results have been drawn from laboratory experiments.

*Hypothesis 1:* Fixed wage or pay for performance scheme has a higher effect on employee innovation in organizations.

*Hypothesis 2:* Incentives on long term success or pay for promotion have a higher effect on employee innovation in organizations.

#### d) *Organizational Innovation*

Organizational innovation is a dynamic and iterative process of creating or modifying an idea and developing it to produce products, services, processes, structures, or policies that are new to the organization (Zhuang 1995; Nohria & Gulati 1996). It refers to an idea, new method, new service, new process, new technology, or a new strategy adapted by a firm which introduces something new to the firm (Mehmet Akif Demircioglu, 2016). The organizations, through innovation can maintain a continuous competitive advantage by mastering innovative activities e.g. multi-billion-dollar-a-year 3M (Anthony Read).

To maintain a distinct competitive edge in the marketplace, employee innovation in an organization is a critical component (Anderson, De Dreu, & Nijstad, 2004; Anderson et al., 2014; West, 2002). Furthermore, this advantage is heightened in a knowledge-based economy where intangible assets play an even more effective role in organizations' abilities to enhance competitiveness. Employees play a vital role in creating this competitive advantage because they are often on the front line with customers and view the opportunities for rapid change and improvement in processes and procedures that are not salient to either managers or other authorities (Craig, Markus, Paul D Johnson et al. 2016) Thus, understanding the process that motivates and enables individual innovation is an area of critical importance in our field (Scott & Bruce, 1994).

#### e) *Incentives for innovation*

While attempting internal innovation measure, after sorting ideas, defined roles and goals, and a definite marketing plan the next thing that should be conserved for employees is incentives which plays a vital role in motivating workers to create not only a short term innovative culture but also a long term sustainable culture (James Pasmantier, 2011). Incentives can be given in two ways: reward and recognition. According to James Pasmantier, 2011, the reward can be financial or non-financial: financial reward may influence personal

gain among the employees, thus actually may prevent innovation culture but non-financial gain are great ways to motivate employees while incentive giving belongs to a part of a big group which is collaborating for company development.

The impact of monetary incentives on innovation by examining the relationship between principals and agents are often evaluated by the Agency theory (Bonner and Sprinkle 2002). Gelande (2006) observes that agency theory, is pivotal to assessing whether (and how) firms themselves can encourage innovation. Innovative activities are risky because they require employee effort and have uncertain outcomes and according to agency theory, a firm should provide incentives to induce employees to engage in innovative activities (Jensen and Mackling 1976; Holmstrom 1979; Baker 1992).

The impact of organizational incentives on firms financial performance has also been concentrated through agency based literature (Cadsby, Song, & Tapon, 2007; Dow & Raposo, 2005; Peng, Buck, & Filatotchev, 2003), including those organizations that are not profit-oriented. For example, in both nonprofit and for-profit hospitals, CEOs do not have an explicit incentive to concentrate on altruistic activities (Brickley and Horn, 2002). Every high skilled employee tends to focus on attractive rewards from an organization for their valuable efforts or else they will become entrepreneurs and commercially exploit their own projects (Zenger, 1994). Thus, there is no doubt how effective incentives are for employees and how much big role different rewarding schemes play in organizations' growth through employee innovation.

Innovation relies on individual creativity, and firms should reward talented individuals for their contributions (Froebel & Giannotti, 2009). However, while designing the incentive structure that motivate innovation, firms should expect uncertain outcomes as the innovation performance is difficult to monitor (H. M. Barros, S. G. Lazzarini. 2012)

According to recent evidence, new product development managers respond positively to variable compensation based on project performance (Davila, 2003). Laboratory and field experiments and other researches offer evidence that workers performing simple, routine tasks respond to financial incentives by exerting themselves more and performing better (Gustavo Manso, 2017). Furthermore, an emerging body of literature has suggested, that organizational incentive schemes (i.e., performance-based pay) play a vital role in stimulating innovation (Cano & Cano, 2006; Laursen & Foss, 2003). In fact, financial incentives affect: (a) Problem-solving speed (e. g., Appleyard, Brown, & Sattler, 2006); and (b) the performance of cross-functional product development teams (Sarin & Mahajan, 2001). Thus, based on the literature it is very

much evident that financial rewarding highly foster innovation and different incentive schemes have a different outcome from the employees regarding innovative ideas.

Importantly, optimal performance may also require creativity and originality— in other words, innovation, Thus, it is important to consider a right kind of incentive scheme that is suitable for different kind of work profiles which require new approaches and adaptability (Manso, 2017). To have the optimal incentive structure another aspect which is also taken in to consideration such as long term commitments, protection from failures, the threat of termination, and all these different aspects positive and negative-both ways affect the process of innovation.

#### f) *Employee Incentive schemes*

*Performance-based pay:* According to previous economics research, paying the agent or employee based on his performance induces the agent to exert more effort, improving productivity in simple routine tasks ((Lazear, 2000; Shearer, 2004; Dickinson, 1999). On the other hand, experimental and field research in psychology provides evidence that, in tasks requiring exploration and creativity, pay-for-performance or fixed-wage according to performance may negatively affect performance. McGraw (1978), McCullers (1978), Kohn (1993) and Amabile (1996) summarizes their research findings stating that pay-for-performance encourages the repetition of work done in the past, but does not influence the exploration of new and untested approaches. These studies thus make remark that fixed monetary scheme should not be used in the tasks that require creativity and innovation of the employees because of their focus on a certain goal (Florian aderer, 2013). According to Laursen and Foss (2003) who examined the relationship between incentives and innovation the performance-based pay was positive with marginal statistical significance (10%).

*Performance-based promotion:* Performance-based promotion for innovation refers to rewarding employees longer-term with consideration to different scenarios in the beginning. The employees in the organization keep performing for their reward in the future that could be monetary or certain recognition. In contradictory to performance-based payment, performance-based promotion is likely to have a long-term nature, and this is consistent with the period of innovation activities of the employees (M. Barros & Lazzarini, 2012) For instance, CEO at IT firms are more strongly dependent on firms' innovation performance than on financial performance (Balkin, Markman, and Gomez- Mejia, 2000). It has been recognized by social psychology literature that promotion is closely related to long-term reward

systems, which encourage employees to engage in long-term oriented behavior (Crowe & Higgins, 1997).

g) *Different aspects in considering incentive structure*

An organization's innovative outcome can be measured by the achievement of certain factors such as patents, intellectual property rights gain or financial gain for some time. An alternative explanation has been proposed by Holmstrom (1989) for why incentive schemes that motivate innovation must exhibit tolerance for failures. He states that performance measures for innovative activities are noisier, and therefore principals should rely on compensation packages with less sensitiveness to employee performance to motivate innovation. There are certain aspects that have both positive and negative impact on the incentive schemes for the innovation.

## II. TERMINATION

The threat of termination refers to the situation where an employee has the idea of getting fired if his performance is unacceptable. According to Gustavo Manso (2017), the threat of termination discourages agents from shirking or exploring new actions motivating exploitation which means to get the reputation of well-known techniques. Thus, a fear of losing job puts a barrier in front of the employee to find the unknowns for innovation. So the managers need to provide job assurance in order to motivate employees to innovate (Manso, 2017)

## III. LONG TERM COMMITMENTS

Incentive contracts that foster innovation must be having a high tolerance to initial failure (Holmstrom, 1989 and Manso, 2007). Therefore, an employee if criticized for initial failures may be afraid to exert activities with high failure rate, similarly with rewards being given for the first-time success may encourage them to exploit the same skills rather than new ideas. So, an optimal incentive contracts for innovation must provide the agent with long-term commitment and protection from failure (Francis, Hassan & Sharma, 2011). According to Kole (1997), long-term contracts encourage managers to stay with the firm and prevents them from taking myopic decisions. So, for projects requiring specialized knowledge with long development stages, firms offer long-term contracts with greater restrictions (Francis et. al, 2011).

## IV. PROTECTION FROM EARLIER FAILURE

Innovation projects in a firm bear a high risk of failure, thus a principle can fire the agent if the agent fails to produce the required output. Golden parachute an aspect of the market of corporate control, provide the agent from termination, and it has been a matter of debate that it distorts managers incentives (Francis,

Hasan & Sharma, 2011). On the contrary, according to Lambert and Larcker (1985), Knoeber (1986) and Harris (1990), golden parachutes align managers' interest with shareholders who are responsible for terminating, thus helps to negotiate in the better way in a corporate takeover. Bruce, Lee and Shook (2009) find that firms who adopts golden parachutes perform significantly better than their competitors both in the short run and long run. Thus, while formulating incentive structure, tolerance to earlier failure can provide a more desired outcome in the process of organizational innovation

a) *Findings and analysis*

*Henrique M. Barros & Sergio G. Lazzarini (2012)*

Henrique M. Barros & Sergio G. Lazzarini (2012) in their research based on a survey tried to find out relationship between incentives and innovation. To find out which kind of incentive scheme is more effective for innovation Barros & Lazzarini (2012) analyzed the impact of performance-based pay and performance-based promotion for firms' innovation. In their research to measure firms' innovativeness, the percentage of firms' revenues in 2006 were considered which came from innovative measures throughout 2003 to 2005. A linear regression was used to find out the relation between the Dependent variable (Innovation) and Independent variable (pay and promotion)

Table: Barros and Lazarrini, 2012

## Two-stage Estimation of the Effect of Incentive Structures (Contingent Pay and Promotion) on Innovation (Percentage of Revenues Coming from New Products)

Coefficients	Pay <sup>a</sup> (1a)	Promotion <sup>a</sup> (1b)	Innovation <sup>b</sup>		
			(2a)	(2b)	(2c)
Pay - Medium			0.318 (0.203)		0.021 (0.163)
Pay - High			0.221 † (0.113)		-0.244 (0.165)
Promotion - Medium				1.520 ** (0.352)	1.391 ** (0.313)
Promotion - High				0.982 ** (0.166)	1.163 ** (0.206)

According to the estimates reported in column (2a), firms with high payment for performance (Pay-High) are slightly more innovative than firms with low performance-based pay ( $p < .10$ ). However, this effect becomes insignificant when the performance-based promotion variables are included (column (2c)). The effect of the promotion variables, on the other hand, is highly significant, firms with either moderate (Promotion-Medium) or high (Promotion-High) levels of performance-based promotion are more innovative than firms with the lowest level of performance-based promotion ( $p < .01$ ). However, the coefficient of Promotion-Medium is higher than the coefficient of Promotion-High also indicating that with the increase of promotion related incentives the percentage of corporate revenue increases, as a result innovations also increases, thus it can support the second hypothesis.

b) *Ederer & Manso (2017)*

In a research to find out the evidence that tolerance to earlier failure and reward for long term success motivate innovation, Ederer and Manso (2017) recruited 379 participants to operate a computerized lemonade stand where the participants were given a choice between making minor adjustments to the business decisions. The experiment was designed in such a way that a certain set of product and location choices represented the optimal business strategy. Three participants group were created with different compensation schemes for the task.

The first group received a fixed wage in each period of the experiment, the second group got a standard pay-for-performance contract allotting them a fixed percentage of profits achieved during the experiment and the third group received contracts to motivate exploration basing their compensation on a

fixed percentage of profits generated in the second half of the experiment.

After the experiment, it was determined that the participants under the exploration contract found the best location for the lemonade stand 80% of the time compared with 60% and 40%, respectively found by the participants under fixed wage and pay for performance contracts. With detailed analysis it was evident that participants under fixed wage contract did a significant amount of exploration but was not as systematic as their counterparts under the exploration contract. Also 82% of the participants under exploration contract used the table to monitor their operations whereas only 55% of those under fixed wage contract used that to track business decisions and profits.

To measure the effect termination two new groups were introduced: Regular termination and golden parachute. Both groups were told if their profits in the first 10 periods fell below the threshold level the experiment would end early. It was found that 65% of participants in golden parachute termination discovered the best business location compared with only 45% of those in termination group without golden parachute scheme, thus indicating in the event of a failure, the promise of payment motivated the participants to take chances.

It can be summarized from the above outcomes that for participants under exploration incentive scheme, tolerance to earlier failure with payment for long term performance influenced the groups more to discover novel business strategies than those under fixed-wage and standard pay-for-performance incentive schemes. So, evidently it can support our hypothesis 2 and remarks can be taken that pay for performance with tolerance to earlier failure have higher positive impact on innovation.

c) *Ederer & Manso(2013)*

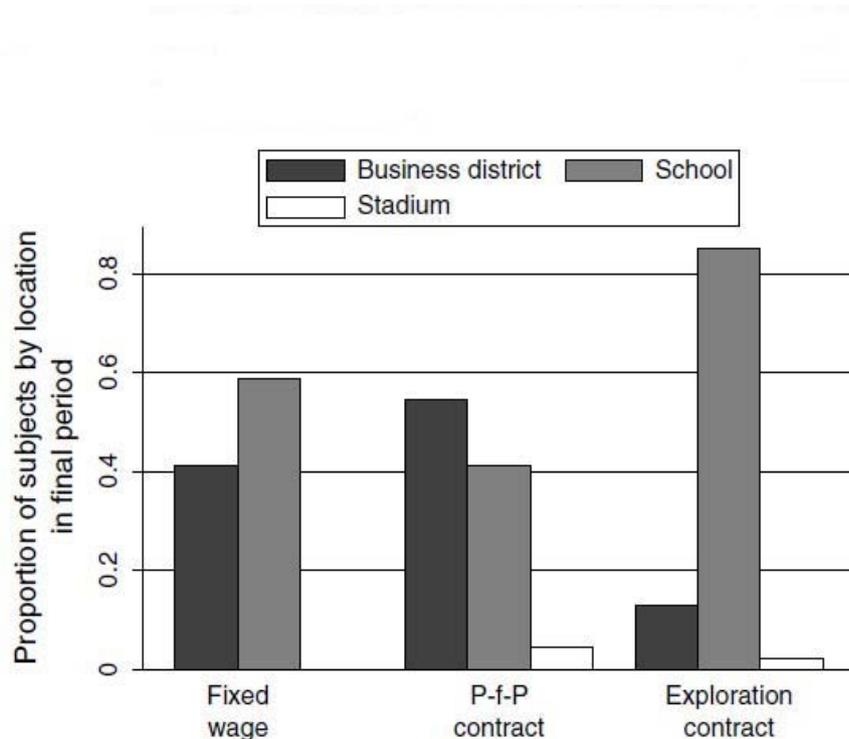
Florian Ederer & Gustavo Manso in 2013 implemented three treatment conditions to examine the effect of deferent incentive schemes on innovation. The only difference was the way of compensation between the groups. In experiment subjects take the role of an individual operating a lemonade stand. The experiment lasts for 20 periods. Three incentive schemes were

*Fixed wage- fixed payment of 50 francs per period*

a) Pay for performance- 50% profits paid during the 20 periods if the experiment.

b) Exploration- 50 % profit paid during last 10 periods.

In the result analysis to compare the outcome from different incentive schemes, it was found that subjects under the fixed wage and pay for performance contracts were less likely to choose to sell lemonade at the school which is the highest profit location.



*Figure 1:* Proportion of Subject by Location in the Final Period of the Experiment for the Fixed-Wage, pay-for-Performance, and Exploration Contracts

In the final period of experiment where the subjects under exploration contract tend to sell more in school (Figure 2). In the exploration contract condition more than 80% of subjects choose to sell lemonade at the school, only 40% of subjects choose to do so in the pay-for-performance condition, and 60% choose to do so under the fixed-wage contract.

In the analysis of exploratory behavior subjects under the pay for performance explored less than the subjects under the fixed wage contract. In the exploration contract subjects tend to choose a location except the default location in 82% and 85% cases in the First 10 periods,, but under fixed wage contract subjects choose to do so only in 60% and 63% cases and only 51% and 48% for subjects in pay for performance contract. This indicates that earlier tolerance to failure in the exploration contract motivated the individuals to try for something new in the first 10 periods.

## V. AMOUNT OF TIME AND EFFORT IN EVALUATING DECISION

To find out the amount of the time spent and effort made in evaluating decisions it was seen that subjects under fixed-wage attempted to minimize the time and effort to complete experiment as they had a mindset that their performance will not affect their compensation. Thus, subjects under fixed-wage spent only 24 seconds on average on the decision screen whereas subjects under exploration and pay for performance spent 31 and 30 seconds respectively indicating the effort for innovative thinking made in exploration contract were higher than fixed-wage conditions.

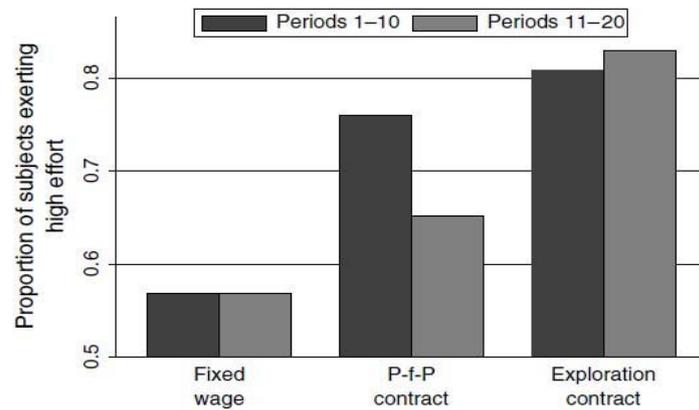


Figure 2: Proportion of Subjects Who Complete more Than Half of the Fields in the Decision Record Table for the Fixed-wage, pay-for-Performance, and Exploration Contracts

In a situation where real efforts need to be made for innovative tasks, subjects under incentive scheme which tolerates earlier failure and rewards long term success look to explore more and discover better strategies than the subjects under fixed-payment or standard pay for performance incentive scheme. (Ederer & Manso (2013). Thus, both the researchers were successful in making causal relationship between incentive schemes and innovation performance, and from their findings it is also evident that tolerance to earlier failure is associated with innovation in long term incentive contracts.

a) *Incentives with termination and Golden Parachute treatments*

The threat of termination has adverse effects on innovation success and exploration activities, but golden parachutes alleviate these negative effects. Risk aversion further reduces innovation success, exploration activities, and performance in the termination treatment (Ederer & Manso, 2013). The threat for the termination in the earlier failure brings about a fear among the subjects, and resist them to explore more for innovative ideas.

Golden parachutes align interests of managers with shareholders by insulating the managers from the takeover market that could potentially lead to wealth transfer from shareholders to managers. In the event of termination golden parachute is provided to protect the managers. Even though in a high risky project, managers tend to pursue when they are provided with golden parachute (Francis, Hasan & Sharma, 2011).

Patents are a useful proxy for a firm's innovativeness: they can convey information about a firm's accumulation knowledge and regarded as an indirect measure for capturing innovation (Francis, Hasan & Sharma, 2011).

The log of count of patents was taken as Dependent variable and golden parachute program as independent variable. Bill Francis et al. 2011 found a unit change in golden parachute leads to 9% increase in log of counts of patents. Furthermore, it was found that a unit change in golden parachute leads to 14.1 increase in log of citations. Francis, Hasan & Sharma (2011) state that golden parachute may be a tool for protecting managers against failure, thus good for fostering innovation. When managers do not have to face the threat of termination, they might be more risk seeker and can be involved in high risk projects in the long run which increases firm's value. So a shield from the threat of termination creates a position for manager to invest more in innovation. This finding by the author can provide justification for second hypothesis of this paper that tolerance to earlier failure and giving long term reward will have higher positive impact on innovation.

## VI. CONCLUSION

Fostering innovation in a firm not only requires employees commitments and hard desire towards achievement but also there must be the presence of the reward system which could be in form of monetary or recognition that in the long run will motivate the employees for higher innovative ideas. In this paper, it has been analyzed how the right form of incentive schemes with right aspect could impact the innovation in the firm.

From the analysis of previous researches, it can be remarked that employees when are in fixed-wage contract for their performance tend to be less explorative and motivated towards unapproached strategies as they are just aware of a fixed reward for their particular achievement. But when the employees are considered for long term promotion in respect to their successful

performance, they tend to make more efforts for the innovative outcomes. They may fail early, and the managers need to take it positively in the beginning and a tolerance to failure should be adapted. The application of golden parachute program has also proven beneficial as it pays them for their failed exploration and this feeling of the absence of threat of termination can even motivate them more to approach new ideas and strategies, which eventually fosters the innovation.

This study can contribute to few aspects from managerial perspectives. From the study the evidence of the relationship between employee compensation and organizational innovation has been found where it has evidence that compensation foster the innovation. This study can contribute in the decision process for the managers which involve choosing and following the right incentive scheme. Thus, organization looking to spur innovation can decide which innovative structure should be considered. As performance-based promotion is highly relevant for innovation, future research can be done about the effect of different other incentives schemes.

## VII. LIMITATIONS OF THE RESEARCH

In this paper there has no analysis been done on different other innovation types and how the incentive schemes affect them. For example, if a firm want incremental innovation which refers to upgrade or development of firms existing technology or process or radical innovation (exploration), different incentive scheme might have different impacts in different innovation types. Also the sustainability that can be brought out from the incentive schemes has not been assessed or analyzed in this paper marking another limitation of this particular research.

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# A Study on the Influence of the Bhagavat Gita on Modern day Corporate Stress Management

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**Abstract-** The Bhagavat Gita is a prehistoric Hindu Holy book that was concocted eras before the modern pillars of business management was reputable. The book is believed to have huge potentials to capture reader's devotion through its allegorical testimonials on human life and the ways to eradicate sufferings and distortions from the same. Today's modern corporate world is witnessing a huge anguish in the form of employee stress. Recent studies have established the fact how an employee's mental stress has become his principal adversary on the work. Business juggernauts are spending millions for the mental stability and satisfaction of their employees but the phenomenon has become too disquieting to be neglected any further. The concerned research article attempted to find whether the age old Hindu Holy book has anything to do with the employee stress management of today. The study has probed deep into the wisdoms of the specific chapters of the book and the implications of the same on the average employee of the 21<sup>st</sup> century.

**Keywords:** *bhagavat gita, employee stress, business management, corporate world, business juggernauts.*

**GJMBR-A Classification:** *JEL Code: M19*



*Strictly as per the compliance and regulations of:*



# A Study on the Influence of the Bhagavat Gita on Modern day Corporate Stress Management

Saptarsi Ganguly <sup>α</sup> & Mriganka Gope <sup>ο</sup>

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## I. INTRODUCTION

The business world has never been more viable than what it is today. The corporate world has been fronting several hitches in the forms of low productivity, low employee morale, lack of motivation, unfitting leadership skills and so on. However, there has been a recent phenomenon in the field of business management that shows that corporate employees are showing symptoms of high level of work stress which is leading to several mental as well as physical predicaments resulting in high labor turnovers and deficiency in the overall yield of the concerned workforces (Sharma & Shakir, 2017, p. 657). In this regard this research paper aims at concentrating on the root causes of such mental trouble of the employees in the corporate world as well as voicing a way-out from the same with the help of an ancient Hindu religious text, The Bhagavat Gita. The Bhagavat Gita is said to have solutions to all problems of mankind. It is a part of the longest poem in the human civilization, Mahabharata, a Hindu epic.

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The chapter 6 of the Holy book is said to have an expedient approach towards the rudimentary problem that the folks from the corporate world is facing and that is excessive mental stress and severe anxiety on the work place (Mukherjee, 2017). In this regard it has to be kept in mind that the concerned research paper deals with the idea of the influence that the Bhagavat Gita has on the modern day business management in regards to handling employee's psychological stress and unease on the job. The Gita is a Hindu holy scripture that consists of 700 shlokas or verses (Chopra et al., 2018, p. 28). It has been divided into 18 chapters. It is a detailed dialogue based conversation between two main characters of the epic, Arjuna and Krishna.

The background of the conversation is on the combat zone of Kurukshetra before a fear-some battle. Arjuna, who has been terrified at the thought of having to kill his own family in order to triumph the war, falls into severe anxiety and Krishna counsels him through his divine message. It is regarded as a 48 minute conversation that was penned down by Vyasa, the great sage, for the relief of mankind in future against mental dilemma. As per certain scholars the Bhagavat Gita was composed sometimes in the early days of 200 BC which is approximately 2200 years from now (Mukherjee, 2017). The mere thought of a 2200 year old book having possessions on the business scenario today itself is quite astonishing.

### a) *Research Objectives*

The concerned research paper aims to achieve the following objectives:

- To acquire a bird's eye view on the delinquent of employee stress management in the modern corporate world.
- To delve deep into the antiquity of the Hindu Holy Book the Bhagavat Gita
- To designate the knowledges of the Holy Book in brief.
- To acme the recent statistics correlated to employee stress in the corporate world.
- To ascertain elucidations to the trouble of employee's mental stress from the Bhagavat Gita.
- To ripen a hypothesis on the dependence of employee success over Self-restraint and ethical consciousness.

### b) *Rationale of the Research*

The work related stress and pressure is surmounting among the employees at the current juncture. A large percentage of the entire working population is facing enormous mental as well as physical stress owing to several major reasons (Sharma & Shakir, 2017, p. 657). Hence, there is a need to delve deeper into the concerned issue for finding out the strategies meant for resolving the identified problem.

## II. REVIEW OF LITERATURE

Several researchers across the globe have been trying to decode the propositions of the Bhagavat Gita since quite a time now. Not only in the realms of India but also in the west, have great intellectuals and eminent personalities been effected with the wisdoms of the concerned Holy book (Mukherjee, 2017). For instance Julius Robert Openheimer, the father of the atomic bomb, was highly interested and deeply gratified by the teachings of the Bhagavat Gita (Yadav et al., 2017, p. 91). It is so said, that he often gifted the book to others and suggested them to have a read of the same. The entire world has also witnessed the genius quote from the Holy book after the atomic explosions at Hiroshima and Nagasaki. Here are the axioms of few researchers on the stimulus of Bhagavat Gita on the modern day principles of business management.

According to Pillai, Agarwal & Pillai (2019), the Indian thought and education structure has similar traits from that of the western world. The country however is unaware of the rich cultural and religious legacy that it beholds. As per the study, there are generally two types of awareness that is conveyed in the Bhagavat Gita, one being physical while the other being psychic. The researchers have stressed on the prerequisite of the teachings of the Bhagavat Gita in building an individual's moral charm. The study has also delved deep into the history of modern day business management. It states that the all-inclusive philosophies of business management were first erected in the early years of the 20<sup>th</sup> century. There have been references of eminent personalities in the field of management like, Alexander Church, Henry Fayol, Elton Mayo and so on. The study has emphasized the correlation between the principles of management and the teachings of the Bhagavat Gita. It has specifically mentioned the chapters and verses of the Book where such principles of management have been emphasized. The research paper has underlined the principles that have been proposed by the father of management Henry Fayol and have endeavored to find similar teachings in the Bhagavat Gita (Mukherjee, 2017). It has predominantly focused on the principles of leadership, discipline, motivation and authority and responsibility. The research paper on the other hand, has fixated on the chapter 3, 6 and 2 of the Holy book. It anticipated to have found

exquisite similarities between the principles of management and the teachings in the Holy book. The study states that in the verse 20-21 of the chapter 3 of the book Krishna talks about leadership qualities and how to mature the same in oneself. Similar mannerisms have also been highlighted regarding chapter 6 and 2 of the Holy book.

According to Anila & Krishnaveni (2017), the Bhagavat Gita is the greatest treasure to the entire world. The lessons of the Holy book contain enough knacks to develop mind managing capabilities in any human being. The major toil that the corporate world is fronting today is the extreme mental hassle and work related anxiety. An organization has to suffer in terms of profitability as well as high labor turnover (Mukherjee, 2017). The extreme stress that an average employee faces could be the result of high cut-throat antagonism in the business scenario. The study also talks about the mentality of most Indians regarding the inferiority of anything Indian to its Western counterpart. The study states that each and every work requires a sound human mind to perform the work in a proper manner (Mukherjee, 2017). This human mind as far as men involved in the business consequence are concerned in most cases, is no more sound due to several corporate hitches. The study has decoded certain principles of the Bhagavat Gita. These principles are extremely relevant in the modern day business management as it more or less nullifies the present problem of employee stress and the struggles of business managers to deal with the same. Few of such principles can be elaborated in brief.

The first principle that the study talks about is the efficiency of undertaking stuffs dead-on. An individual must know how to do the correct thing at the correct place and at the correct time. The next major principle of the Bhagavat Gita is to work without considering the consequences (Mukherjee, 2017). An individual who is inclined to look after any work without attaching himself to the fruits of the same can achieve success and accomplish mental peace at the same time. There are various other principles that the study has talked of. The study has also tinted the teachings of the Holy book to resolve organizational conflicts with ease. The context of the Bhagavat Gita is considered to be allegorical in nature. Though the teachings have been spoken in a war environment nearly 2200 years ago, it is still relevant and can be used in multiple branches of human troubles and dilemma including business management.

According to Acharya (2015), decision making is the core assignment of any managerial personnel. To make the precise decision at the exact time without giving in to moral dilemmas is the main standard of business management. The study debates about the age old Bhagavat Gita and its commentary on the human mind and means to control the same. The study emphasizes on the history of the book and its

impression on the modern day business arena. It also mentions that the dialogue form of communication is used in the book which makes the message clearer and more direct towards the audience (Mohajan, 2018, p. 28). The researcher also talks about the meaning and forms of yoga that one needs to perform as per the book to grab control on the mind, which, otherwise can cause havoc to one's mental peace and no work could be accomplished in the veracious method.

The Bhagavat Gita states that the mind can be a great friend or a great foe to an individual depending upon how he indulges the same. The paper also talks about non attachment towards the result of any work and concentrating on the work itself for a better productivity and contented lifecycle. The paper also opines that personality management is the apex function in the business arena and it overpowers most other branches of business management such as reserve, cash and wealth management (Mohajan, 2018, p. 28). The researcher further articulates that most of the Indians are well aware of the fundamental teachings of the Bhagavat Gita whether they have gone through the same or not. As the Holy Bible is to the Western society, the Holy Bhagavat Gita is to the Indian fraternity. The researcher concluded with the statement that the Bhagavat Gita is still very much relevant in all fields of human occupations including business management.

### III. RESEARCH METHODOLOGY

In the contemporary years, corporate stress has developed a major exertion in the realms of business and many have succumbed to the same. It is worth noting that the stress that an individual employee goes through, not only impressions his or her state of mind but also his or her overall work yield and organizational target achieving aptitude. The concerned study endeavors to rejoiner the question, whether the Indian Holy book, the Bhagavat Gita has any influence over the modern day corporate stress management. The Bhagavat Gita instils how to fetch control of one's mind and operate it to its fullest potential (Mukherjee, 2017). The study uses both primary as well as secondary data on employee stress in recent years. The study implies quantitative research wherein the relationship between the derived data will be ascertained (Mohajan, 2018, p. 28).

The primary data has been collected through survey questionnaire. The concerned research article has implied online method of survey research and comprises of 25 respondents on the primary data aspect of things. The researchers have attempted to develop a null hypothesis that is-  $H_{1=>Y} = f(X_i, X_{ii})$ , Here, Y is the dependent variable whereas  $X_i$  and  $X_{ii}$  are the independent variables. Y, in this study, represents the success rate of the concerned employees in their respective areas of operation in the recent past whereas

$X_i$  and  $X_{ii}$  represents self-restraint and ethical conscience of the employees respectively, the two major qualities that have been conveyed in the Bhagavat Gita. It is to be distinguished that the study entails the use of judgmental sampling technique. The statistical package IBM SPSS and Microsoft excel that are meant for research and analysis purposes have been used in the study for the analysis of the collected data (Fletcher, 2017, p. 185).

### IV. FINDINGS AND SUGGESTIONS

Today's corporate ecosphere has become the epicenter of extreme mental hassle and unease. Most of the people operational in this sector is facing the challenge to keep themselves motivated and at peace to overwhelm the ever increasing tussle in the concerned field. As per current surveys that are being steered across the globe, the United Nations of America has come up with some jaw dropping upshots on employee's mental health on the work. Near about 83% of the total corporate workforces in the country suffer from some sort of mental stress. The commercial houses lose nearly \$300 billion per annum in-order to pay for the medical treatments of their employees (Parthasarathi et al., 2017, p. 40). The matter worsens when the surveys suggest that only 43% of the employed workers think that they are taken care of by their employers or immediate superiors. These data endangers the basic pillars of management time-honored by the so called fathers of modern business management. However, if one goes back in time, the matter was not this serious nearly a decade ago. In the initial days of the 21<sup>st</sup> century, employee stress levels were not that extraordinary (Mukherjee, 2017). Therefore, it is definitely a matter of great concern that in these 20 years what drastic vagaries might have materialized that the situation is worsening day by day. As per the reports of the European Agency for safety and health at work 2005, there was a decrease in the parameters of work stress at the beginning of the 21<sup>st</sup> century.

*Table 1:* Parameters of Work Stress at the Beginning of the 21<sup>st</sup> Century

Question	1995	2000	2005
Does labor disturb well-being	57%	60%	31%
Strain	28%	23%	18%
Exhaustion	20%	23%	18%
Pains	13%	15%	13%
Back pain	30%	33%	21%
Impatience	11%	11%	10%
Anxiety	7%	7%	9%

Source: (European Risk Observatory Report, 2005)

As per the above cited table is concerned, the data austere designates towards a decline in the parameters of work related stress in the European union in the early years of the 21<sup>st</sup> century. However, recent reports on the same would voice otherwise. In the early months of 2018, two eminent employee assistance providers to Indian organizations shepherded a survey on employee stress management, and the results were

deplorable (Mukherjee, 2017). The two leading employee assistance providers, Optum and Itohelp.net found that among 8 lakh employees across the country almost half were travelling from some sort of mental agony or stress related to their respective work (Mehta et al., 2018, p. 118). The results, although shocking, could not be unkempt as the survey comprised of around 70 large corporations of the nation.

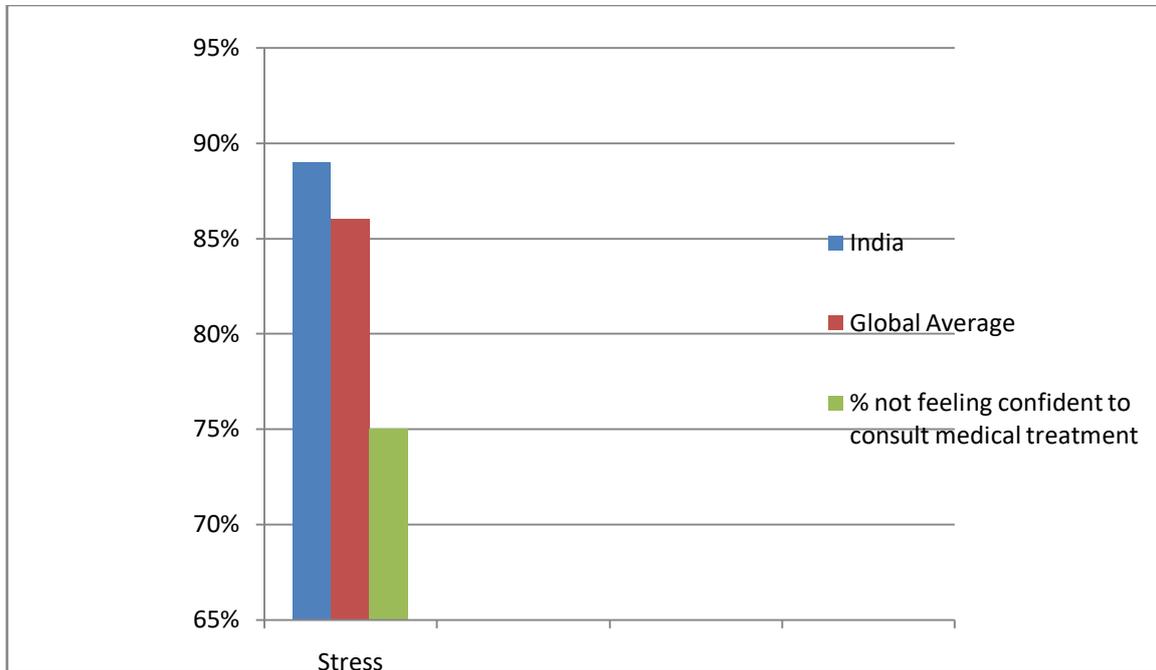


(Source: The Economic Times, 2018)

*Figure 1:* Unmanaged Stress of Employees in India

As per a survey of The Economic Times, in 2018 near about 8% of the corporate employees of India has confronted such a high levels of mental stress that they have developed mental sickness (Basu, 2019, p. 22). This figure was nearly half just a couple of years ago in 2016 (The Economic Times, 2018).

According to the World Health Organization, the corporate world across the globe mislays around \$1 trillion per year on the treatment of their stressed out employees so that their drudgery is not hampered and the organizational cycle remains unhindered (Mehta et al., 2018, p. 118).

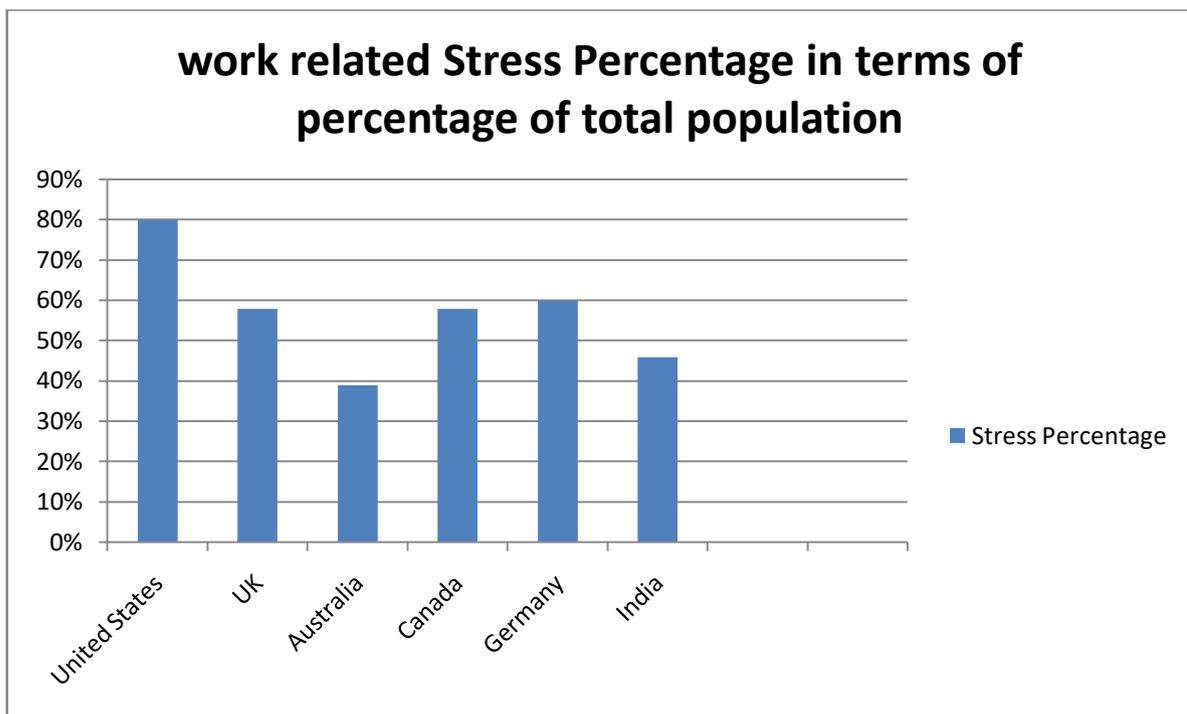


(Source: The Economic Times, 2018)

Figure 2: Percentage of Corporate Personnel having stress in India

According to a recent survey conducted by The Economic Times, it has been perceived that around 89% of the employees working in the corporate sector in India are suffering from symptoms of mental stress and hyper tension (Basu, 2019, p. 21). It has to be kept in

mind that the global mean in this regard is around 86% (The Economic Times, 2018). The survey further suggests that out of this 89%, nearly around 75% hesitate to consult a medical expert on the matter (Sardana, 2018, p. 41).



(Source: Harish Saras, 2020)

Figure 3: Work Related Stress Percentage

The above mentioned graphical representation shows how India fairs in terms of overall stress without keeping in concern, work as the only cause of hassle. The data clearly displays that near about 46% of the Indian population irrespective of their employment status has shown indications of stress (Mehta et al., 2018, p. 118). However the results are even more appalling if other countries such as the United States and Canada are taken into consideration.

As per certain eminent scholars, the chapter VI of the Bhagavat Gita has a cook-book approach towards the regulation of the mind (Munoz et al., 2020, p. 221). In this book, one may discover the utmost elucidation to the delinquent of the hour. The book sheds light on all minutiae that are to be well-thought-out in order to control the mind. It states, that the mind is the prevalent comrade of human being if properly controlled otherwise can become the supreme foe of the same. In verse 4 of the chapter VI of the book, Krishna, the divine one, says that, one who performs all the errands without paying heed to the fruits or result of the same can lead a life of a yogi thereby not giving in to worldly pleasures and the consequence related stress of the labor (Sailaja & de Souza, 2017). The book has also focused on Yoga, it states how much to eat as well as how to sleep and meditate to eradicate stress of all kinds. As per the understanding of the researchers, the book stands on the stakes of selfless service, self-restraint as well as ethical conscience. The book

portrays how beautifully the Lordreliefs the pandava prince Arjuna, who was suffering from deep anxiety and depression on the battlefields of Kurukshetra (Munoz et al., 2020, p. 221). The verse 7 of the chapter exquisitely explains, an individual who has dominated the mind, he or she has already touched the celestial soul and for such an individual, cheerfulness and melancholy, warmth and taciturn, reputation and degradation are nothing but the same. It might be true that it is easier said than done however, the book also states that it is quite difficult to control the mind for an ordinary individual. In order to do so one might need to transform himself into a yogi or the mystic one. A yogi is one, who treats all men equally irrespective of his input whether positive or negative on his life (Munoz et al., 2020, p. 221). The book also offers valuable niceties on how one should meditate to bring his mind under his switch. The individual is directed to clutch his or her physique, neckline and cranium vertical in a straight stance and gaze steadily at the tip of the nose. This, according to some scholars like Kashinath Upadhyaya, has had immense effect on the concentrating capacity of individuals and on the ability to let go infuriating thoughts (Alhat, 2019).

The study has conducted a survey of 25 respondents in-order to ascertain answers to the inquiries regarding employee work stress in the modern corporate world. The results of the survey are nothing less than bewildering.



(Source: Author's Creation)

Figure 4: Responses relating to Work Stress

The above mentioned pie chart shows that out of 25 respondents, 17 admitted that they have faced work related stress in the last 6 months. Another 4

respondents said that they were partly affirmative to the phenomenon. Therefore if added, near about 84% of the

total respondents has tackled stress related troubles in some form or the other in the last 6 months.

The researchers have also conducted a bivariate regression analysis to prove their hypothesis. The null hypothesis ( $H_0$ ) is that the rate of success of an individual respondent is the dependent variable(y)

whereas self-restraint ( $X_i$ ) and Ethical conscience ( $X_{ii}$ ) are the two independent variables. Therefore  $H_0 \Rightarrow y = f(X_i, X_{ii})$ . As the details were entered into IBM SPSS and the analysis was performed, the following results have been obtained.

Table 2: Results of Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760 <sup>a</sup>	.577	.539	.59868

From the above table it can be found that the R square value is 0.577 which indicates that there remains a stout relation between the variables and y is exceedingly dependent on  $X_i$  and  $X_{ii}$ . However, there also remains a fair amount of standard error of 0.599 which advocates that there is a further opportunity of research on the particular sphere. It is quite evident from the analysis that the success of any individual depends heavily on their individual self-restraint capability and ethical awareness. It is baffling that the age old Holy book: the Bhagavat Gita standpoints on the principles of self-restraint and ethical consciousness and these two factors profoundly affect an individual's accomplishment at work place even after 2200 years of the Book's conception.

## V. CONCLUSION

Finally, it can be concluded that the age old Holy book still has applicability in the modern day corporate stress management to a prodigious extent. The basic supports of the Bhagavat Gita, self-restraint and ethical conscience are significant even today and highly upshot the success rate of an average corporate worker. However, there still remains a wide area in this realm to be further combed. The domain itself is extremely vast and dynamic. As per the study, the Bhagavat Gita still holds relevance in the modern age and one can definitely look up to it in order to contest mental stress and work related ethical dilemmas.

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## APPENDIX

A study on the influence of the Bhagavat Gita on modern-day corporate stress management.

Questionnaire

A. Demographic Questions

Q1. Name of the respondent

Q2. Name of the Department

Q3. Name of the Designation

Q4. Age (in years)

Q5. Gender

Q6. Total Experience (in years)?

Q7. Highest attained qualification

B. Questions to ascertain the rate of success of the employees

Q1. Have you achieved the organizational targets at your work-place in the last 6 months?

Yes

No

Partly Yes

Partly No

Q2. Have you been recognized as the employee of the month in the past 6 months?

Yes

No

Partly Yes

Partly No

Q3. Have you been promoted in the last 6 months for at-least once?

YES

No

Partly YES

Partly No

Q4. Have you been appreciated by your immediate supervisor in the last 6 months?

YES

NO

Partly Yes

Partly No

C. Questions to ascertain the level of Self-Restraint the respondents have

Q1. Have you faced any conflict with your fellow employee in the last 6 months?

YES

No

Partly YES

Partly No

Q2. Do you think it is absolutely necessary to be vocal about your grievances to your immediate supervisor?

YES

No

Partly YES

Partly No

Q3. Have you faced any work related stress in the last 6 months?

YES

No

Partly YES

Partly No

Q4. Has stress affected your physical health and work productivity?

YES

No

Partly YES

Partly No

Q5. Do you consult the Bhagavat Gita or any other Holy book in times of trouble to seek inner peace?

- YES
- No
- Partly YES
- Partly No

Q6. Do you think that the Bhagavat Gita has any relevance in the modern day corporate stress management?

- YES
- No
- Partly YES
- Partly No

D. Questions to ascertain the amount of Ethical consciousness the respondents possess.

Q1. Will you be vocal against any injustice meted out to your fellow employee even if it hampers your own position in the organization?

- YES
- No
- Partly YES
- Partly No

Q2. Do you think it is always necessary to be ethical at your work place?

- YES
- No
- Partly YES
- Partly No

Q3. Have you faced any ethical dilemma at your work place?

- YES
- No
- Partly YES
- Partly No

Q4. Do you think you have the ability to combat an ethical dilemma?

- YES
- No
- Partly YES
- Partly No

Q5. Are you satisfied with your current work?

- YES
- No
- Partly YES
- PartlyNo



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## Understanding the Dilemmas of Workplace Diversity: Personality Perspective

By Hazal Koray Alay

*Abstract- Purpose:* The aim of this study is to demonstrate the relationship of diversity and personality at workplace. This article is a work combining and summarizing two scientific studies focused on the relationship between diversities and personality.

*Methodology:* The research is a quantitative research in terms of the data collection and analysis method and also systematic review method. The first study provides the results of the survey data collected from 532 employees in order to measure employees' perception of diversity. Its results demonstrated that the personality is the primary source of diversity as the multiple choice questions that were aimed at measuring employees' perception of diversity. In order to see whether this result has a global equivalent, the second study was conducted. The second study aimed to combine the results of independent studies examining the concepts of "diversity and personality". By using the systematic review method it analyzed 21 empirical research articles published between 1975-2020 in the ISI Web of Knowledge database.

*Keywords:* perception of diversity, differences, diversity dilemmas, personality, systematic review.

*GJMBR-A Classification:* JEL Code: M10, M14, M54



*Strictly as per the compliance and regulations of:*



# Understanding the Dilemmas of Workplace Diversity: Personality Perspective

Hazal Koray Alay

**Abstract- Purpose:** The aim of this study is to demonstrate the relationship of diversity and personality at workplace. This article is a work combining and summarizing two scientific studies focused on the relationship between diversities and personality.

**Methodology:** The research is a quantitative research in terms of the data collection and analysis method and also systematic review method. The first study provides the results of the survey data collected from 532 employees in order to measure employees' perception of diversity. Its results demonstrated that the personality is the primary source of diversity as the multiple choice questions that were aimed at measuring employees' perception of diversity. In order to see whether this result has a global equivalent, the second study was conducted. The second study aimed to combine the results of independent studies examining the concepts of "diversity and personality". By using the systematic review method it analyzed 21 empirical research articles published between 1975-2020 in the ISI Web of Knowledge database.

**Findings:** The second study confirms that the quantitative (the first) study carried out in the particular case of Turkey has a significant equivalence in global area in terms of its results.

**Conclusion:** In summary, personality is considered as an important source of individual diversity. This research is important for researchers, academics and business world who want to examine the differences in business life and personality relationship as a holistic evaluation of the academic development on the subject

**Keywords:** perception of diversity, differences, diversity dilemmas, personality, systematic review.

## I. INTRODUCTION

It is an undeniable fact that diversity has become the part of social reality in modern Western societies (essentially due to globalization and migration). This is a modern and organizational phenomenon inevitably reflecting itself in the real labor force. In the past two decades, there has been an intense interest in diversity among both organizational researchers and practitioners. Its underlying reasons include numerous factors such as the change in global dynamics, globalization, free movement of the workforce, mergers around the world, international agreements, legal obligations, differentiation of the socio-cultural structure in business life, the participation of women in business

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life in terms of numbers and acquiring higher positions, employees with different political, religious and cultural identity. This overall transformation replaced uniform and homogeneous organizational structures with other organizations shaped under the predominance of heterogeneous structures. In this context, organizations need to manage these differences correctly instead of ignoring them.

People are born in various shapes, sizes and colors. These differences are features that distinguish people from others. Individual differences are widely accepted as important predictors of behavior, attitudes and outcomes in the workplace. At this point, it is very important for organizations to understand which features are considered as sources of diversity by their employees. In this context, there are two interconnected scientific studies in this article. The first study is a quantitative research conducted to measure employees' perception of diversity. The second study, guided by the results of the first, is a study in which the results of the research articles that examine the relationship between differences and personality are evaluated in a holistic way.

This article provides an important resource for future studies since it evaluates the scholastic development of relationship between diversity and personality in working life in an holistic approach. It is also important for researchers, academics and business world who are interested in the subject.

## II. LITERATURE REVIEW

Defining diversity requires an intensive effort. The term has more than one overlapping and often contradictory meaning (Avery et al. 2004, 33). However, it is necessary to make a definition to determine the framework of our discussion. Various definitions related to the concept of diversity have been made. The term difference is generally related to the size of differences between human groups. However, the difference was previously conceptualized by researchers with a narrow approach. In particular, it is limited to issues of race, ethnicity and gender. However, the definition of diversity was later expanded by adding qualities such as gender, age, race, ethnicity, socio-economic status, social class, personality, religion, education, sexual orientation, language, disability status, national origin, learning style,

lifestyle and geographical region (Yeo, 2006, 10). This definition of diversity actually reveals the category of difference at a superficial and deep level. Superficial differences include demographic characteristics such as gender, age, language and deep differences include attitudes such as sexual orientation, political opinion, lifestyle, personality (Harrison, Price and Bell, 1998, 96). All definitions made about the topic vary according to the focus dimension.

People are born in a variety of shapes, sizes and colors. This diversity is what distinguishes people

from others. Human beings are separated from each other as individuals and groups due to their biological and environmental differences. This situation, which forms the spectrum of human diversity, reveals a wide range of physical and cultural differences. This diversity consists of a range differences from people when evaluated as a whole (Hubbard, 2004, 29). There are many different sizes in the range of differences. The following figure 1 summarizes these dimensions. These dimensions were summarized in Table 1.

Table 1: Dimension of Diversity

Factor approach	Two-Category Factor Approach	Primary and Secondary Diversity
		Highly Job Related and Less Job Related Diversity
		Readily Detectable Diversity and Less Observable Diversity
		Surface and Deep face Diversity
	Multi-Category Factor Approach	Mc Grathi Berdahl and Arrow (1995) Classification
		Jehn, Northcraft and Neale (1999) Classification
		Point and Singh (2003) Classification
		Hubbard (2004) S Classification
		Mannix and Neale (2005) Classification
	Ratio Approach	Minority and Majority Groups
Skewed Groups		
Tilted Groups		
Balanced Groups		

Source: Alay, H.K. (2020), *Awareness Of Diversity In Organizations: Evaluation Of Individual And Organizational Outcomes*, PhD dissertation thesis, p:2, Yildiz Technical University, İstanbul

Most of the time, people limit differences to what they can see because what appears includes what people know before they start talking. People are generally more sensitive when they have stereotyped judgment based on primary dimensions, but more insensitive to secondary dimensions. Secondary differences are our differences in which we choose or have the power to change (Hubbard, 2004, 32). From this point of view, differences that can be observed (readily detectable attributes) and not observed (underlying attributes) at work are discussed in two groups, with a mission-oriented and relationship-oriented focus by Jackson, May and Whitney (1995, 2004). Task-oriented differences that can be easily observed are classified as tenure in the organization, tenure in the team, department/ unit studied, official credentials and level of education, while relationship-oriented differences are classified as gender, culture (race, ethnic identity, national origin), age, membership in official organizations (religious or political) and physical characteristics. Unobserved task-oriented differences are classified as knowledge, skills, talent (cognition and physical) and experience, while relationship-oriented differences are classified as social status, attitudes, values, personality, behavior and

spatial social bonds. Visibly differences dimensions as educational status, marital status, work experience, religious belief and political ideologies. As all these assessments can be understood, diversities are divided into two and classified as factors and ratios approach. Factor approach is examined under two headings: two categories and multi-categories. The ratios approach is an alternative to the factor approach. Classifications made by different authors in different ways have a great importance to understand what subjects people differ from.

In this research article, the personality differences of the employees are examined. There are many studies in the literature that address personality in different ways from a typeological point of view. These include Myers-Briggs's sixteen-personality type, Eysenck's five large personality types and Friedman and Roseninan's Type A and B personality types (Schwarzkopft and his friends, 2016).

All individuals have their own personality and these personality traits turn into behaviors due to internal and external factors. Personality is the sum of the characteristics that individuals bring in birth and the characteristics of living in society afterwards. The values in the society in which individuals live in the moral values

that individuals see in the family, age and beliefs are effective in the formation of personality (Golpayegan, 2017). The five factors of personality developed by McCrae and Costa (1985) consist of openness,

conscientiousness, extraversion, agreeableness dimensions and are seen as an approach that covers the whole personality traits. The structure of five factors personality is shown in table 2.

Table 2: The Structure of the Five-Factor Personality

Personality dimension	Characteristics
Conscientiousness	These people are careful, reliable and meticulous. Their working life is planned and their targeted behaviors are clear.
Agreeableness	These people are trustworthy, easygoing, self-sacrificing, they are straightforward and humble.
Neuroticism	This dimension is defined by features such as excited, insecure, and angry, and the emotional balance of these types of people can change frequently.
Openness	They are open to innovations. They are imaginative, adventure-loving, curious and creative.
Extraversion	Their social communication skills are strong and therefore stand out in social groups. They are positive, energetic, social, cheerful and dominant.

Source: Perry, L. M., Hoerger, M., Molix, L. A., & Duberstein, P. R. (2019). A validation study of the Mini-IPIP five-factor personality scale in adults with cancer. *Journal of Personality Assessment*, 1–11.

People’s way of thinking, behavior, emotions, appearances, abilities, ways of detecting events and their reactions to these events and facts are always different. These differences are often caused by personality traits. It is a result of personality that different people react differently to the same event. Even in individuals who receive the same education, who grow up in the same social environment, who grow up in the same cultural environment, they approach the same event differently. The structure that affects people’s relationship with their environment and guides their behavior is called personality (Durna, 2005).

### III. METHODOLOGY AND DATA ANALYSIS

#### a) Study 1

The sample of the study is the employees in Istanbul. It chose Istanbul since this metropolis provides

the dynamic engine of Turkish economy, has a multicultural structure, offers opportunities to people with different religions, languages, races and nations to live together. Yazıcıoğlu and Erdoğan (2004, 50) states that for the universe whose population is over 1 million and with ± 0.05 sampling error for  $\alpha = 0.05$ , the sample size of 384 should be sufficient. In this study, the data obtained from 532 employees subjected to the analysis. It used snowball sampling style in the process of quantitative data gathering. In order to measure the perception of diversity among employees it utilized multiple-choice questions developed by Tatlı and Özbilgin (2012). To structurally define the data obtained from the sample group of the research, it evaluated the frequency distribution. In this context, Table 1 below shows the data on the socio-economic characteristics of employees.

Table 1: Socio-Economic Characteristics of Employees

Identity Structures	Frequency	Percentage	
Cultural Identity	Turkish	274	51.5
	Kurdish	173	32.5
	Immigrant	43	8.1
	Armenian	42	7.9
	Total	532	100
Religious Identity	Sunni Muslim	300	56.5
	Alevi	72	13.5
	Atheist	64	12.1
	Deist	53	9.9
	Christian	22	4.1
	Agnostic	21	3.9
	Total	532	100

Political Identity	Conservative	60	11.2
	Nationalist	75	14.2
	Social Democrat	136	25.6
	Liberal	94	17.6
	Socialist	167	31.4
	Total	532	100
Gender	Women	296	55.6
	Men	236	44.4
	Total	532	100
Sexual Orientation	Heterosexual	451	84.7
	Homosexual	81	15.3
	Total	532	100

Table 2 shows the data regarding the perception of diversity among employees who were included in the research sample.

*Table 2: Results on Aspects Distinguishing People from Each Other*

Difference	Frequency	Rate%
Sex	24	4.5
Ethnic Origin	49	9.2
Age	30	5.6
Disability	20	3.8
Education	139	26.2
Culture	162	30.5
Religion	37	6.9
Origin Country/Region/City	91	17.1
Sexual Orientation	30	5.6
Marital status	14	2.6
Using religious symbols	35	6.6
Personality	360	67.6
All of them	51	9.5
None of them	152	28.5

In the first question that was devised to measure the perception of diversity among employees, when we examine the data about what distinguishes people from each other, a very small percentage of the participants see the primary (observable) features as a source of diversity. According to the data, while 26.2 %

of the participants see the educational status as the source of diversity, those who choose culture is 30.5% and the personality is 67.6%. In addition, 28.5% of the participants do not see any of the listed items as differences.

*Table 3: The distribution of perceptions regarding people who do not want to be different people in the same team*

Difference	Frequency	Rate%
Sex	37	6.9
Ethnic Origin	45	8.4
Age	15	2.8
Disability	7	1.3
Education	21	3.9
Culture	31	5.8
Religion	76	14.2
Origin Country/Region/City	12	2.2
Sexual Orientation	83	16.1
Marital status	10	1.8
Using religious symbols	3	0.5



Personality	226	42.4
All of them	15	2.8
None of them	189	35.5

When we examine the data on the fact that the participants do not want to be in the same team with the people who have the characteristics that they see as a difference, it is seen that the religious identity (14.2%) stands out compared to other differences. Given that Turkish people have a predominantly Sunni Muslim religious identity, this is not surprising. Similarly, the difference in sexual orientation (16.1%) is thought as a

source of undesired difference in the same team. Moreover the personality of the employees is considered as a significant difference and employees with different personality traits (42.4%) tend to be not accepted in team work. Those who answered that none of the listed difference features prevent being in the same team constitute 35.5% of the participants.

Table 4: The distribution of perceptions regarding differences that people keep their distance outside work

Difference	Frequency	Rate%
Sex	6	1.2
Ethnic Origin	11	2.1
Age	8	1.4
Disability	3	0.5
Education	27	5.1
Culture	30	5.6
Religion	10	1.8
Origin Country/Region/City	3	0.5
Sexual Orientation	39	7.1
Marital status	1	0.1
Using religious symbols (turban,mustache,etc.)	1	0.1
Personality	245	46.1
All of them	5	1.1
None of them	275	51.6

When we examine the perception of differences that participant keep their distance in their lives outside work, it is observed that the personality is the most dominant difference with 46.1%. On the other hand, 51.6% of the participants prefer not to be distant to any of the listed categories. This situation reveals the fact that differences are evaluated in the context of personality, which directs people's attitudes and behaviors in the category of deep difference, regardless of superficial differences (gender, age, educational

status, marital status, disability, Country of Origin /Region/City) as dealt in the literature.

b) Discussion for Study 1

When the data obtained from multiple choice questions to measure the perception of difference of the research participants are examined, a remarkable result indicating that the personality is considered as a source of difference came into the forefront.

Table 5: Personality in Perception of Diversity

Which option do you think makes people different from others?	Personality	360	%67.6
Which aspects of a different person make you want to be not part of the team?	Personality	226	%42.4
In your life outside work place, which aspects of people make you keep your distance with them?	Personality	245	%46.1
Total=532			

Although the personality is in the category of invisible differences, its sphere of influence is quite wide. As is known, personality is all of the ways that an individual uses to react or interact with other individuals (Robbins and Judge, 2015, 89). According to the various studies, it is observed that personality is a result

of both hereditary and environmental factors. However, there is no clear conclusion about which one is more dominant.

There are many dimensions play in role in the construction of human personality. An impressive number of studies support the thesis that there are five

more comprehensive dimensions that form the basis of all other dimensions (Digman, 1990, 417). These five basic dimensions are listed as openness, conscientiousness, extraversion, agreeableness, neuroticism. It is known that these personality traits greatly affect the behaviors in working life. For example, emotional determination of the individual decreases the stress level, extraversion increases the performance, compatibility creates a collaborative and reliable image,

and responsibility improves the leadership ability (Robbins and Jugde, 2015, 123). Having evaluated in this context, it is not a coincidence that personality is seen as a factor that differentiates people more than superficial differences.

Besides, the participants do not see any of the elements listed at high rates as a difference. The table below summarizes these rates.

Table 6: The Neutralization of Differences

Which option do you think makes people different from others?	None of them	152	%28.5
Which aspects of a different person make you want to be not part of the team?	None of them	189	%35.5
In your life outside work place, which aspects of people make you keep your distance with them?	None of them	275	%51.6
Total=532			

After people responded to the questions above that were designed with the purpose of measuring the perception of diversity among employees and defining the source of diversity as "none of them", it became necessary to re-examine the four approaches to differences in organizations that Moore (1999) has introduced. These approaches are; ignoring differences, hostility to difference, realizing differences natural and integration with differences. In the first approach, differences do not have any reference point in the organization, hence differences mean nothing. The organization is neutral against these differences. Thus, there is no attempt in any organizational area to integrate these differences. When evaluated within the framework of this approach, differences in the organization are not regarded as either an advantage or a disadvantage. There are no organizational areas where opportunities and/or problems related to differences are discussed and/or revealed. In this

context, neutralizing the differences is interpreted as a rather negative situation.

c) Study 2

The aim of the second study is to present the academic development of the relationship between personality and diversity in the first study in a holistic way. Thus, the paper will try to fill the gap in the literature by conducting a systematic review of empirical research in diversity and personality. The following steps were followed to reach the purpose of the research:

- Development of research methodology
- Scanning of the relevant electronic database
- Synthesis of diversity and personality studies

In this context, 21 empirical research articles published in the ISI Web of Knowledge database were analyzed using the systematic review method. The research has some limitations. In this context, as seen in Table 7 below, 21 articles were included in the research.

Table 7: Result of the Electronic Database Search

Name of the Electronic Database	Key Terms Searched in	Additional Limitations	Number of Articles Found
Web of Knowledge	Title=Personality and Diversity	1975-2020+ Article+english language	21

This research provides information about the theories that those articles examined based on, the variables used, the research method, the unit of analysis, the results obtained. In addition, it makes contributions to studies on diversity in organizations in various dimensions. In doing so; first, it acts as a lens to see how changes are perceived over time. Secondly, it combines current studies on "diversity and personality" to review variables that affect the perception of diversity in organizations. Third, it provides guidelines to future

studies with the holistic perspective it creates for the relationship between "diversity and personality".

The fields of articles reviewed under the scope of this study includes psychology, business economics, computer science, communication, sociology. These articles were published in journals such as: Journal Of Applied Psychology, Plos One, European Journal of Personality, The Journal of Psychology, Australian Psychologist, Emotion and PErsonality, International Journal of Conflict Management, Group Decison and



Negotiation, International Journal of Intercultural Relations, Human Computer Interaction Series. Table 8 provides detailed information on these articles reviewed in this study.

*Table 8:* The Evolution of Diversity and Personality Research

NO	Source Title	Dimension	Theory	Unit of Analysis	Country	N of sample	Methodology	Outcomes
1	Timmer et al. (2002)	Personality, Diversity	Information Systems Theories	Information System Development team members	USA	88	Survey, statistical analysis	Task and Relationship Conflict, Team effectiveness
2	Van Der Zee et al (2004)	Personality, Cultural Diversity	Social Identity Theory	Students	UK	228	Survey, statistical analysis	Commitment, Performance, Well-Being, Social Identification
3	Molleman (2005)	Personality, diversity, team autonomy	Social categorization theory, Faultline theory	Students	Netherlands	396	Survey, statistical analysis	Cohesion, Conflict
4	Van Der Zee and Van Der Gang (2007)	Personality, Diversity, Threat Conditions	Terror Management Theory, Self-Categorization Theory	Students	Netherlands	162	Survey, statistical analysis	Emotional stability, Social Initiative
5	Newman and Lyon (2009)	Personality, Diversity, Recruitment effort	Expectancy theory, Racial formation theory	Students	USA	594	Survey, statistical analysis	Job performance, Adverse Impact
6	Emmanuelle and Davidson (2009)	Individual Differences	Trait theory	Translators	UK	20	Process Research	Translation quality
7	Yakunina et al (2012)	Multicultural Personality		Students	USA	341	Survey, statistical analysis	Openness to diversity, adjustment
8	Inbar and Lammers (2012)	Political Diversity, Personality	Cognitive-motivational theory	Psychologists	Netherlands	800	Survey, statistical analysis	Hiring discrimination
9	Fisher et al (2012)	Personality and Diversity		Students	USA	186	Survey, statistical analysis	Performance, Coordination, Composition
10	Butrus and Witenberg (2013)	Personality	Social cognitive theory, Five-factor Theory	Individuals	Australia	118	Survey, statistical analysis	Tolerance to Diversity
11	Ackerman and Arckerman (2015)	Personality, Ethnic Diversity	Contact theory	Immigrants	Switzerland	1157	Survey, statistical analysis	Equal Opportunities
12	Alshamsi et al (2016)	Personality and Diversity	Personality theory	Italian native speakers	Italy	3094	Statistical analysis	Economic wellbeing, Communication
13	Pogson (2016)	Personality and Diversity	Agent-based model	Parameter Values	1000 random combination of parameter values		Sensitivity Analysis with Python	Consensus Decision Making, Aggregation
14	Han and Pistole (2017)	Personality	Intergroup threat theory	Students	USA	514	Survey, statistical analysis	Openness to diversity, Agreeableness

15	Shira et al (2018)	Personality, Culture, Ancestry Diversity	Personality theory	Students	56 different cultures	17837	Survey, statistical analysis	Tolerans to Differences, Facilitates cooperation
16	Wu et al (2018)	Personality, Behavior History	Psychometric Theory, LaBarrie theory	Douban Interest Group social media site	China	1706 users	User survey	Recommender system Diversity
17	Bhatti et al (2019)	Personality, Psychological diversity climate	Social Exchange Theory	Faculty members	Saudi Arabia	258	Survey, statistical analysis	Job satisfaction, Performance
18	Anglim et al (2019)	Personality, cognitive ability	Role congruity theory	Working adults	Australia	731	Survey, statistical analysis	negative attitudes to workplace diversity
19	Lukaszewski et al (2019)	Personality, Diversity				Commentary		Socioecological Complexity
20	Seong and Hong (2020)	Personality, Diversity	Role congruity theory	Manufacturing company employees	Korea	1265	Survey, statistical analysis	Conflict
21	Smaldino et al (2019)	Personality, Diversity	Socioecological theory	Global sample		19000	Computational model	Social and ecological niches

In this context, the individual and organizational outputs examined in the articles related to personality and diversity are summarized as follows:

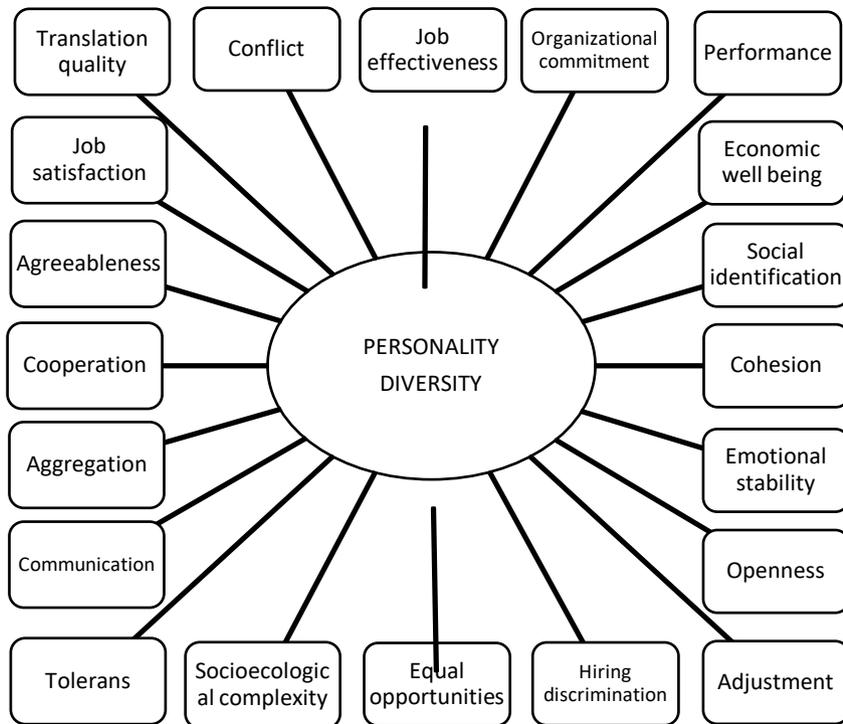


Figure 1: Outcomes of Diversity and Personality Research

d) *Major Finding of Diversity and Personality Research*

In the articles reviewed under the scope of this study, personality-based differences are examined as one of the most important factors that affect individual and organizational outputs. The personality traits of employees have impact on working environment and group behaviors. In this regard, some important and interesting results of the study can be summarized as follows:

- Personality traits subjected to examination based on the categories Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism (Big Five personality traits). Also some of the reviewed articles used HEXACO model of personality structure (Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience).
- In organizational terms, both the demographical quality and personality traits of employees have impact on the possibility of conflicts within working teams.
- Differences in personality have strong impact on the efficiency and performance of working groups in organizations.
- Personality traits (Emotional Stability and Flexibility) have a positive effect on organizational outcomes under high intercultural diversity conditions.
- The role of personality is important in the process of cultural adaptation. Emotional stability, open-mindedness, and flexibility facilitates the adaptation process of international students.
- Compatibility personality traits are significantly correlated with the performance and outcomes of working teams consisting of different ethnic origins.
- Personality traits have a differentiating effect on communication.
- Stable personality traits have an impact on unanimous decision making.
- Stable personality traits increase job satisfaction and performance in multicultural settings.
- Individuals with personality traits such as honesty, modesty, extraversion and openness, have been associated with more positive attitudes towards diversity in workplace.
- Attaching much more weight to power, security and tradition, and underrating humanism have been associated with more negative attitudes towards diversity in workplace.

e) *Discussion for Study 2*

Human differences demonstrate themselves in almost all areas of life. In this context, differences in working life are of great importance. If we briefly summarize the results we obtained as a result of our evaluation and synthesis;

- The vast majority of studies examined in this study deal with the issue of personality in the context of the Big Five personality traits. Based on the fact that the personality traits are not independent from the geography and culture, it could be said that culture shapes attitudes and behaviors developed against these differences.
- It can be said that the personality traits mostly associated with differences are openness and compatibility.
- It has been determined that personality traits affect individual and organizational outputs. The flexibility and compatibility of individuals affect openness to differences and tolerance in a positive way. Extroverted and closed personalities strengthen the environment of conflict by negatively affecting organizational outcomes in multicultural teamwork. Similarly, personality traits affect outcomes such as commitment to the organization, job satisfaction, and performance. In this context, it can be said that multicultural international organizations should pay attention to diversity management practices in recruitment process.

However, it must be noted that all these evaluations were carried out under the limitation of the articles in the relevant database. It is hoped that our study based on the evaluation and synthesis of the relationship between diversity and personality relationship would be a reference for further studies.

#### IV. CONCLUSION

This article combines two studies interrelated with each other. The first study aims to contextualize the source of diversity as perceived by employees. The data set we analyzed demonstrates that personality is the most important source of difference. In addition, it is determined that people tend to neutralize differences by ignoring them. At this point it raises this question: Is it right to see and accept the differences or to ignore them? Within the framework of this approach, differences in the organization are not regarded as either an advantage or a disadvantage. There are no organizational areas where opportunities and / or problems related to differences are discussed and / or revealed. In this context, the neutralization of diversity is interpreted as a rather negative situation.

In the second study, the one guided by the results of the first study, evaluations and syntheses were made for independent research articles in which the relationship between difference and personality was examined. According to its results, the first study based on survey method which was conducted in Turkey case has significant equivalence in global level. As a result, personality come into the light as a primary source of individual difference in the light of the evaluations we made by means of aforementioned articles.

The first study, in which personality is perceived as the most important source of difference, and second study shows us the importance of personality differences in terms of working life. It was also revealed in the systematic review that instead of ignoring the differences and awareness of the differences affected individual and organizational outcomes. Ignoring the differences of employees reduces productivity and effectiveness. In addition, considering the differences as an advantage, creating a space for different employees affects positively the individual and organizational outcomes.

This research is important for researchers, academics and business world who want to examine the differences in work life and personality relationship as a holistic evaluation of the academic development on the subject.

## V. ETHICS DECLARATIONS

*Funding:* No grant funding was obtained or utilized for the completion of this study.

*Conflict of interest:* The authors declare that they have no conflict of interest.

*Ethical Approval:* All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

*Informed Consent:* Informed consent was obtained from all individual participants included in the study.

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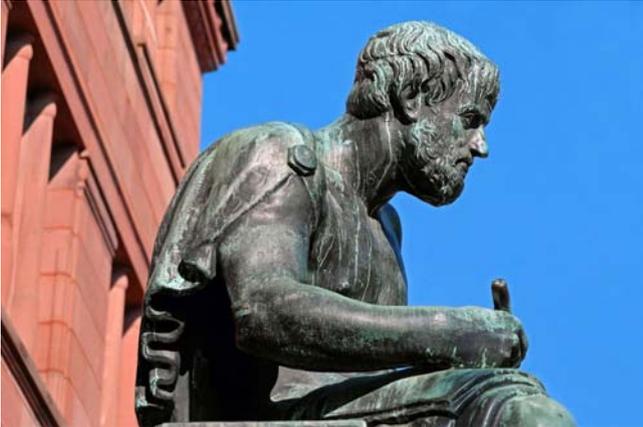
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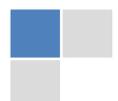
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Career

Credibility

Exclusive

Reputation

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ASSOCIATE OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL is the membership of Global Journals awarded to individuals that the Open Association of Research Society judges to have made a 'substantial contribution to the improvement of computer science, technology, and electronics engineering.

The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Associate membership can later be promoted to Fellow Membership. Associates are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Associate Members.



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Global Journals sends a letter of appreciation of author to the Dean or CEO of the University or Company of which author is a part, signed by editor in chief or chief author.



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A AMBRC member gets access to a closed network of Tier 2 researchers and scientists with direct communication channel through our website. Associates can reach out to other members or researchers directly. They should also be open to reaching out by other.

Career

Credibility

Exclusive

Reputation



### CERTIFICATE

#### CERTIFICATE, LOR AND LASER-MOMENTO

Associates receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member's university.

Career

Credibility

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Reputation



### DESIGNATION

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Associates can use the honored title of membership. The "AMBRC" is an honored title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., AMBRC or William Walldroff, M.S., AMBRC.

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Credibility

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Reputation

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Career

Credibility

Reputation

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Financial



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Career

Credibility

Reputation



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Associates are authorized to organize symposium/seminar/conference on behalf of Global Journal Incorporation (USA). They can also participate in the same organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent. Additionally, they get free research conferences (and others) alerts.

Career

Credibility

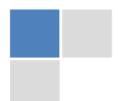
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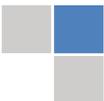
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ASSOCIATE	FELLOW	RESEARCH GROUP	BASIC
<p>\$4800 lifetime designation</p> <hr/> <p>Certificate, LoR and Momento 2 discounted publishing/year Gradation of Research 10 research contacts/day 1 GB Cloud Storage GJ Community Access</p>	<p>\$6800 lifetime designation</p> <hr/> <p>Certificate, LoR and Momento Unlimited discounted publishing/year Gradation of Research Unlimited research contacts/day 5 GB Cloud Storage Online Presense Assistance GJ Community Access</p>	<p>\$12500.00 organizational</p> <hr/> <p>Certificates, LoRs and Momentos Unlimited free publishing/year Gradation of Research Unlimited research contacts/day Unlimited Cloud Storage Online Presense Assistance GJ Community Access</p>	<p>APC per article</p> <hr/> <p>GJ Community Access</p>



# PREFERRED AUTHOR GUIDELINES

**We accept the manuscript submissions in any standard (generic) format.**

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from <https://globaljournals.org/Template.zip>

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at [submit@globaljournals.org](mailto:submit@globaljournals.org) or get in touch with [chiefeditor@globaljournals.org](mailto:chiefeditor@globaljournals.org) if they wish to send the abstract before submission.

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2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
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- Findings
- Writings
- Diagrams
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- Illustrations
- Lectures



- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

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2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

### Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

### Acknowledgments

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Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



### ***Manuscript Style Instruction (Optional)***

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

### ***Structure and Format of Manuscript***

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



## FORMAT STRUCTURE

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

### **Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

### **Author details**

The full postal address of any related author(s) must be specified.

### **Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### **Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

### **Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

### **Abbreviations**

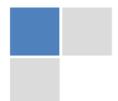
Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

### **Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

### **Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



## Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

## PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

## TIPS FOR WRITING A GOOD QUALITY MANAGEMENT RESEARCH PAPER

Techniques for writing a good quality management and business research paper:

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice. Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

#### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

#### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

#### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.



**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

**Procedures (methods and materials):**

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*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.



**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
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- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

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Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

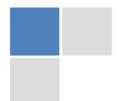
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- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.



**Approach:**

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Describe generally acknowledged facts and main beliefs in present tense.

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<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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